

October 17, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 17, 2013

Sample Delivery Group (SDG) No.	1305306RI
Samples	BSV-1, BSV-2 Shallow, BSV-2 Deep, BSV-3 Deep, BSV-4 Shallow, BSV-4 Deep, BSV-5 Shallow, BSV-5 Deep, and BSV-6 Shallow
Field Duplicates	BSV-5 Shallow and DUP

Tetra Tech, Inc. conducted data validation of the analytical results for ten air samples (including one field duplicate) that were collected at the Bozeman Landfill site in Bozeman, Montana, on May 9 and 10, 2013. The samples were analyzed under SDG No. 1305306R1 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates

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- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1305306R1 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. Method blanks associated with the full scan analysis contained target analytes acetone and ethanol below the reporting limits (RL). Method blanks associated with the SIM analyses contained target analytes benzene and toluene below the RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant acetone) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits. No data were qualified.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits with the exception of the May 20, 2013 full scan analysis LCS and LCSD percent recoveries for 3-chloropropene (146 and 139), and carbon disulfide (137 and 137), the May 21, 2013 full scan analysis LCS and LCSD percent recoveries for 2,2,4-trimethylpentane (137 and 141), 3-chloropropene (146 and 142), and carbon disulfide (140 and 140), all of which exceeded the associated upper QC limit. All positive results for these three compounds were qualified as estimated and possibly biased high ("J+").

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SAMPLE DILUTION

The following sample dilution was performed due to the presence of a high concentration of Freon 114 and tetrachloroethene:

Sample Identification	Dilution
BSV-5 Deep	3.50x

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, this data package was reissued as R1 on 7/8/2013 to report additional compounds and to report estimated values for target compounds detected above the DL but less than the RL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1305306R1

(Fifty Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1305306R1

(Two Sheets)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-1	Date/Time Analyzed:	5/20/13 09:04 PM
Lab ID:	1305306R1-01A	Dilution Factor:	2.20
Date/Time Collecte	5/9/13 05:09 PM	Instrument/Filename:	msda.i / a052014r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.2	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.49	0.54	1.1	0.95 J
1,2-Dibromoethane (EDB)	106-93-4	0.92	0.92	1.7	Not Detected
1,2-Dichlorobenzene	95-50-1	0.78	1.0	1.3	Not Detected
1,2-Dichloropropane	78-87-5	0.28	0.51	1.0	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.54	0.54	1.1	Not Detected
1,3-Butadiene	106-99-0	0.12	0.39	0.49	Not Detected
1,3-Dichlorobenzene	541-73-1	0.91	1.0	1.3	Not Detected
1,4-Dichlorobenzene	106-46-7	0.95	1.0	1.3	Not Detected
1,4-Dioxane	123-91-1	0.38	0.40	0.79	Not Detected
2,2,4-Trimethylpentane	540-84-1	0.63	0.63	5.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.28	0.32	3.2	15
2-Hexanone	591-78-6	0.23	0.45	4.5	1.4 J
2-Propanol	67-63-0	0.18	0.27	2.7	92
3-Chloropropene	107-05-1	0.59	0.69	3.4	Not Detected
4-Ethyltoluene	622-96-8	0.45	0.54	1.1	0.96 J
4-Methyl-2-pentanone	108-10-1	0.23	0.45	0.90	Not Detected
Acetone	67-64-1	0.33	0.33	2.6	19
alpha-Chlorotoluene	100-44-7	0.71	0.71	1.1	Not Detected
Bromodichloromethane	75-27-4	0.29	0.74	1.5	Not Detected
Bromoform	75-25-2	0.44	1.1	2.3	Not Detected
Bromomethane	74-83-9	0.33	0.34	4.3	Not Detected

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-1	Date/Time Analyzed:	5/20/13 09:04 PM
Lab ID:	1305306R1-01A	Dilution Factor:	2.20
Date/Time Collecte	5/9/13 05:09 PM	Instrument/Filename:	msda.i / a052014r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
Carbon Disulfide	75-15-0	0.16	0.34	3.4	0.44 J +
Carbon Tetrachloride	56-23-5	0.49	0.69	1.4	Not Detected
Chlorobenzene	108-90-7	0.18	0.51	1.0	0.61 J
Chloroethane	75-00-3	0.26	0.29	2.9	Not Detected
Chloroform	67-66-3	0.27	0.54	1.1	0.89 J
Chloromethane	74-87-3	0.18	0.36	0.45	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.33	0.50	1.0	Not Detected
Cumene	98-82-8	0.25	0.54	1.1	0.31 J
Cyclohexane	110-82-7	0.23	0.38	0.76	2.4
Dibromochloromethane	124-48-1	0.53	0.94	1.9	Not Detected
Ethanol	64-17-5	0.34	0.34	2.1	6.0
Freon 11	75-69-4	0.12	0.62	1.2	3.4
Freon 113	76-13-1	0.54	0.84	1.7	Not Detected
Freon 114	76-14-2	0.22	0.77	1.5	Not Detected
Freon 12	75-71-8	0.32	0.54	1.1	32
Heptane	142-82-5	0.42	0.45	0.90	26
Hexachlorobutadiene	87-68-3	0.98	1.2	12	Not Detected
Hexane	110-54-3	0.17	0.39	0.78	3.4
Methylene Chloride	75-09-2	0.24	0.38	1.5	0.81 J
Propylbenzene	103-65-1	0.58	0.58	1.1	1.4
Styrene	100-42-5	0.38	0.47	0.94	0.61 J
Tetrahydrofuran	109-99-9	0.21	0.32	3.2	1.1 J

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-1
Lab ID: 1305306R1-01A
Date/Time Collecte 5/9/13 05:09 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/20/13 09:04 PM
Dilution Factor: 2.20
Instrument/Filename: msda.i / a052014r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.59	0.59	1.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	480-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	98

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-1	Date/Time Analyzed:	5/20/13 09:04 PM
Lab ID:	1305306R1-01B	Dilution Factor:	2.20
Date/Time Collecte	5/9/13 05:09 PM	Instrument/Filename:	msda.i / a052014r1.sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.060	0.24	0.12 J
1,1,2,2-Tetrachloroethane	79-34-5	0.092	0.092	0.30	Not Detected
1,1,2-Trichloroethane	79-00-5	0.047	0.060	0.24	Not Detected
1,1-Dichloroethane	75-34-3	0.013	0.044	0.18	0.086 J
1,1-Dichloroethane	75-35-4	0.012	0.044	0.087	Not Detected
1,2-Dichloroethane	107-06-2	0.0096	0.044	0.18	Not Detected
Benzene	71-43-2	0.0088	0.035	0.35	1.6
cis-1,2-Dichloroethane	156-59-2	0.022	0.044	0.17	Not Detected
Ethyl Benzene	100-41-4	0.028	0.048	0.19	0.49
m,p-Xylene	108-38-3	0.027	0.048	0.38	0.59
Methyl tert-butyl ether	1634-04-4	0.026	0.040	0.79	Not Detected
o-Xylene	95-47-6	0.024	0.048	0.19	0.55
Tetrachloroethene	127-18-4	0.025	0.075	0.30	98
Toluene	108-88-3	0.011	0.041	0.16	1.2
trans-1,2-Dichloroethene	156-60-5	0.042	0.044	0.87	Not Detected
Trichloroethene	79-01-6	0.033	0.059	0.24	2.3
Vinyl Chloride	75-01-4	0.013	0.028	0.056	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-1	Date/Time Analyzed:	5/20/13 09:04 PM
Lab ID:	1305306R1-01B	Dilution Factor:	2.20
Date/Time Collecte	5/9/13 05:09 PM	Instrument/Filename:	msda.i / a052014r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Shallow	Date/Time Analyzed:	5/20/13 10:21 PM
Lab ID:	1305306R1-02A	Dilution Factor:	2.29
Date/Time Collecte	5/9/13 04:51 PM	Instrument/File name:	msda.i / a052015r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.5	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.51	0.56	1.1	1.1
1,2-Dibromoethane (EDB)	106-93-4	0.96	0.96	1.8	Not Detected
1,2-Dichlorobenzene	95-50-1	0.81	1.1	1.4	Not Detected
1,2-Dichloropropane	78-87-5	0.29	0.53	1.0	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.56	0.56	1.1	0.66 J
1,3-Butadiene	106-99-0	0.13	0.40	0.51	Not Detected
1,3-Dichlorobenzene	541-73-1	0.95	1.1	1.4	Not Detected
1,4-Dichlorobenzene	106-46-7	0.99	1.1	1.4	Not Detected
1,4-Dioxane	123-91-1	0.40	0.41	0.82	Not Detected
2,2,4-Trimethylpentane	540-84-1	0.66	0.66	5.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.29	0.34	3.4	13
2-Hexanone	591-78-6	0.24	0.47	4.7	1.2 J
2-Propanol	67-63-0	0.18	0.28	2.8	6.9
3-Chloropropene	107-05-1	0.62	0.72	3.6	Not Detected
4-Ethyltoluene	622-96-8	0.46	0.56	1.1	0.90 J
4-Methyl-2-pentanone	108-10-1	0.24	0.47	0.94	Not Detected
Acetone	67-64-1	0.34	0.34	2.7	17
alpha-Chlorotoluene	100-44-7	0.74	0.74	1.2	Not Detected
Bromodichloromethane	75-27-4	0.30	0.77	1.5	Not Detected
Bromoform	75-25-2	0.46	1.2	2.4	Not Detected
Bromomethane	74-83-9	0.34	0.36	4.4	Not Detected

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Shallow	Date/Time Analyzed:	5/20/13 10:21 PM
Lab ID:	1305306R1-02A	Dilution Factor:	2.29
Date/Time Collecte	5/9/13 04:51 PM	Instrument/Filename:	msda.i / a052015r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.16	0.36	3.6	4.3 J+
Carbon Tetrachloride	56-23-5	0.51	0.72	1.4	Not Detected
Chlorobenzene	108-90-7	0.19	0.53	1.0	0.59 J
Chloroethane	75-00-3	0.28	0.30	3.0	Not Detected
Chloroform	67-66-3	0.28	0.56	1.1	1.6
Chloromethane	74-87-3	0.18	0.38	0.47	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.34	0.52	1.0	Not Detected
Cumene	98-82-8	0.26	0.56	1.1	Not Detected
Cyclohexane	110-82-7	0.24	0.39	0.79	2.5
Dibromochloromethane	124-48-1	0.55	0.98	2.0	Not Detected
Ethanol	64-17-5	0.35	0.35	2.2	3.6
Freon 11	75-69-4	0.13	0.64	1.3	2.6
Freon 113	76-13-1	0.56	0.88	1.8	Not Detected
Freon 114	76-14-2	0.23	0.80	1.6	Not Detected
Freon 12	75-71-8	0.34	0.57	1.1	22
Heptane	142-82-5	0.43	0.47	0.94	0.75 J
Hexachlorobutadiene	87-68-3	1.0	1.2	12	Not Detected
Hexane	110-54-3	0.17	0.40	0.81	0.66 J
Methylene Chloride	75-09-2	0.25	0.40	1.6	Not Detected
Propylbenzene	103-65-1	0.60	0.60	1.1	Not Detected
Styrene	100-42-5	0.40	0.49	0.98	Not Detected
Tetrahydrofuran	109-99-9	0.22	0.34	3.4	1.1 J

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MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Shallow	Date/Time Analyzed:	5/20/13 10:21 PM
Lab ID:	1305306R1-02A	Dilution Factor:	2.29
Date/Time Collecte	5/9/13 04:51 PM	Instrument/Filename:	msda.i / a052015r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.61	0.61	1.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	102

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Shallow	Date/Time Analyzed:	5/20/13 10:21 PM
Lab ID:	1305306R1-02B	Dilution Factor:	2.29
Date/Time Collecte	5/9/13 04:51 PM	Instrument/Filename:	msda.i / a052015r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.062	0.25	0.083 J
1,1,2,2-Tetrachloroethane	79-34-5	0.096	0.096	0.31	Not Detected
1,1,2-Trichloroethane	79-00-5	0.049	0.062	0.25	Not Detected
1,1-Dichloroethane	75-34-3	0.013	0.046	0.18	Not Detected
1,1-Dichloroethane	75-35-4	0.013	0.045	0.091	Not Detected
1,2-Dichloroethane	107-06-2	0.010	0.046	0.18	1.2
Benzene	71-43-2	0.0091	0.036	0.36	1.6
cis-1,2-Dichloroethene	156-59-2	0.023	0.045	0.18	Not Detected
Ethyl Benzene	100-41-4	0.029	0.050	0.20	0.80
m,p-Xylene	108-38-3	0.028	0.050	0.40	0.80
Methyl tert-butyl ether	1634-04-4	0.027	0.041	0.82	Not Detected
o-Xylene	95-47-6	0.026	0.050	0.20	0.77
Tetrachloroethene	127-18-4	0.026	0.078	0.31	44
Toluene	108-88-3	0.011	0.043	0.17	1.5
trans-1,2-Dichloroethene	156-60-5	0.044	0.045	0.91	Not Detected
Trichloroethene	79-01-6	0.034	0.062	0.25	0.094 J
Vinyl Chloride	75-01-4	0.013	0.029	0.058	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Shallow	Date/Time Analyzed:	5/20/13 10:21 PM
Lab ID:	1305306R1-02B	Dilution Factor:	2.29
Date/Time Collecte	5/9/13 04:51 PM	Instrument/Filename:	msda.i / a052015r1.sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	99

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-2 Deep
Lab ID: 1305306R1-03A
Date/Time Collected: 5/9/13 05:25 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/20/13 11:02 PM
Dilution Factor: 2.15
Instrument/File Name: msda.i / a052016r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.0	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.48	0.53	1.0	0.98 J
1,2-Dibromoethane (EDB)	106-93-4	0.90	0.90	1.6	Not Detected
1,2-Dichlorobenzene	95-50-1	0.76	1.0	1.3	Not Detected
1,2-Dichloropropane	78-87-5	0.28	0.50	0.99	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.53	0.53	1.0	Not Detected
1,3-Butadiene	106-99-0	0.12	0.38	0.48	Not Detected
1,3-Dichlorobenzene	541-73-1	0.89	1.0	1.3	Not Detected
1,4-Dichlorobenzene	106-46-7	0.93	1.0	1.3	Not Detected
1,4-Dioxane	123-91-1	0.38	0.39	0.77	0.76 J
2,2,4-Trimethylpentane	540-84-1	0.62	0.62	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.28	0.32	3.2	34
2-Hexanone	591-78-6	0.23	0.44	4.4	0.51 J
2-Propanol	67-63-0	0.17	0.26	2.6	55
3-Chloropropene	107-05-1	0.58	0.67	3.4	Not Detected
4-Ethyltoluene	622-96-8	0.44	0.53	1.0	0.92 J
4-Methyl-2-pentanone	108-10-1	0.22	0.44	0.88	Not Detected
Acetone	67-64-1	0.32	0.32	2.6	30
alpha-Chlorotoluene	100-44-7	0.69	0.69	1.1	Not Detected
Bromodichloromethane	75-27-4	0.28	0.72	1.4	Not Detected
Bromoform	75-25-2	0.43	1.1	2.2	Not Detected
Bromomethane	74-83-9	0.32	0.33	4.2	Not Detected

DSK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-2 Deep
Lab ID: 1305306R1-03A
Date/Time Collected: 5/9/13 05:25 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/20/13 11:02 PM
Dilution Factor: 2.15
Instrument/File Name: msda.i / a052016r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.16	0.33	3.3	12 \checkmark +
Carbon Tetrachloride	56-23-5	0.48	0.68	1.4	Not Detected
Chlorobenzene	108-90-7	0.18	0.49	0.99	0.66 J
Chloroethane	75-00-3	0.26	0.28	2.8	Not Detected
Chloroform	67-66-3	0.26	0.52	1.0	1.1
Chloromethane	74-87-3	0.17	0.36	0.44	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.32	0.49	0.98	Not Detected
Cumene	98-82-8	0.25	0.53	1.0	Not Detected
Cyclohexane	110-82-7	0.22	0.37	0.74	3.1
Dibromochloromethane	124-48-1	0.52	0.92	1.8	Not Detected
Ethanol	64-17-5	0.33	0.33	2.0	4.6
Freon 11	75-69-4	0.12	0.60	1.2	2.8
Freon 113	76-13-1	0.53	0.82	1.6	Not Detected
Freon 114	76-14-2	0.22	0.75	1.5	0.83 J
Freon 12	75-71-8	0.32	0.53	1.1	30
Heptane	142-82-5	0.41	0.44	0.88	Not Detected
Hexachlorobutadiene	87-68-3	0.96	1.1	1.1	Not Detected
Hexane	110-54-3	0.16	0.38	0.76	0.36 J
Methylene Chloride	75-09-2	0.24	0.37	1.5	0.41 J
Propylbenzene	103-65-1	0.56	0.56	1.0	Not Detected
Styrene	100-42-5	0.37	0.46	0.92	Not Detected
Tetrahydrofuran	109-99-9	0.20	0.32	3.2	1.8 J

1057L
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Deep	Date/Time Analyzed:	5/20/13 11:02 PM
Lab ID:	1305306R1-03A	Dilution Factor:	2.15
Date/Time Collecte	5/9/13 05:25 PM	Instrument/Filename:	msda.i / a052016r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.58	0.58	0.98	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	100

1077
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Deep	Date/Time Analyzed:	5/20/13 11:02 PM
Lab ID:	1305306R1-03B	Dilution Factor:	2.15
Date/Time Collecte	5/9/13 05:25 PM	Instrument/Filename:	msda.i / a052016r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.059	0.23	0.086 J
1,1,2,2-Tetrachloroethane	79-34-5	0.090	0.090	0.30	Not Detected
1,1,2-Trichloroethane	79-00-5	0.046	0.059	0.23	Not Detected
1,1-Dichloroethane	75-34-3	0.012	0.044	0.17	Not Detected
1,1-Dichloroethane	75-35-4	0.012	0.043	0.085	Not Detected
1,2-Dichloroethane	107-06-2	0.0094	0.044	0.17	1.0
Benzene	71-43-2	0.0086	0.034	0.34	1.9
cis-1,2-Dichloroethane	156-59-2	0.021	0.043	0.17	Not Detected
Ethyl Benzene	100-41-4	0.027	0.047	0.19	0.50
m,p-Xylene	108-38-3	0.027	0.047	0.37	0.50
Methyl tert-butyl ether	1634-04-4	0.025	0.039	0.78	Not Detected
o-Xylene	95-47-6	0.024	0.047	0.19	0.48
Tetrachloroethene	127-18-4	0.024	0.073	0.29	74
Toluene	108-88-3	0.011	0.040	0.16	0.93
trans-1,2-Dichloroethene	156-60-5	0.041	0.043	0.85	Not Detected
Trichloroethene	79-01-6	0.032	0.058	0.23	0.12 J
Vinyl Chloride	75-01-4	0.012	0.027	0.055	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-2 Deep	Date/Time Analyzed:	5/20/13 11:02 PM
Lab ID:	1305306R1-03B	Dilution Factor:	2.15
Date/Time Collecte	5/9/13 05:25 PM	Instrument/Filename:	msda.i / a052016r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	99

BSL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-3 Deep
Lab ID: 1305306R1-04A
Date/Time Collecte: 5/9/13 05:32 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 06:38 AM
Dilution Factor: 2.16
Instrument/Filename: msda.i / a052017r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.0	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.48	0.53	1.1	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.90	0.90	1.6	Not Detected
1,2-Dichlorobenzene	95-50-1	0.76	1.0	1.3	Not Detected
1,2-Dichloropropane	78-87-5	0.28	0.50	1.0	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.53	0.53	1.1	Not Detected
1,3-Butadiene	106-99-0	0.12	0.38	0.48	Not Detected
1,3-Dichlorobenzene	541-73-1	0.89	1.0	1.3	Not Detected
1,4-Dichlorobenzene	106-46-7	0.93	1.0	1.3	Not Detected
1,4-Dioxane	123-91-1	0.38	0.39	0.78	1.1
2,2,4-Trimethylpentane	540-84-1	0.62	0.62	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.28	0.32	3.2	20
2-Hexanone	591-78-6	0.23	0.44	4.4	0.69 J
2-Propanol	67-63-0	0.17	0.26	2.6	51
3-Chloropropene	107-05-1	0.58	0.68	3.4	Not Detected
4-Ethyltoluene	622-96-8	0.44	0.53	1.1	Not Detected
4-Methyl-2-pentanone	108-10-1	0.23	0.44	0.88	Not Detected
Acetone	67-64-1	0.32	0.32	2.6	17
alpha-Chlorotoluene	100-44-7	0.69	0.69	1.1	Not Detected
Bromodichloromethane	75-27-4	0.28	0.72	1.4	Not Detected
Bromoform	75-25-2	0.43	1.1	2.2	Not Detected
Bromomethane	74-83-9	0.32	0.34	4.2	Not Detected

DK
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-3 Deep
Lab ID: 1305306R1-04A
Date/Time Collected: 5/9/13 05:32 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 06:38 AM
Dilution Factor: 2.16
Instrument/File Name: msda.i / a052017r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.16	0.34	3.4	1.8 J \pm
Carbon Tetrachloride	56-23-5	0.48	0.68	1.4	Not Detected
Chlorobenzene	108-90-7	0.18	0.50	0.99	0.53 J
Chloroethane	75-00-3	0.26	0.28	2.8	Not Detected
Chloroform	67-66-3	0.26	0.53	1.0	1.5
Chloromethane	74-87-3	0.18	0.36	0.45	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.32	0.49	0.98	Not Detected
Cumene	98-82-8	0.25	0.53	1.1	Not Detected
Cyclohexane	110-82-7	0.22	0.37	0.74	8.8
Dibromochloromethane	124-48-1	0.52	0.92	1.8	Not Detected
Ethanol	64-17-5	0.33	0.33	2.0	3.0
Freon 11	75-69-4	0.12	0.61	1.2	1.3
Freon 113	76-13-1	0.53	0.83	1.6	Not Detected
Freon 114	76-14-2	0.22	0.76	1.5	Not Detected
Freon 12	75-71-8	0.32	0.53	1.1	3.2
Heptane	142-82-5	0.41	0.44	0.88	Not Detected
Hexachlorobutadiene	87-68-3	0.96	1.2	12	Not Detected
Hexane	110-54-3	0.16	0.38	0.76	Not Detected
Methylene Chloride	75-09-2	0.24	0.38	1.5	0.40 J
Propylbenzene	103-65-1	0.56	0.56	1.1	Not Detected
Styrene	100-42-5	0.37	0.46	0.92	Not Detected
Tetrahydrofuran	109-99-9	0.21	0.32	3.2	1.3 J

DJR
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-3 Deep	Date/Time Analyzed:	5/21/13 06:38 AM
Lab ID:	1305306R1-04A	Dilution Factor:	2.16
Date/Time Collecte	5/9/13 05:32 PM	Instrument/Filename:	msda.i / a052017r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.58	0.58	0.98	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	100

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-3 Deep	Date/Time Analyzed: 5/21/13 06:38 AM
Lab ID: 1305306R1-04B	Dilution Factor: 2.16
Date/Time Collecte: 5/9/13 05:32 PM	Instrument/Filename: msda.i / a052017/r1sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.059	0.24	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.090	0.090	0.30	Not Detected
1,1,2-Trichloroethane	79-00-5	0.046	0.059	0.24	Not Detected
1,1-Dichloroethane	75-34-3	0.012	0.044	0.17	Not Detected
1,1-Dichloroethane	75-35-4	0.012	0.043	0.086	Not Detected
1,2-Dichloroethane	107-06-2	0.0094	0.044	0.17	0.23
Benzene	71-43-2	0.0086	0.034	0.34	2.2
cis-1,2-Dichloroethane	156-59-2	0.021	0.043	0.17	Not Detected
Ethyl Benzene	100-41-4	0.027	0.047	0.19	0.22
m,p-Xylene	108-38-3	0.027	0.047	0.38	0.32 J
Methyl tert-butyl ether	1634-04-4	0.025	0.039	0.78	Not Detected
o-Xylene	95-47-6	0.024	0.047	0.19	0.18 J
Tetrachloroethene	127-18-4	0.024	0.073	0.29	2.6
Toluene	108-88-3	0.011	0.041	0.16	0.62
trans-1,2-Dichloroethene	156-60-5	0.041	0.043	0.86	Not Detected
Trichloroethene	79-01-6	0.032	0.058	0.23	Not Detected
Vinyl Chloride	75-01-4	0.012	0.028	0.055	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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DJR
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-3 Deep	Date/Time Analyzed:	5/21/13 06:38 AM
Lab ID:	1305306R1-04B	Dilution Factor:	2.16
Date/Time Collecte	5/9/13 05:32 PM	Instrument/Filename:	msda.i/a052017r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	98

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-4 Shallow
Lab ID: 1305306R1-05A
Date/Time Collecte: 5/9/13 03:13 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 5/21/13 07:17 AM
Dilution Factor: 2.21
Instrument/Filename: msda.i // a052018r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.2	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.49	0.54	1.1	1.2
1,2-Dibromoethane (EDB)	106-93-4	0.92	0.92	1.7	Not Detected
1,2-Dichlorobenzene	95-50-1	0.78	1.1	1.3	Not Detected
1,2-Dichloropropane	78-87-5	0.28	0.51	1.0	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.54	0.54	1.1	Not Detected
1,3-Butadiene	106-99-0	0.12	0.39	0.49	Not Detected
1,3-Dichlorobenzene	541-73-1	0.91	1.1	1.3	Not Detected
1,4-Dichlorobenzene	106-46-7	0.96	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.39	0.40	0.80	Not Detected
2,2,4-Trimethylpentane	540-84-1	0.64	0.64	5.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.28	0.32	3.2	12
2-Hexanone	591-78-6	0.23	0.45	4.5	0.75 J
2-Propanol	67-63-0	0.18	0.27	2.7	88
3-Chloropropene	107-05-1	0.60	0.69	3.4	Not Detected
4-Ethyltoluene	622-96-8	0.45	0.54	1.1	1.3
4-Methyl-2-pentanone	108-10-1	0.23	0.45	0.90	Not Detected
Acetone	67-64-1	0.33	0.33	2.6	17
alpha-Chlorotoluene	100-44-7	0.71	0.71	1.1	Not Detected
Bromodichloromethane	75-27-4	0.29	0.74	1.5	Not Detected
Bromoform	75-25-2	0.44	1.1	2.3	Not Detected
Bromomethane	74-83-9	0.33	0.34	4.3	Not Detected

DSL
1011713



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-4 Shallow
Lab ID: 1305306R1-05A
Date/Time Collecte: 5/9/13 03:13 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 07:17 AM
Dilution Factor: 2.21
Instrument/Filename: msda.i/a052018r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.16	0.34	3.4	6.3 5.4
Carbon Tetrachloride	56-23-5	0.49	0.70	1.4	Not Detected
Chlorobenzene	108-90-7	0.18	0.51	1.0	0.91 J
Chloroethane	75-00-3	0.27	0.29	2.9	Not Detected
Chloroform	67-66-3	0.27	0.54	1.1	1.8
Chloromethane	74-87-3	0.18	0.36	0.46	0.28 J
cis-1,3-Dichloropropene	10061-01-5	0.33	0.50	1.0	Not Detected
Cumene	98-82-8	0.26	0.54	1.1	0.49 J
Cyclohexane	110-82-7	0.23	0.38	0.76	5.3
Dibromochloromethane	124-48-1	0.53	0.94	1.9	Not Detected
Ethanol	64-17-5	0.34	0.34	2.1	3.7
Freon 11	75-69-4	0.13	0.62	1.2	1.5
Freon 113	76-13-1	0.55	0.85	1.7	Not Detected
Freon 114	76-14-2	0.22	0.77	1.5	Not Detected
Freon 12	75-71-8	0.32	0.55	1.1	3.2
Heptane	142-82-5	0.42	0.45	0.90	1.3
Hexachlorobutadiene	87-68-3	0.98	1.2	12	Not Detected
Hexane	110-54-3	0.17	0.39	0.78	1.0
Methylene Chloride	75-09-2	0.24	0.38	1.5	0.60 J
Propylbenzene	103-65-1	0.58	0.58	1.1	Not Detected
Styrene	100-42-5	0.38	0.47	0.94	0.74 J
Tetrahydrofuran	109-99-9	0.21	0.32	3.2	1.0 J

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-4 Shallow	Date/Time Analyzed:	5/21/13 07:17 AM
Lab ID:	1305306R1-05A	Dilution Factor:	2.21
Date/Time Collecte	5/9/13 03:13 PM	Instrument/Filename:	msda.i/a052018r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.59	0.59	1.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	102

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-4 Shallow	Date/Time Analyzed:	5/21/13 07:17 AM
Lab ID:	1305306R1-05B	Dilution Factor:	2.21
Date/Time Collecte	5/9/13 03:13 PM	Instrument/Filename:	msda://a052018r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.060	0.24	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.092	0.092	0.30	Not Detected
1,1,2-Trichloroethane	79-00-5	0.048	0.060	0.24	Not Detected
1,1-Dichloroethane	75-34-3	0.013	0.045	0.18	Not Detected
1,1-Dichloroethane	75-35-4	0.013	0.044	0.088	Not Detected
1,2-Dichloroethane	107-06-2	0.0097	0.045	0.18	Not Detected
Benzene	71-43-2	0.0088	0.035	0.35	5.6
cis-1,2-Dichloroethene	156-59-2	0.022	0.044	0.18	Not Detected
Ethyl Benzene	100-41-4	0.028	0.048	0.19	0.78
m,p-Xylene	108-38-3	0.028	0.048	0.38	1.0
Methyl tert-butyl ether	1634-04-4	0.026	0.040	0.80	Not Detected
o-Xylene	95-47-6	0.025	0.048	0.19	0.80
Tetrachloroethene	127-18-4	0.025	0.075	0.30	4.6
Toluene	108-88-3	0.011	0.042	0.17	4.1
trans-1,2-Dichloroethene	156-60-5	0.042	0.044	0.88	Not Detected
Trichloroethene	79-01-6	0.033	0.059	0.24	Not Detected
Vinyl Chloride	75-01-4	0.013	0.028	0.056	Not Detected

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114

DJK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-4 Shallow	Date/Time Analyzed:	5/21/13 07:17 AM
Lab ID:	1305306R1-05B	Dilution Factor:	2.21
Date/Time Collecte	5/9/13 03:13 PM	Instrument/Filename:	msda.i/a052018r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	98

1017
1017/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-4 Deep
Lab ID: 1305306R1-06A
Date/Time Collected: 5/9/13 03:45 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 07:53 AM
Dilution Factor: 2.17
Instrument/Filename: msda.i/a052019r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.0	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.48	0.53	1.1	0.63 J
1,2-Dibromoethane (EDB)	106-93-4	0.91	0.91	1.7	Not Detected
1,2-Dichlorobenzene	95-50-1	0.77	1.0	1.3	Not Detected
1,2-Dichloropropane	78-87-5	0.28	0.50	1.0	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.53	0.53	1.1	Not Detected
1,3-Butadiene	106-99-0	0.12	0.38	0.48	Not Detected
1,3-Dichlorobenzene	541-73-1	0.90	1.0	1.3	Not Detected
1,4-Dichlorobenzene	106-46-7	0.94	1.0	1.3	Not Detected
1,4-Dioxane	123-91-1	0.38	0.39	0.78	Not Detected
2,2,4-Trimethylpentane	540-84-1	0.63	0.63	5.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.28	0.32	3.2	35
2-Hexanone	591-78-6	0.23	0.44	4.4	1.1 J
2-Propanol	67-63-0	0.17	0.27	2.7	69
3-Chloropropene	107-05-1	0.58	0.68	3.4	Not Detected
4-Ethyltoluene	622-96-8	0.44	0.53	1.1	0.96 J
4-Methyl-2-pentanone	108-10-1	0.23	0.44	0.89	Not Detected
Acetone	67-64-1	0.33	0.33	2.6	31
alpha-Chlorotoluene	100-44-7	0.70	0.70	1.1	Not Detected
Bromodichloromethane	75-27-4	0.29	0.73	1.4	Not Detected
Bromoform	75-25-2	0.43	1.1	2.2	Not Detected
Bromomethane	74-83-9	0.32	0.34	4.2	0.42 J

DSL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-4 Deep
Lab ID: 1305306R1-06A
Date/Time Collected: 5/9/13 03:45 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 07:53 AM
Dilution Factor: 2.17
Instrument/Filename: msda.i/a052019r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.16	0.34	3.4	0.57 J +
Carbon Tetrachloride	56-23-5	0.48	0.68	1.4	Not Detected
Chlorobenzene	108-90-7	0.18	0.50	1.0	0.75 J
Chloroethane	75-00-3	0.26	0.29	2.9	Not Detected
Chloroform	67-66-3	0.26	0.53	1.0	0.48 J
Chloromethane	74-87-3	0.18	0.36	0.45	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.32	0.49	0.98	Not Detected
Cumene	98-82-8	0.25	0.53	1.1	Not Detected
Cyclohexane	110-82-7	0.22	0.37	0.75	3.2
Dibromochloromethane	124-48-1	0.52	0.92	1.8	Not Detected
Ethanol	64-17-5	0.33	0.33	2.0	8.7
Freon 11	75-69-4	0.12	0.61	1.2	1.8
Freon 113	76-13-1	0.54	0.83	1.7	Not Detected
Freon 114	76-14-2	0.22	0.76	1.5	Not Detected
Freon 12	75-71-8	0.32	0.54	1.1	3.3
Heptane	142-82-5	0.41	0.44	0.89	0.55 J
Hexachlorobutadiene	87-68-3	0.96	1.2	12	Not Detected
Hexane	110-54-3	0.16	0.38	0.76	0.38 J
Methylene Chloride	75-09-2	0.24	0.38	1.5	0.41 J
Propylbenzene	103-65-1	0.57	0.57	1.1	Not Detected
Styrene	100-42-5	0.38	0.46	0.92	0.42 J
Tetrahydrofuran	109-99-9	0.21	0.32	3.2	2.0 J

D57L
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV/4 Deep	Date/Time Analyzed:	5/21/13 07:53 AM
Lab ID:	1305306R1-06A	Dilution Factor:	2.17
Date/Time Collecte	5/9/13 03:45 PM	Instrument/Filename:	msda.i/a052019r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.58	0.58	0.98	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	104

DJL
10117/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-4 Deep	Date/Time Analyzed:	5/21/13 07:53 AM
Lab ID:	1305306R1-06B	Dilution Factor:	2.17
Date/Time Collecte	5/9/13 03:45 PM	Instrument/Filename:	msda.i/a052019r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.059	0.24	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.090	0.090	0.30	Not Detected
1,1,2-Trichloroethane	79-00-5	0.047	0.059	0.24	Not Detected
1,1-Dichloroethane	75-34-3	0.012	0.044	0.18	Not Detected
1,1-Dichloroethane	75-35-4	0.012	0.043	0.086	Not Detected
1,2-Dichloroethane	107-06-2	0.0095	0.044	0.18	Not Detected
Benzene	71-43-2	0.0087	0.035	0.35	3.7
cis-1,2-Dichloroethene	156-59-2	0.022	0.043	0.17	Not Detected
Ethyl Benzene	100-41-4	0.027	0.047	0.19	0.35
m,p-Xylene	108-38-3	0.027	0.047	0.38	0.47
Methyl tert-butyl ether	1634-04-4	0.025	0.039	0.78	Not Detected
o-Xylene	95-47-6	0.024	0.047	0.19	0.28
Tetrachloroethene	127-18-4	0.024	0.074	0.29	7.7
Toluene	108-88-3	0.011	0.041	0.16	0.84
trans-1,2-Dichloroethene	156-60-5	0.041	0.043	0.86	Not Detected
Trichloroethene	79-01-6	0.032	0.058	0.23	Not Detected
Vinyl Chloride	75-01-4	0.013	0.028	0.055	Not Detected

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116

D77L
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-4 Deep
Lab ID: 1305306R1-06B
Date/Time Collecte 5/9/13 03:45 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 5/21/13 07:53 AM
Dilution Factor: 2.17
Instrument/Filename: msda.i/a052019r1sim

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Shallow	Date/Time Analyzed:	5/21/13 08:29 AM
Lab ID:	1305306R1-07A	Dilution Factor:	2.86
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i / a052020r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.7	1.7	11	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.63	0.70	1.4	5.2
1,2-Dibromoethane (EDB)	106-93-4	1.2	1.2	2.2	Not Detected
1,2-Dichlorobenzene	95-50-1	1.0	1.4	1.7	Not Detected
1,2-Dichloropropane	78-87-5	0.37	0.66	1.3	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.70	0.70	1.4	1.7
1,3-Butadiene	106-99-0	0.16	0.51	0.63	Not Detected
1,3-Dichlorobenzene	541-73-1	1.2	1.4	1.7	2.1
1,4-Dichlorobenzene	106-46-7	1.2	1.4	1.7	Not Detected
1,4-Dioxane	123-91-1	0.50	0.52	1.0	15
2,2,4-Trimethylpentane	540-84-1	0.82	0.82	6.7	3.3 J +
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.37	0.42	4.2	13
2-Hexanone	591-78-6	0.30	0.58	5.8	1.9 J
2-Propanol	67-63-0	0.23	0.35	3.5	10
3-Chloropropene	107-05-1	0.77	0.90	4.5	Not Detected
4-Ethyltoluene	622-96-8	0.58	0.70	1.4	4.4
4-Methyl-2-pentanone	108-10-1	0.30	0.58	1.2	0.88 J
Acetone	67-64-1	0.43	0.43	3.4	26
alpha-Chlorotoluene	100-44-7	0.92	0.92	1.5	Not Detected
Bromodichloromethane	75-27-4	0.38	0.96	1.9	Not Detected
Bromoform	75-25-2	0.57	1.5	3.0	Not Detected
Bromomethane	74-83-9	0.43	0.44	5.6	Not Detected

DJL
10117113



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Shallow	Date/Time Analyzed:	5/21/13 08:29 AM
Lab ID:	1305306R1-07A	Dilution Factor:	2.86
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i/a052020r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.21	0.44	4.4	150 J+
Carbon Tetrachloride	56-23-5	0.64	0.90	1.8	0.78 J
Chlorobenzene	108-90-7	0.24	0.66	1.3	0.70 J
Chloroethane	75-00-3	0.34	0.38	3.8	Not Detected
Chloroform	67-66-3	0.35	0.70	1.4	44
Chloromethane	74-87-3	0.23	0.47	0.59	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.42	0.65	1.3	Not Detected
Cumene	98-82-8	0.33	0.70	1.4	0.46 J
Cyclohexane	110-82-7	0.29	0.49	0.98	6.4
Dibromochloromethane	124-48-1	0.69	1.2	2.4	Not Detected
Ethanol	64-17-5	0.44	0.44	2.7	12
Freon 11	75-69-4	0.16	0.80	1.6	2.3
Freon 113	76-13-1	0.71	1.1	2.2	Not Detected
Freon 114	76-14-2	0.29	1.0	2.0	45
Freon 12	75-71-8	0.42	0.71	1.4	35
Heptane	142-82-5	0.54	0.59	1.2	0.78 J
Hexachlorobutadiene	87-68-3	1.3	1.5	15	Not Detected
Hexane	110-54-3	0.22	0.50	1.0	3.7
Methylene Chloride	75-09-2	0.32	0.50	2.0	1.0 J
Propylbenzene	103-65-1	0.75	0.75	1.4	1.4
Styrene	100-42-5	0.50	0.61	1.2	1.1 J
Tetrahydrofuran	109-99-9	0.27	0.42	4.2	1.9 J

1057L
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Shallow	Date/Time Analyzed:	5/21/13 08:29 AM
Lab ID:	1305306R1-07A	Dilution Factor:	2.86
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filenam	msda.i/a052020r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.77	0.77	1.3	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	103

157L
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Shallow	Date/Time Analyzed:	5/21/13 08:29 AM
Lab ID:	1305306R1-07B	Dilution Factor:	2.86
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i//a052020r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.078	0.31	0.26 J
1,1,2,2-Tetrachloroethane	79-34-5	0.12	0.12	0.39	Not Detected
1,1,2-Trichloroethane	79-00-5	0.061	0.078	0.31	Not Detected
1,1-Dichloroethane	75-34-3	0.016	0.058	0.23	Not Detected
1,1-Dichloroethane	75-35-4	0.016	0.057	0.11	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.058	0.23	0.94
Benzene	71-43-2	0.011	0.046	0.46	11
cis-1,2-Dichloroethene	156-59-2	0.028	0.057	0.23	Not Detected
Ethyl Benzene	100-41-4	0.036	0.062	0.25	5.4
m,p-Xylene	108-38-3	0.036	0.062	0.50	14
Methyl tert-butyl ether	1634-04-4	0.033	0.052	1.0	Not Detected
o-Xylene	95-47-6	0.032	0.062	0.25	4.7
Tetrachloroethene	127-18-4	0.032	0.097	0.39	41
Toluene	108-88-3	0.014	0.054	0.22	30
trans-1,2-Dichloroethene	156-60-5	0.054	0.057	1.1	Not Detected
Trichloroethene	79-01-6	0.043	0.077	0.31	0.20 J
Vinyl Chloride	75-01-4	0.017	0.036	0.073	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Shallow	Date/Time Analyzed:	5/21/13 08:29 AM
Lab ID:	1305306R1-07B	Dilution Factor:	2.86
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i/a052020r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	100

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: DUP
Lab ID: 1305306R1-08A
Date/Time Collected: 5/10/13 01:56 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 09:06 AM
Dilution Factor: 2.58
Instrument/Filename: msda.i/a052021r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.5	1.5	9.6	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.57	0.63	1.3	4.8
1,2-Dibromoethane (EDB)	106-93-4	1.1	1.1	2.0	Not Detected
1,2-Dichlorobenzene	95-50-1	0.91	1.2	1.6	Not Detected
1,2-Dichloropropane	78-87-5	0.33	0.60	1.2	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.64	0.64	1.3	1.6
1,3-Butadiene	106-99-0	0.15	0.46	0.57	Not Detected
1,3-Dichlorobenzene	541-73-1	1.1	1.2	1.6	1.7
1,4-Dichlorobenzene	106-46-7	1.1	1.2	1.6	Not Detected
1,4-Dioxane	123-91-1	0.45	0.46	0.93	Not Detected
2,2,4-Trimethylpentane	540-84-1	0.74	0.74	6.0	2.5 J +
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.33	0.38	3.8	12
2-Hexanone	591-78-6	0.27	0.53	5.3	Not Detected
2-Propanol	67-63-0	0.21	0.32	3.2	4.3
3-Chloropropene	107-05-1	0.70	0.81	4.0	Not Detected
4-Ethyltoluene	622-96-8	0.52	0.63	1.3	4.4
4-Methyl-2-pentanone	108-10-1	0.27	0.53	1.0	Not Detected
Acetone	67-64-1	0.39	0.39	3.1	17
alpha-Chlorotoluene	100-44-7	0.83	0.83	1.3	Not Detected
Bromodichloromethane	75-27-4	0.34	0.86	1.7	Not Detected
Bromoform	75-25-2	0.52	1.3	2.7	Not Detected
Bromomethane	74-83-9	0.39	0.40	5.0	Not Detected

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	DUP	Date/Time Analyzed:	5/21/13 09:06 AM
Lab ID:	1305306R1-08A	Dilution Factor:	2.58
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i/a052021r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MIDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.19	0.40	4.0	160 J
Carbon Tetrachloride	56-23-5	0.58	0.81	1.6	1.1 J
Chlorobenzene	108-90-7	0.22	0.59	1.2	0.71 J
Chloroethane	75-00-3	0.31	0.34	3.4	Not Detected
Chloroform	67-66-3	0.31	0.63	1.2	44
Chloromethane	74-87-3	0.21	0.43	0.53	Not Detected
dis-1,3-Dichloropropene	10061-01-5	0.38	0.58	1.2	Not Detected
Cumene	98-82-8	0.30	0.63	1.3	0.51 J
Cyclohexane	110-82-7	0.26	0.44	0.89	7.0
Dibromochloromethane	124-48-1	0.62	1.1	2.2	Not Detected
Ethanol	64-17-5	0.40	0.40	2.4	2.9
Freon 11	75-69-4	0.15	0.72	1.4	2.3
Freon 113	76-13-1	0.64	0.99	2.0	Not Detected
Freon 114	76-14-2	0.26	0.90	1.8	47
Freon 12	75-71-8	0.38	0.64	1.3	37
Heptane	142-82-5	0.49	0.53	1.0	Not Detected
Hexachlorobutadiene	87-68-3	1.1	1.4	14	Not Detected
Hexane	110-54-3	0.20	0.45	0.91	3.6
Methylene Chloride	75-09-2	0.29	0.45	1.8	0.79 J
Propylbenzene	103-65-1	0.68	0.67	1.3	1.4
Styrene	100-42-5	0.45	0.55	1.1	0.90 J
Tetrahydrofuran	109-99-9	0.25	0.38	3.8	1.8 J

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	DUP	Date/Time Analyzed:	5/21/13 09:06 AM
Lab ID:	1305306R1-08A	Dilution Factor:	2.58
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i / a052021r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.69	0.69	1.2	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	103

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	DUP	Date/Time Analyzed:	5/21/13 09:06 AM
Lab ID:	1305306R1-08B	Dilution Factor:	2.58
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda:/a052021r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.070	0.28	0.22 J
1,1,2,2-Tetrachloroethane	79-34-5	0.11	0.11	0.35	Not Detected
1,1,2-Trichloroethane	79-00-5	0.055	0.070	0.28	Not Detected
1,1-Dichloroethane	75-34-3	0.015	0.052	0.21	Not Detected
1,1-Dichloroethene	75-35-4	0.015	0.051	0.10	Not Detected
1,2-Dichloroethane	107-06-2	0.011	0.052	0.21	0.67
Benzene	71-43-2	0.010	0.041	0.41	11
cis-1,2-Dichloroethene	156-59-2	0.026	0.051	0.20	Not Detected
Ethyl Benzene	100-41-4	0.032	0.056	0.22	5.1
m,p-Xylene	108-38-3	0.032	0.056	0.45	14
Methyl tert-butyl ether	1634-04-4	0.030	0.046	0.93	Not Detected
o-Xylene	95-47-6	0.029	0.056	0.22	4.3
Tetrachloroethene	127-18-4	0.029	0.088	0.35	40
Toluene	108-88-3	0.013	0.049	0.19	25
trans-1,2-Dichloroethene	156-60-5	0.049	0.051	1.0	Not Detected
Trichloroethene	79-01-6	0.039	0.069	0.28	0.19 J
Vinyl Chloride	75-01-4	0.015	0.033	0.066	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery

DJR
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	DUP	Date/Time Analyzed:	5/21/13 09:06 AM
Lab ID:	1305306R1-08B	Dilution Factor:	2.58
Date/Time Collecte	5/10/13 01:56 PM	Instrument/Filename:	msda.i/a052021r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	100

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Deep	Date/Time Analyzed:	5/21/13 02:04 PM
Lab ID:	1305306R1-09A	Dilution Factor:	3.50
Date/Time Collecte	5/10/13 02:30 PM	Instrument/Filename:	msda.i/a052107r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	2.0	2.0	13	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.77	0.86	1.7	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	1.5	1.5	2.7	Not Detected
1,2-Dichlorobenzene	95-50-1	1.2	1.7	2.1	Not Detected
1,2-Dichloropropane	78-87-5	0.45	0.81	1.6	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.86	0.86	1.7	Not Detected
1,3-Butadiene	106-99-0	0.20	0.62	0.77	Not Detected
1,3-Dichlorobenzene	541-73-1	1.4	1.7	2.1	2.2
1,4-Dichlorobenzene	106-46-7	1.5	1.7	2.1	Not Detected
1,4-Dioxane	123-91-1	0.61	0.63	1.3	Not Detected
2,2,4-Trimethylpentane	540-84-1	1.0	1.0	8.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.45	0.52	5.2	19
2-Hexanone	591-78-6	0.37	0.72	7.2	Not Detected
2-Propanol	67-63-0	0.28	0.43	4.3	3.1 J
3-Chloropropene	107-05-1	0.94	1.1	5.5	Not Detected
4-Ethyltoluene	622-96-8	0.71	0.86	1.7	Not Detected
4-Methyl-2-pentanone	108-10-1	0.37	0.72	1.4	Not Detected
Acetone	67-64-1	0.53	0.53	4.2	20
alpha-Chlorotoluene	100-44-7	1.1	1.1	1.8	Not Detected
Bromodichloromethane	75-27-4	0.46	1.2	2.3	Not Detected
Bromoform	75-25-2	0.70	1.8	3.6	Not Detected
Bromomethane	74-83-9	0.52	0.54	6.8	Not Detected

DJR
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Deep	Date/Time Analyzed:	5/21/13 02:04 PM
Lab ID:	1305306R1-09A	Dilution Factor:	3.50
Date/Time Collecte	5/10/13 02:30 PM	Instrument/Filename:	msda.i/a052107/r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.25	0.54	5.4	2.3 J +
Carbon Tetrachloride	56-23-5	0.78	1.1	2.2	Not Detected
Chlorobenzene	108-90-7	0.29	0.80	1.6	0.57 J
Chloroethane	75-00-3	0.42	0.46	4.6	Not Detected
Chloroform	67-66-3	0.42	0.85	1.7	7.0
Chloromethane	74-87-3	0.28	0.58	0.72	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.52	0.79	1.6	Not Detected
Cumene	98-82-8	0.40	0.86	1.7	Not Detected
Cyclohexane	110-82-7	0.36	0.60	1.2	2.7
Dibromochloromethane	124-48-1	0.84	1.5	3.0	Not Detected
Ethanol	64-17-5	0.54	0.54	3.3 J U	-8.0 J-
Freon 11	75-69-4	0.20	0.98	2.0	2.7
Freon 113	76-13-1	0.86	1.3	2.7	Not Detected
Freon 114	76-14-2	0.36	1.2	2.4	280
Freon 12	75-71-8	0.52	0.86	1.7	160
Heptane	142-82-5	0.66	0.72	1.4	Not Detected
Hexachlorobutadiene	87-68-3	1.6	1.9	1.9	Not Detected
Hexane	110-54-3	0.26	0.62	1.2	Not Detected
Methylene Chloride	75-09-2	0.39	0.61	2.4	Not Detected
Propylbenzene	103-65-1	0.92	0.92	1.7	Not Detected
Styrene	100-42-5	0.61	0.74	1.5	Not Detected
Tetrahydrofuran	109-99-9	0.33	0.52	5.2	1.5 J

DJK
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Deep	Date/Time Analyzed:	5/21/13 02:04 PM
Lab ID:	1305306R1-09A	Dilution Factor:	3.50
Date/Time Collecte	5/10/13 02:30 PM	Instrument/Filename:	msda.i / 8052107.r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.94	0.94	1.6	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	100

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Deep	Date/Time Analyzed:	5/21/13 02:04 PM
Lab ID:	1305306R1-09B	Dilution Factor:	3.50
Date/Time Collecte	5/10/13 02:30 PM	Instrument/Filename:	msda.i / a052107r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.027	0.095	0.38	0.27 J
1,1,2,2-Tetrachloroethane	79-34-5	0.15	0.15	0.48	Not Detected
1,1,2-Trichloroethane	79-00-5	0.075	0.095	0.38	Not Detected
1,1-Dichloroethane	75-34-3	0.020	0.071	0.28	Not Detected
1,1-Dichloroethene	75-35-4	0.020	0.069	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.071	0.28	0.70
Benzene	71-43-2	0.014	0.056	0.56	6.1
cis-1,2-Dichloroethene	156-59-2	0.035	0.069	0.28	Not Detected
Ethyl Benzene	100-41-4	0.044	0.076	0.30	0.25 J
m,p-Xylene	108-38-3	0.044	0.076	0.61	0.33 J
Methyl tert-butyl ether	1634-04-4	0.041	0.063	1.3	Not Detected
o-Xylene	95-47-6	0.039	0.076	0.30	0.44
Tetrachloroethene	127-18-4	0.039	0.12	0.47	330
Toluene	108-88-3	0.018	0.066	0.26	0.86
trans-1,2-Dichloroethene	156-60-5	0.067	0.069	1.4	Not Detected
Trichloroethene	79-01-6	0.052	0.094	0.38	1.3
Vinyl Chloride	75-01-4	0.020	0.045	0.089	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-5 Deep	Date/Time Analyzed:	5/21/13 02:04 PM
Lab ID:	1305306R1-09B	Dilution Factor:	3.50
Date/Time Collecte	5/10/13 02:30 PM	Instrument/Filename:	msda.i / a052107/r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	99

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-6 Shallow	Date/Time Analyzed:	5/21/13 02:53 PM
Lab ID:	1305306R1-10A	Dilution Factor:	2.26
Date/Time Collecte	5/9/13 06:37 PM	Instrument/Filename:	msda.i / a052108r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.3	1.3	8.4	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.50	0.56	1.1	4.2
1,2-Dibromoethane (EDB)	106-93-4	0.94	0.94	1.7	Not Detected
1,2-Dichlorobenzene	95-50-1	0.80	1.1	1.4	Not Detected
1,2-Dichloropropane	78-87-5	0.29	0.52	1.0	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.56	0.56	1.1	1.8
1,3-Butadiene	106-99-0	0.13	0.40	0.50	Not Detected
1,3-Dichlorobenzene	541-73-1	0.94	1.1	1.4	Not Detected
1,4-Dichlorobenzene	106-46-7	0.98	1.1	1.4	Not Detected
1,4-Dioxane	123-91-1	0.40	0.41	0.81	1.1
2,2,4-Trimethylpentane	540-84-1	0.65	0.65	5.3	4.6 J +
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.29	0.33	3.3	23
2-Hexanone	591-78-6	0.24	0.46	4.6	1.4 J
2-Propanol	67-63-0	0.18	0.28	2.8	12
3-Chloropropene	107-05-1	0.61	0.71	3.5	Not Detected
4-Ethyltoluene	622-96-8	0.46	0.56	1.1	4.2
4-Methyl-2-pentanone	108-10-1	0.24	0.46	0.92	0.76 J
Acetone	67-64-1	0.34	0.34	2.7	41
alpha-Chlorotoluene	100-44-7	0.73	0.73	1.2	Not Detected
Bromodichloromethane	75-27-4	0.30	0.76	1.5	Not Detected
Bromoform	75-25-2	0.45	1.2	2.3	Not Detected
Bromomethane	74-83-9	0.34	0.35	4.4	Not Detected

D57L
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: BSV-6 Shallow
Lab ID: 1305306R1-10A
Date/Time Collected: 5/9/13 06:37 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 5/21/13 02:53 PM
Dilution Factor: 2.26
Instrument/Filename: msda.i/a052108r1

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	75-15-0	0.16	0.35	3.5	160 5+
Carbon Tetrachloride	56-23-5	0.50	0.71	1.4	1.0 J
Chlorobenzene	108-90-7	0.19	0.52	1.0	0.98 J
Chloroethane	75-00-3	0.27	0.30	3.0	Not Detected
Chloroform	67-66-3	0.27	0.55	1.1	17
Chloromethane	74-87-3	0.18	0.37	0.47	2.3
cis-1,3-Dichloropropene	10061-01-5	0.34	0.51	1.0	Not Detected
Cumene	98-82-8	0.26	0.56	1.1	0.61 J
Cyclohexane	110-82-7	0.23	0.39	0.78	9.7
Dibromochloromethane	124-48-1	0.54	0.96	1.9	Not Detected
Ethanol	64-17-5	0.35	0.35	2.1	20
Freon 11	75-69-4	0.13	0.63	1.3	2.2
Freon 113	76-13-1	0.56	0.87	1.7	0.68 J
Freon 114	76-14-2	0.23	0.79	1.6	0.75 J
Freon 12	75-71-8	0.33	0.56	1.1	29
Heptane	142-82-5	0.43	0.46	0.93	1.2
Hexachlorobutadiene	87-68-3	1.0	1.2	12	Not Detected
Hexane	110-54-3	0.17	0.40	0.80	13
Methylene Chloride	75-09-2	0.25	0.39	1.6	1.6
Propylbenzene	103-65-1	0.59	0.59	1.1	1.4
Styrene	100-42-5	0.39	0.48	0.96	0.89 J
Tetrahydrofuran	109-99-9	0.22	0.33	3.3	1.2 J

DJL
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-6 Shallow	Date/Time Analyzed:	5/21/13 02:53 PM
Lab ID:	1305306R1-10A	Dilution Factor:	2.26
Date/Time Collecte	5/9/13 06:37 PM	Instrument/Filename:	msda.i/a052108r1
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,3-Dichloropropene	10061-02-6	0.61	0.60	1.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	128
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	102

1057L
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-6 Shallow	Date/Time Analyzed:	5/21/13 02:53 PM
Lab ID:	1305306R1-10B	Dilution Factor:	2.26
Date/Time Collecte	5/9/13 06:37 PM	Instrument/Filename:	msda://a052108r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.062	0.25	0.16 J
1,1,2,2-Tetrachloroethane	79-34-5	0.094	0.094	0.31	Not Detected
1,1,2-Trichloroethane	79-00-5	0.048	0.062	0.25	Not Detected
1,1-Dichloroethane	75-34-3	0.013	0.046	0.18	Not Detected
1,1-Dichloroethene	75-35-4	0.013	0.045	0.090	Not Detected
1,2-Dichloroethane	107-06-2	0.0099	0.046	0.18	0.16 J
Benzene	71-43-2	0.0090	0.036	0.36	7.7
cis-1,2-Dichloroethene	156-59-2	0.022	0.045	0.18	Not Detected
Ethyl Benzene	100-41-4	0.028	0.049	0.20	5.4
m,p-Xylene	108-38-3	0.028	0.049	0.39	12
Methyl tert-butyl ether	1634-04-4	0.026	0.041	0.81	Not Detected
o-Xylene	95-47-6	0.025	0.049	0.20	4.4
Tetrachloroethene	127-18-4	0.025	0.077	0.31	6.2
Toluene	108-88-3	0.011	0.042	0.17	21
trans-1,2-Dichloroethene	156-60-5	0.043	0.045	0.90	Not Detected
Trichloroethene	79-01-6	0.034	0.061	0.24	0.060 J
Vinyl Chloride	75-01-4	0.013	0.029	0.058	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
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DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	BSV-6 Shallow	Date/Time Analyzed:	5/21/13 02:53 PM
Lab ID:	1305306R1-10B	Dilution Factor:	2.26
Date/Time Collecte	5/9/13 06:37 PM	Instrument/Filename:	msda.i / a052108r1sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	130
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	100

DJK
10/17/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 965-1000 FAX (916) 985-1020

Page 1 of 3

Project Manager Mark Pearson
 Collected by: (Print and Sign) Mark Pearson
 Company Tetra Tech Email mark.pearson@tetra.com
 Address 851 Bridger Dr City Bozeman State MT Zip 59715
 Phone 406-582-8780 Fax _____

Project Info:
 P.O. # _____
 Project # 114-710303.740
 Project Name Bozeman Landfill

Turn Around Time:
 Normal
 Rush
 Date: _____
 Pressurization Gas: _____
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (ps)
01AB	BSV-1	9546	5/9/13	1709	See attached	-24.6	-7.5		
02AB	BSV-2 (Shallow)	933		1651		-25.4	-9.0		
03AB	BSV-2 (Deep)	25261		1725		-26.25	-8.25		
04AB	BSV-3 (Deep)	33943		1732		-25.6	-7.8		
05AB	BSV-4 (Shallow)	35283	5/9/13	1513		-25.3	-7.5		
06AB	BSV-4 (Deep)	5717		1545		-25.0	-8.0		
07AB	BSV-5 (Shallow)	13861	5/10/13	1356		-24.6	-10.9		
08AB	DUP	14116		1356		-24.6	-9.4		
09AB	BSV-5 (Deep)	34346		1430		-22.6	-8.4		
10AB	BSV-6 (Shallow)	10788	5/9/13	1837		-26.3	-8.8		

Relinquished by: (signature) Mark Pearson Date/Time 5/10/13@1600 Received by: (signature) Felix Bozeman Date/Time 5/10/13@1700
 Relinquished by: (signature) _____ Date/Time _____ Received by: (signature) Felix Bozeman Date/Time 05/14/13 0950
 Relinquished by: (signature) _____ Date/Time _____ Received by: (signature) _____ Date/Time _____

Shipper Name FedEx Air Bill # _____ Temp (°C) NA Condition good Custody Seals/Tape? Yes No None Work Order # 1305306
 Lab Use Only

Notes:
 Canisters and related equipment shipped in 8 boxes

Bozeman Landfill
April 4, 2013 Monitoring Event
Bozeman, Montana
Project Number 114-710303.740

- and - May 9 and 10 Monitoring Event

Analyze in accordance with TO-15 SIM with the following component list:

Chloroform
Vinyl chloride
Tetrachloroethene
Trichloroethene
Benzene
Ethylbenzene
Toluene
Xylenes
cis-1,2-DCE
trans-1,2-DCE
1,2,4-trimethylbenzene
Tetrahydrofuran

October 16, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 16, 2013

Sample Delivery Group (SDG) No.	1307180
Samples	██████ -A, ██████ -B, ██████ -D, ██████ -A, ██████ -B, ██████ -A, ██████ -C,
Field Duplicates	██████ -A and ██████ -B

Tetra Tech, Inc. conducted data validation of the analytical results for eleven air samples (including one field duplicate) that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 3, 2013. The samples were analyzed under SDG No. 1307180 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Field duplicate samples



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- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307180 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times with the following exceptions. There was a discrepancy between the chain-of-custody (COC) information and canister identification for samples ██████-A and ██████-B. Tetra Tech was notified and the information on the canister was used to process and report the samples. There was also a discrepancy between the COC information and sample tag information for sample ██████-C. The information on the COC was used to process and report the sample. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analytes acetone and hexane below reporting limits (RL). The method blank associated with SIM analyses contained 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, and toluene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory blanks acetone and methylene chloride) the blank concentrations were qualified as estimated possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

RPDs were calculated for field duplicate (██████-A and ██████-B) sample results for all results greater than the RL. All RPDs were ≤ 30 .

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LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences for the LCS and LCSD were all within QC limits with one exception. The percent recovery of carbon disulfide for the LCSD (134) is above the QC limit. All positive carbon disulfide results were qualified as estimated and possibly biased high (“J+”).

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

The concentration of acetone in sample [REDACTED]-A exceeded the instrument calibration range, so the result was qualified as estimated (“J”).

Due to the linear calibration range of the instrument, the RL for chloromethane was raised from 0.1 ppbv to 0.5 ppbv.

At the request of Tetra Tech, the laboratory reported estimated values for target compound hits that are below the RL but greater than the DL. All canisters used for this project have been certified to the RL for all target analytes. Concentrations below the level at which the canisters were certified may be false positives. All sample results less than the RL but greater than the DL, were qualified as estimated (“J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307180

(Forty-four Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307180

(Two Sheets)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
 Lab ID: 1307180-01A
 Date/Time Collected: 7/3/13 01:16 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 03:02 PM
 Dilution Factor: 2.08
 Instrument/Filename: msdv.i / v071208

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.41	1.0	1.3
1,4-Dioxane	123-91-1	0.20	0.30	0.75	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.39	2.4	3.1	4.4
2-Hexanone	591-78-6	0.28	3.4	4.3	Not Detected
2-Propanol	67-63-0	0.27	2.0	2.6	9.1
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.85	Not Detected
Acetone	67-64-1	0.35	2.0	2.5	37
Bromomethane	74-83-9	0.85	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.17	0.52	1.3	0.68 J
Chlorobenzene	108-90-7	0.096	0.38	0.96	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.096	0.17	2.1	1.1 J
Cumene	98-82-8	0.14	0.41	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.29	0.72	0.21 J
Freon 11	75-69-4	0.25	0.47	1.2	1.2
Freon 113	76-13-1	0.43	0.64	1.6	0.54 J
Freon 12	75-71-8	0.15	0.41	1.0	2.3
Hexane	110-54-3	0.12	0.29	0.73	0.55 J
Methylene Chloride	75-09-2	0.16	0.29	1.4	1.4 J
Propylbenzene	103-65-1	0.17	0.41	1.0	Not Detected
Styrene	100-42-5	0.14	0.35	0.88	0.91

D5K
10/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307180-01A
 Date/Time Collecte: 7/3/13 01:16 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 7/12/13 03:02 PM
 Dilution Factor: 2.08
 Instrument/Filename: msdv.1/v071208

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.24	3.1	0.68 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	99

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/12/13 03:02 PM
Lab ID: 1307180-01B	Dilution Factor: 2.08
Date/Time Collecte: 7/3/13 01:16 PM	Instrument/Filename: msd\i / V071208sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.23	0.038 J
1,1-Dichloroethane	75-34-3	0.0050	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.016	0.034	0.17	0.29
Benzene	71-43-2	0.020	0.066	0.33 <i>DL</i>	0.29 J
Chloroform	67-66-3	0.0066	NA	0.20	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.0082	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0048	0.036	0.18	0.61
m,p-Xylene	108-38-3	0.011	0.036	0.36	1.1
Methyl tert-butyl ether	1634-04-4	0.0073	0.030	0.75	0.011 J
o-Xylene	95-47-6	0.014	0.036	0.18	0.40
Tetrachloroethene	127-18-4	0.011	0.056	0.28	0.47
Toluene	108-88-3	0.014	0.031	0.16	2.6
trans-1,2-Dichloroethene	156-60-5	0.017	0.033	0.82	0.11 J
Trichloroethene	79-01-6	0.061	0.061	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	97

DJK

10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-A	Date/Time Analyzed:	7/12/13 03:02 PM
Lab ID:	1307180-01B	Dilution Factor:	2.08
Date/Time Collecte	7/3/13 01:16 PM	Instrument/Filename:	msdv.i / V071208sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1307180-02A
 Date/Time Collected: 7/3/13 01:18 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 7/12/13 03:42 PM
 Dilution Factor: 1.84
 Instrument/File Name: msd.v1 / V071209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.18	0.36	0.90	4.8
1,4-Dioxane	123-91-1	0.17	0.26	0.66	0.26 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.34	2.2	2.7	7.8
2-Hexanone	591-78-6	0.25	3.0	3.8	Not Detected
2-Propanol	67-63-0	0.24	1.8	2.3	27
4-Methyl-2-pentanone	108-10-1	0.13	0.30	0.75	0.37 J
Acetone	67-64-1	0.31	1.7	2.2	52
Bromomethane	74-83-9	0.75	2.8	3.6	Not Detected
Carbon Disulfide	75-15-0	0.18	2.3	2.9	0.20 J +
Carbon Tetrachloride	56-23-5	0.15	0.46	1.2	0.81 J
Chlorobenzene	108-90-7	0.085	0.34	0.85	Not Detected
Chloroethane	75-00-3	0.31	1.9	2.4	Not Detected
Chloromethane	74-87-3	0.084	0.15	1.9	1.2 J
Cumene	98-82-8	0.13	0.36	0.90	0.43 J
Cyclohexane	110-82-7	0.10	0.25	0.63	5.5
Freon 11	75-69-4	0.22	0.41	1.0	2.0
Freon 113	76-13-1	0.38	0.56	1.4	0.51 J
Freon 12	75-71-8	0.13	0.36	0.91	2.7
Hexane	110-54-3	0.11	0.26	0.65	1.4
Methylene Chloride	75-09-2	0.14	0.26	1.3	3.0
Propylbenzene	103-65-1	0.15	0.36	0.90	0.68 J
Styrene	100-42-5	0.12	0.31	0.78	5.5

DKK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1307180-02A
Date/Time Collected: 7/3/13 01:18 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 03:42 PM
Dilution Factor: 1.84
Instrument/Filename: msd.v.i / V071209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.20	0.22	2.7	0.46 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-B	Date/Time Analyzed:	7/12/13 03:42 PM
Lab ID:	1307180-02B	Dilution Factor:	1.84
Date/Time Collecte	7/3/13 01:18 PM	Instrument/Filename:	msdv.i / V071209sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.040	0.20	0.035 J
1,1-Dichloroethane	75-34-3	0.0044	0.030	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.014	0.030	0.15	0.42
Benzene	71-43-2	0.018	0.059	0.29	0.46
Chloroform	67-66-3	0.0058	NA	0.18	0.34
cis-1,2-Dichloroethene	156-59-2	0.0072	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.0042	0.032	0.16	1.4
m,p-Xylene	108-38-3	0.010	0.032	0.32	3.3
Methyl tert-butyl ether	1634-04-4	0.0065	0.026	0.66	0.014 J
o-Xylene	95-47-6	0.012	0.032	0.16	1.1
Tetrachloroethene	127-18-4	0.0099	0.050	0.25	4.9
Toluene	108-88-3	0.012	0.028	0.14	5.0
trans-1,2-Dichloroethene	156-60-5	0.015	0.029	0.73	0.13 J
Trichloroethene	79-01-6	0.054	0.054	0.20	0.060 J
Vinyl Chloride	75-01-4	0.011	0.019	0.047	0.018 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	103

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/12/13 03:42 PM
Lab ID:	1307180-02B	Dilution Factor:	1.84
Date/Time Collecte	7/3/13 01:18 PM	Instrument/Filename:	msdv.i / V071209sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DSK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] ID	Date/Time Analyzed:	7/12/13 04:22 PM
Lab ID:	1307180-03A	Dilution Factor:	1.96
Date/Time Collecte	7/3/13 01:52 PM	Instrument/File name:	msdv.i / V071210
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.96	Not Detected
1,4-Dioxane	123-91-1	0.18	0.28	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.37	2.3	2.9	1.3 J
2-Hexanone	591-78-6	0.26	3.2	4.0	Not Detected
2-Propanol	67-63-0	0.25	1.9	2.4	0.62 J
4-Methyl-2-pentanone	108-10-1	0.14	0.32	0.80	Not Detected
Acetone	67-64-1	0.33	1.9	2.3	14
Bromomethane	74-83-9	0.80	3.0	3.8	Not Detected
Carbon Disulfide	75-15-0	0.20	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.49	1.2	0.68 J
Chlorobenzene	108-90-7	0.090	0.36	0.90	Not Detected
Chloroethane	75-00-3	0.33	2.1	2.6	Not Detected
Chloromethane	74-87-3	0.090	0.16	2.0	1.1 J
Cumene	98-82-8	0.14	0.38	0.96	Not Detected
Cyclohexane	110-82-7	0.11	0.27	0.67	Not Detected
Freon 11	75-69-4	0.23	0.44	1.1	1.2
Freon 113	76-13-1	0.40	0.60	1.5	0.48 J
Freon 12	75-71-8	0.14	0.39	0.97	2.3
Hexane	110-54-3	0.12	0.28	0.69	0.35 J
Methylene Chloride	75-09-2	0.15	0.27	1.4	0.57 J
Propylbenzene	103-65-1	0.16	0.38	0.96	Not Detected
Styrene	100-42-5	0.13	0.33	0.83	Not Detected

0.69 u

0.35 J

DJK
10/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-D	Date/Time Analyzed:	7/12/13 04:22 PM
Lab ID:	1307180-03A	Dilution Factor:	1.96
Date/Time Collecte	7/3/13 01:52 PM	Instrument/Filename:	msd\j\V071210
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.23	2.9	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	102

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

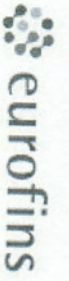
Client ID:	[REDACTED] D	Date/Time Analyzed:	7/12/13 04:22 PM
Lab ID:	1307180-03B	Dilution Factor:	1.96
Date/Time Collected:	7/3/13 01:52 PM	Instrument/Filename:	msdv.i / v071210sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.043	0.21	0.028 J
1,1-Dichloroethane	75-34-3	0.0047	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.032	0.16	0.059 J
Benzene	71-43-2	0.019	0.063	0.31	0.22 J
Chloroform	67-66-3	0.0062	NA	0.19	0.088 J
cis-1,2-Dichloroethene	156-59-2	0.0077	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0045	0.034	0.17	0.10 J
m,p-Xylene	108-38-3	0.011	0.034	0.34	0.33 J
Methyl tert-butyl ether	1634-04-4	0.0069	0.028	0.71	Not Detected
o-Xylene	95-47-6	0.013	0.034	0.17	0.12 J
Tetrachloroethene	127-18-4	0.010	0.053	0.26	0.028 J
Toluene	108-88-3	0.013	0.030	0.15	0.71
trans-1,2-Dichloroethene	156-60-5	0.016	0.031	0.78	Not Detected
Trichloroethene	79-01-6	0.058	0.058	0.21	Not Detected
Vinyl Chloride	75-01-4	0.012	0.020	0.050	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	96

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID
Lab ID: 1307180-03B
Date/Time Collecte 7/3/13 01:52 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 04:22 PM
Dilution Factor: 1.96
Instrument/Filename: msdv.i / V071210sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

DSK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307180-04A
 Date/Time Collecte: 7/3/13 01:59 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 04:57 PM
 Dilution Factor: 2.03
 Instrument/File name: msd.v11 / V071211

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	1.0	1.1
1,4-Dioxane	123-91-1	0.19	0.29	0.73	0.26 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	3.6
2-Hexanone	591-78-6	0.27	3.3	4.2	0.58 J
2-Propanol	67-63-0	0.26	2.0	2.5	4.0
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.83	0.52 J
Acetone	67-64-1	0.34	1.9	2.4	500-E-5
Bromomethane	74-83-9	0.83	3.2	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.2	0.22 J +
Carbon Tetrachloride	56-23-5	0.16	0.51	1.3	0.76 J
Chlorobenzene	108-90-7	0.093	0.37	0.93	Not Detected
Chloroethane	75-00-3	0.35	2.1	2.7	Not Detected
Chloromethane	74-87-3	0.093	0.17	2.1	1.4 J
Cumene	98-82-8	0.14	0.40	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	0.43 J
Freon 11	75-69-4	0.24	0.46	1.1	1.2
Freon 113	76-13-1	0.42	0.62	1.6	0.43 J
Freon 12	75-71-8	0.15	0.40	1.0	2.2
Hexane	110-54-3	0.12	0.29	0.72	1.8
Methylene Chloride	75-09-2	0.15	0.28	1.4	7.6
Propylbenzene	103-65-1	0.17	0.40	1.0	0.23 J
Styrene	100-42-5	0.13	0.34	0.86	1.8

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307180-04A
Date/Time Collected: 7/3/13 01:59 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 04:57 PM
Dilution Factor: 2.03
Instrument/Filename: msd.v11/v071211

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	3.0	Not Detected

J = Estimated value.
E = Exceeds instrument calibration range.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/12/13 04:57 PM
Lab ID: 1307180-04B	Dilution Factor: 2.03
Date/Time Collecte: 7/3/13 01:59 PM	Instrument/Filename: msdv.1/V071211sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.041 J
1,1-Dichloroethane	75-34-3	0.0048	0.033	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.016	0.033	0.16	Not Detected
Benzene	71-43-2	0.020	0.065	0.32	0.86
Chloroform	67-66-3	0.0064	NA	0.20	0.30
cis-1,2-Dichloroethene	156-59-2	0.0080	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0047	0.035	0.18	0.92
m,p-Xylene	108-38-3	0.011	0.035	0.35	2.6
Methyl tert-butyl ether	1634-04-4	0.0072	0.029	0.73	Not Detected
o-Xylene	95-47-6	0.013	0.035	0.18	1.5
Tetrachloroethene	127-18-4	0.011	0.055	0.28	0.066 J
Toluene	108-88-3	0.014	0.030	0.15	6.0
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.80	6.0
Trichloroethene	79-01-6	0.060	0.060	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.052	Not Detected

J = Estimated Value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	102

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/12/13 04:57 PM
Lab ID:	1307180-04B	Dilution Factor:	2.03
Date/Time Collecte	7/3/13 01:59 PM	Instrument/Filename:	msdv.1 / V071211sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

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10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-B	Date/Time Analyzed:	7/12/13 05:36 PM
Lab ID:	1307180-05A	Dilution Factor:	1.95
Date/Time Collecte	7/3/13 02:02 PM	Instrument/Filename:	msdv.i/V071212
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.96	1.0
1,4-Dioxane	123-91-1	0.18	0.28	0.70	0.26 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.37	2.3	2.9	4.8
2-Hexanone	591-78-6	0.26	3.2	4.0	0.91 J
2-Propanol	67-63-0	0.25	1.9	2.4	21
4-Methyl-2-pentanone	108-10-1	0.14	0.32	0.80	0.69 J
Acetone	67-64-1	0.32	1.8	2.3	140
Bromomethane	74-83-9	0.80	3.0	3.8	Not Detected
Carbon Disulfide	75-15-0	0.20	2.4	3.0	0.25 J +
Carbon Tetrachloride	56-23-5	0.16	0.49	1.2	0.56 J
Chlorobenzene	108-90-7	0.090	0.36	0.90	Not Detected
Chloroethane	75-00-3	0.33	2.0	2.6	Not Detected
Chloromethane	74-87-3	0.090	0.16	2.0	1.4 J
Cumene	98-82-8	0.14	0.38	0.96	Not Detected
Cyclohexane	110-82-7	0.11	0.27	0.67	1.3
Freon 11	75-69-4	0.23	0.44	1.1	1.2
Freon 113	76-13-1	0.40	0.60	1.5	0.58 J
Freon 12	75-71-8	0.14	0.38	0.96	2.4
Hexane	110-54-3	0.12	0.27	0.69	6.4
Methylene Chloride	75-09-2	0.15	0.27	1.4	8.4
Propylbenzene	103-65-1	0.16	0.38	0.96	0.22 J
Styrene	100-42-5	0.13	0.33	0.83	0.84

DJR
10/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1307180-05A
 Date/Time Collected: 7/3/13 02:02 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 05:36 PM
 Dilution Factor: 1.95
 Instrument/Filename: msd.v1/V071212

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.23	2.9	1.0 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/12/13 05:36 PM
Lab ID:	1307180-05B	Dilution Factor:	1.95
Date/Time Collected:	7/3/13 02:02 PM	Instrument/Filename:	msdv.i / V071212sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.042	0.21	0.044 J
1,1-Dichloroethane	75-34-3	0.0046	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.032	0.16	0.17
Benzene	71-43-2	0.019	0.062	0.31	0.99
Chloroform	67-66-3	0.0062	NA	0.19	0.36
cis-1,2-Dichloroethene	156-59-2	0.0076	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0045	0.034	0.17	0.82
m,p-Xylene	108-38-3	0.011	0.034	0.34	2.2
Methyl tert-butyl ether	1634-04-4	0.0069	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.013	0.034	0.17	0.89
Tetrachloroethene	127-18-4	0.010	0.053	0.26	0.22 J
Toluene	108-88-3	0.013	0.029	0.15	6.9
trans-1,2-Dichloroethene	156-60-5	0.016	0.031	0.77	1.6
Trichloroethene	79-01-6	0.058	0.058	0.21	Not Detected
Vinyl Chloride	75-01-4	0.012	0.020	0.050	0.030 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	99

DJR
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/12/13 05:36 PM
Lab ID:	1307180-05B	Dilution Factor:	1.95
Date/Time Collecte	7/3/13 02:02 PM	Instrument/Filename:	msd.v.i / V071212sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: A
Lab ID: 1307180-06A
Date/Time Collected: 7/3/13 02:33 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 06:17 PM
Dilution Factor: 1.90
Instrument/File name: msd.v.i./v071213

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.18	0.37	0.93	1.0
1,4-Dioxane	123-91-1	0.18	0.27	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.2	2.8	4.0
2-Hexanone	591-78-6	0.26	3.1	3.9	0.95 J
2-Propanol	67-63-0	0.24	1.9	2.3	6.9
4-Methyl-2-pentanone	108-10-1	0.13	0.31	0.78	0.54 J
Acetone	67-64-1	0.32	1.8	2.2	37
Bromomethane	74-83-9	0.78	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	Not Detected
Chlorobenzene	108-90-7	0.087	0.35	0.87	0.51 J
Chloroethane	75-00-3	0.32	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.087	0.16	2.0	Not Detected
Cumene	98-82-8	0.13	0.37	0.93	1.1 J
Cyclohexane	110-82-7	0.10	0.26	0.65	Not Detected
Freon 11	75-69-4	0.23	0.43	1.1	0.24 J
Freon 113	76-13-1	0.39	0.58	1.4	1.8
Freon 12	75-71-8	0.14	0.38	0.94	0.47 J
Hexane	110-54-3	0.11	0.27	0.67	2.4
Methylene Chloride	75-09-2	0.14	0.26	1.3	1.1
Propylbenzene	103-65-1	0.16	0.37	0.93	0.48 J
Styrene	100-42-5	0.12	0.32	0.81	0.33 J
					0.40 J

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1307180-06A
Date/Time Collected: 7/3/13 02:33 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 06:17 PM
Dilution Factor: 1.90
Instrument/Filename: msd.v.i/v071213

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.22	2.8	0.48 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

DJR
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307180-06B
 Date/Time Collected: 7/3/13 02:33 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 06:17 PM
 Dilution Factor: 1.90
 Instrument/Filename: msd.v.i / v071213sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.041	0.21	0.058 J
1,1-Dichloroethane	75-34-3	0.0045	0.031	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.014	0.031	0.15	1.2
Benzene	71-43-2	0.018	0.061	0.30	0.73
Chloroform	67-66-3	0.0060	NA	0.18	0.086 J
cis-1,2-Dichloroethene	156-59-2	0.0074	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0044	0.033	0.16	0.85
m,p-Xylene	108-38-3	0.010	0.033	0.33	2.7
Methyl tert-butyl ether	1634-04-4	0.0067	0.027	0.68	Not Detected
o-Xylene	95-47-6	0.012	0.033	0.16	1.1
Tetrachloroethene	127-18-4	0.010	0.052	0.26	0.30
Toluene	108-88-3	0.013	0.029	0.14	5.6
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.75	0.042 J
Trichloroethene	79-01-6	0.056	0.056	0.20	0.061 J
Vinyl Chloride	75-01-4	0.011	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	95

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	7/12/13 06:17 PM
Lab ID:	1307180-06B	Dilution Factor:	1.90
Date/Time Collecte	7/3/13 02:33 PM	Instrument/Filename:	msdv.i / V071213sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/12/13 07:03 PM
Lab ID: 1307180-07A	Dilution Factor: 1.93
Date/Time Collecte: 7/3/13 02:38 PM	Instrument/Filename: msd.v.i./V071214
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.95	1.2
1,4-Dioxane	123-91-1	0.18	0.28	0.70	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.3	2.8	3.1
2-Hexanone	591-78-6	0.26	3.2	4.0	0.48 J
2-Propanol	67-63-0	0.25	1.9	2.4	14
4-Methyl-2-pentanone	108-10-1	0.14	0.32	0.79	0.62 J
Acetone	67-64-1	0.32	1.8	2.3	50
Bromomethane	74-83-9	0.79	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	0.62 J
Chlorobenzene	108-90-7	0.089	0.36	0.89	Not Detected
Chloroethane	75-00-3	0.33	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.089	0.16	2.0	1.4 J
Cumene	98-82-8	0.13	0.38	0.95	Not Detected
Cyclohexane	110-82-7	0.10	0.26	0.66	0.26 J
Freon 11	75-69-4	0.23	0.43	1.1	1.8
Freon 113	76-13-1	0.40	0.59	1.5	0.58 J
Freon 12	75-71-8	0.14	0.38	0.95	2.4
Hexane	110-54-3	0.12	0.27	0.68	1.1
Methylene Chloride	75-09-2	0.15	0.27	1.3	0.42 J
Propylbenzene	103-65-1	0.16	0.38	0.95	0.31 J
Styrene	100-42-5	0.13	0.33	0.82	0.51 J

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10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307180-07A
Date/Time Collecte: 7/3/13 02:38 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 07:03 PM
Dilution Factor: 1.93
Instrument/Filename: msd\i\ \V071214

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.23	2.8	0.28 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/12/13 07:03 PM
Lab ID: 1307180-07B	Dilution Factor: 1.93
Date/Time Collected: 7/3/13 02:38 PM	Instrument/Filename: msdv.i / v071214sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.042	0.21	0.044 J
1,1-Dichloroethane	75-34-3	0.0046	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.031	0.16	1.2
Benzene	71-43-2	0.018	0.062	0.31	0.79
Chloroform	67-66-3	0.0061	NA	0.19	0.17 J
cis-1,2-Dichloroethene	156-59-2	0.0076	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0044	0.034	0.17	0.94
m,p-Xylene	108-38-3	0.010	0.034	0.34	3.0
Methyl tert-butyl ether	1634-04-4	0.0068	0.028	0.70	0.0083 J
o-Xylene	95-47-6	0.013	0.034	0.17	1.1
Tetrachloroethene	127-18-4	0.010	0.052	0.26	0.19 J
Toluene	108-88-3	0.013	0.029	0.14	7.7
trans-1,2-Dichloroethene	156-60-5	0.016	0.031	0.76	Not Detected
Trichloroethene	79-01-6	0.057	0.057	0.21	0.10 J
Vinyl Chloride	75-01-4	0.011	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	96

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307180-07B
Date/Time Collecte 7/3/13 02:38 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 07:03 PM
Dilution Factor: 1.93
Instrument/Filename: msd.v.i / V071214sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/12/13 07:41 PM
Lab ID:	1307180-08A	Dilution Factor:	1.59
Date/Time Collecte	7/3/13 02:40 PM	Instrument/Filename:	msdv.i/v071215
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.15	0.31	0.78	1.6
1,4-Dioxane	123-91-1	0.15	0.23	0.57	0.38 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.30	1.9	2.3	5.7
2-Hexanone	591-78-6	0.21	2.6	3.2	0.83 J
2-Propanol	67-63-0	0.20	1.6	2.0	18
4-Methyl-2-pentanone	108-10-1	0.11	0.26	0.65	0.82
Acetone	67-64-1	0.26	1.5	1.9	72
Bromomethane	74-83-9	0.65	2.5	3.1	Not Detected
Carbon Disulfide	75-15-0	0.16	2.0	2.5	0.23 J +
Carbon Tetrachloride	56-23-5	0.13	0.40	1.0	0.78 J
Chlorobenzene	108-90-7	0.073	0.29	0.73	Not Detected
Chloroethane	75-00-3	0.27	1.7	2.1	Not Detected
Chloromethane	74-87-3	0.073	0.13	1.6	1.8
Cumene	98-82-8	0.11	0.31	0.78	Not Detected
Cyclohexane	110-82-7	0.087	0.22	0.55	0.48 J
Freon 11	75-69-4	0.19	0.36	0.89	1.9
Freon 113	76-13-1	0.33	0.49	1.2	0.47 J
Freon 12	75-71-8	0.11	0.31	0.79	2.8
Hexane	110-54-3	0.095	0.22	0.56	1.6
Methylene Chloride	75-09-2	0.12	0.22	1.1	7.4
Propylbenzene	103-65-1	0.13	0.31	0.78	0.30 J
Styrene	100-42-5	0.10	0.27	0.68	0.70

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/12/13 07:41 PM
Lab ID: 1307180-08A	Dilution Factor: 1.59
Date/Time Collected: 7/3/13 02:40 PM	Instrument/Filename: msd.v.i/v071215
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.18	0.19	2.3	0.78 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	107

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ B	Date/Time Analyzed:	7/12/13 07:41 PM
Lab ID:	1307180-08B	Dilution Factor:	1.59
Date/Time Collecte	7/3/13 02:40 PM	Instrument/File name:	msd.v1/v071215sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,1,1-Trichloroethane	71-55-6	0.0094	0.035	0.17	0.057 J
1,1-Dichloroethane	75-34-3	0.0038	0.026	0.13	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.026	0.13	0.88
Benzene	71-43-2	0.015	0.051	0.25	0.88
Chloroform	67-66-3	0.0050	NA	0.16	0.22
cis-1,2-Dichloroethene	156-59-2	0.0062	0.025	0.13	Not Detected
Ethyl Benzene	100-41-4	0.0036	0.028	0.14	1.1
m,p-Xylene	108-38-3	0.0087	0.028	0.28	3.5
Methyl tert-butyl ether	1634-04-4	0.0056	0.023	0.57	0.012 J
o-Xylene	95-47-6	0.010	0.028	0.14	1.4
Tetrachloroethene	127-18-4	0.0085	0.043	0.22	0.23
Toluene	108-88-3	0.011	0.024	0.12	8.3
trans-1,2-Dichloroethene	156-60-5	0.013	0.025	0.63	0.045 J
Trichloroethene	79-01-6	0.047	0.047	0.17	0.13 J
Vinyl Chloride	75-01-4	0.0095	0.016	0.041	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	103

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1307180-08B
Date/Time Collected: 7/3/13 02:40 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 07:41 PM
Dilution Factor: 1.59
Instrument/Filename: msdv.i / V071215sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/12/13 08:17 PM
Lab ID:	1307180-09A	Dilution Factor:	2.05
Date/Time Collecte	7/3/13 03:38 PM	Instrument/File name:	msdv.i / V071216
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	1.0	0.69 J
1,4-Dioxane	123-91-1	0.19	0.30	0.74	0.34 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	4.2
2-Hexanone	591-78-6	0.28	3.4	4.2	0.52 J
2-Propanol	67-63-0	0.26	2.0	2.5	7.1
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.84	1.1
Acetone	67-64-1	0.34	1.9	2.4	64
Bromomethane	74-83-9	0.84	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.52	1.3	0.74 J
Chlorobenzene	108-90-7	0.094	0.38	0.94	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.094	0.17	2.1	Not Detected
Cumene	98-82-8	0.14	0.40	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	0.56 J
Freon 11	75-69-4	0.24	0.46	1.2	1.2
Freon 113	76-13-1	0.42	0.63	1.6	0.47 J
Freon 12	75-71-8	0.15	0.40	1.0	2.4
Hexane	110-54-3	0.12	0.29	0.72	1.8
Methylene Chloride	75-09-2	0.16	0.28	1.4	0.35 J
Propylbenzene	103-65-1	0.17	0.40	1.0	0.34 J
Styrene	100-42-5	0.13	0.35	0.87	0.77 J

DJR
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307180-09A
Date/Time Collected: 7/3/13 03:38 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/12/13 08:17 PM
Dilution Factor: 2.05
Instrument/Filename: msdv.i / V071216

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.24	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

DSR
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-A	Date/Time Analyzed:	7/12/13 08:17 PM
Lab ID:	1307180-09B	Dilution Factor:	2.05
Date/Time Collecte	7/3/13 03:38 PM	Instrument/Filename:	msdv.i/v071216sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.22	0.042 J
1,1-Dichloroethane	75-34-3	0.0049	0.033	0.16	0.085 J
1,2-Dichloroethane	107-06-2	0.016	0.033	0.16	0.26
Benzene	71-43-2	0.020	0.065	0.33	0.51
Chloroform	67-66-3	0.0065	NA	0.20	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.0080	0.032	0.16	0.076 J
Ethyl Benzene	100-41-4	0.0047	0.036	0.18	0.99
m,p-Xylene	108-38-3	0.011	0.036	0.36	2.8
Methyl tert-butyl ether	1634-04-4	0.0072	0.030	0.74	0.035 J
o-Xylene	95-47-6	0.013	0.036	0.18	1.1
Tetrachloroethene	127-18-4	0.011	0.056	0.28	0.17 J
Toluene	108-88-3	0.014	0.031	0.15	5.3
trans-1,2-Dichloroethene	156-60-5	0.017	0.032	0.81	0.082 J
Trichloroethene	79-01-6	0.060	0.060	0.22	0.094 J
Vinyl Chloride	75-01-4	0.012	0.021	0.052	0.085

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	93

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] A	Date/Time Analyzed:	7/12/13 08:17 PM
Lab ID:	1307180-09B	Dilution Factor:	2.05
Date/Time Collecte	7/3/13 03:38 PM	Instrument/Filename:	msdv.i / V071216sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: B	Date/Time Analyzed: 7/12/13 08:55 PM
Lab ID: 1307180-10A	Dilution Factor: 2.02
Date/Time Collecte: 7/3/13 03:39 PM	Instrument/Filename: msdvi/v071217
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	0.99	1.1
1,4-Dioxane	123-91-1	0.19	0.29	0.73	0.71 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	4.5
2-Hexanone	591-78-6	0.27	3.3	4.1	Not Detected
2-Propanol	67-63-0	0.26	2.0	2.5	7.8
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.83	1.4
Acetone	67-64-1	0.34	1.9	2.4	62
Bromomethane	74-83-9	0.83	3.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.1	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.51	1.3	0.54 J
Chlorobenzene	108-90-7	0.093	0.37	0.93	Not Detected
Chloroethane	75-00-3	0.34	2.1	2.7	Not Detected
Chloromethane	74-87-3	0.093	0.17	2.1	Not Detected
Cumene	98-82-8	0.14	0.40	0.99	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	0.53 J
Freon 11	75-69-4	0.24	0.45	1.1	1.2
Freon 113	76-13-1	0.42	0.62	1.5	0.49 J
Freon 12	75-71-8	0.15	0.40	1.0	2.5
Hexane	110-54-3	0.12	0.28	0.71	2.0
Methylene Chloride	75-09-2	0.15	0.28	1.4	0.56 J
Propylbenzene	103-65-1	0.17	0.40	0.99	0.28 J
Styrene	100-42-5	0.13	0.34	0.86	0.78 J

DJR
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307180-10A
Date/Time Collected: 7/3/13 03:39 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/12/13 08:55 PM
Dilution Factor: 2.02
Instrument/Filename: msd.v.i / V071217

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	3.0	0.34 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	102

DRK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/12/13 08:55 PM
Lab ID: 1307180-10B	Dilution Factor: 2.02
Date/Time Collecte: 7/3/13 03:39 PM	Instrument/Filename: msd\11\V071217sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.049 J
1,1-Dichloroethane	75-34-3	0.0048	0.033	0.16	0.085 J
1,2-Dichloroethane	107-06-2	0.015	0.033	0.16	0.26
Benzene	71-43-2	0.019	0.064	0.32	0.52
Chloroform	67-66-3	0.0064	NA	0.20	0.21
cis-1,2-Dichloroethene	156-59-2	0.0079	0.032	0.16	0.083 J
Ethyl Benzene	100-41-4	0.0046	0.035	0.18	1.0
m,p-Xylene	108-38-3	0.011	0.035	0.35	3.1
Methyl tert-butyl ether	1634-04-4	0.0071	0.029	0.73	0.032 J
o-Xylene	95-47-6	0.013	0.035	0.18	1.2
Tetrachloroethene	127-18-4	0.011	0.055	0.27	0.25 J
Toluene	108-88-3	0.014	0.030	0.15	5.0
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.80	0.079 J
Trichloroethene	79-01-6	0.060	0.060	0.22	0.11 J
Vinyl Chloride	75-01-4	0.012	0.021	0.052	0.095

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	97

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-B	Date/Time Analyzed:	7/12/13 08:55 PM
Lab ID:	1307180-10B	Dilution Factor:	2.02
Date/Time Collecte	7/3/13 03:39 PM	Instrument/Filename:	msdv.i / V071217sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DJL
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-C	Date/Time Analyzed:	7/12/13 09:31 PM
Lab ID:	1307180-11A	Dilution Factor:	1.63
Date/Time Collecte	7/3/13 03:43 PM	Instrument/File name:	msdv.i / v071218
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.32	0.80	Not Detected
1,4-Dioxane	123-91-1	0.15	0.23	0.59	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.31	1.9	2.4	1.6 J
2-Hexanone	591-78-6	0.22	2.7	3.3	0.29 J
2-Propanol	67-63-0	0.21	1.6	2.0	2.8
4-Methyl-2-pentanone	108-10-1	0.11	0.27	0.67	Not Detected
Acetone	67-64-1	0.27	1.5	1.9	21
Bromomethane	74-83-9	0.67	2.5	3.2	Not Detected
Carbon Disulfide	75-15-0	0.16	2.0	2.5	Not Detected
Carbon Tetrachloride	56-23-5	0.13	0.41	1.0	0.81 J
Chlorobenzene	108-90-7	0.075	0.30	0.75	Not Detected
Chloroethane	75-00-3	0.28	1.7	2.2	Not Detected
Chloromethane	74-87-3	0.075	0.13	1.7	1.2 J
Cumene	98-82-8	0.11	0.32	0.80	Not Detected
Cyclohexane	110-82-7	0.089	0.22	0.56	2.3
Freon 11	75-69-4	0.19	0.37	0.92	1.2
Freon 113	76-13-1	0.34	0.50	1.2	0.58 J
Freon 12	75-71-8	0.12	0.32	0.81	2.3
Hexane	110-54-3	0.097	0.23	0.57	0.52 J
Methylene Chloride	75-09-2	0.12	0.23	1.1	0.50 J
Propylbenzene	103-65-1	0.14	0.32	0.80	Not Detected
Styrene	100-42-5	0.11	0.28	0.69	0.15 J

DJK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/12/13 09:31 PM
Lab ID: 1307180-11A	Dilution Factor: 1.63
Date/Time Collected: 7/3/13 03:43 PM	Instrument/Filename: msd\j\ \V071218
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
Tetrahydrofuran	109-99-9	0.18	0.19	2.4	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	99

DGR
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/12/13 09:31 PM
Lab ID: 1307180-11B	Dilution Factor: 1.63
Date/Time Collecte: 7/3/13 03:43 PM	Instrument/File Name: msd.v.i / v071218sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0096	0.036	0.18	0.032 J
1,1-Dichloroethane	75-34-3	0.0039	0.026	0.13	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.026	0.13	0.13 J
Benzene	71-43-2	0.016	0.052	0.26	0.21 J
Chloroform	67-66-3	0.0052	NA	0.16	0.080 J
cis-1,2-Dichloroethene	156-59-2	0.0064	0.026	0.13	Not Detected
Ethyl Benzene	100-41-4	0.0038	0.028	0.14	0.17
m,p-Xylene	108-38-3	0.0089	0.028	0.28	0.46
Methyl tert-butyl ether	1634-04-4	0.0058	0.024	0.59	Not Detected
o-Xylene	95-47-6	0.011	0.028	0.14	0.18
Tetrachloroethene	127-18-4	0.0087	0.044	0.22	0.31
Toluene	108-88-3	0.011	0.024	0.12	1.2
trans-1,2-Dichloroethene	156-60-5	0.013	0.026	0.65	0.061 J
Trichloroethene	79-01-6	0.048	0.048	0.18	Not Detected
Vinyl Chloride	75-01-4	0.0097	0.017	0.042	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	100

DSTK
10/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-C	Date/Time Analyzed:	7/12/13 09:31 PM
Lab ID:	1307180-11B	Dilution Factor:	1.63
Date/Time Collecte	7/3/13 03:43 PM	Instrument/Filename:	msdv.i / V071218sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DSX
10/16/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 3

Project Manager Karen Steunpison
 Collected by: (Print and Sign) Mark Sawyer
 Company Texa Tech Email mark.pearsone@tatahd.com
 Address 851 Bridger Dr Ste 6 City Bozeman State MT Zip 59718
 Phone 406-582-8780 Fax _____

Project Info:
 P.O. # _____
 Project # 114-710303.740
 Project Name Bozeman Landfill

Turn Around Time:
 Normal
 Rush
5 day specify _____

Lab Use Only
 Pressurized by: _____ Date: _____
 Pressurization Gas: _____
 No. _____ He _____

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt Final (ps)
01AB	-A	34752	7/3/13	1316	to 15	-26.6	-7.6	
02AB	-B	20945		1318		-25.3	-3.9	
03AB	-D	33676		1352		-26.1	-3.6	
03AB	-A	14091	1359 →	140288		-26.3	-6.7	
05AB	-B	33922	1402 →	140544		-24.9	-4.9	
06AB	-A	3740		1433		-27.0	-6.3	
07AB	-C	33895		1438		-15.8	-5.9	
08AB	-B	33676		1440		-25.4	0.0	

Relinquished by: (signature) [Signature] Date/Time 7-3-13 1640 Received by: (signature) [Signature] Date/Time 7/8/13 0950

Relinquished by: (signature) _____ Date/Time _____ Received by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____ Received by: (signature) _____ Date/Time _____

Notes:
 19 SUMMA Canisters and 20 Flow controllers shipped in 5 boxes to Air Toxics

Shipper Name Feeler Air Bill # _____ Temp (°C) 17 Condition Good Custody Seals Intact? Yes No None

Work Order # 1307180



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
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180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 2 of 3

Project Manager Karen Stempson
 Collected by: (Print and Sign) Nick Sover
 Company Testa Tech Email MARK.PEARSON@TESTATECH.COM
 Address 851 Bridge Dr, 5th City Bozeman State MT zip 59718
 Phone 406-582-8780 Fax _____

Project Info:
 P.O. # _____
 Project # 114-710303, 740
 Project Name Bozeman Landfill

Turn Around Time: Normal Rush
 Date: _____
 Pressurization Gas: _____
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt (psi)
09AB	-A	33843	7/3/13	1538	TB 15	-25.0	-5.6	
10AB	-B	94944		1539		-24.9	-5.0	
11AB	-C	34268		1543		-25.3	0.0	
Notes:								
Relinquished by: (signature) <u>[Signature]</u>		Date/Time <u>7-3-13/1640</u>		Received by: (signature) <u>[Signature]</u>		Date/Time <u>7/8/13 0950</u>		
Relinquished by: (signature) _____		Date/Time _____		Received by: (signature) _____		Date/Time _____		
Relinquished by: (signature) _____		Date/Time _____		Received by: (signature) _____		Date/Time _____		

Lab Shipper Name Feeder Air Bill # _____ Temp (°C) N/A Condition Good Custody Seals Intact? Yes No None Work Order # 1807180

Lab Use Only

October 17, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 17, 2013

Sample Delivery Group (SDG) No.	1307289R1
Samples	██████-C, ██████-D, ██████-A, ██████-B, and ██████-C
Field Duplicates	██████-C and ██████-E

Tetra Tech, Inc. conducted data validation of the analytical results for six air samples (including one field duplicate) that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 12, 2013. The samples were analyzed under SDG No. 1307289R1 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution



October 17, 2013

- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307289R1 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times with the following exceptions. The COC information for samples [REDACTED]-C, [REDACTED]-D, [REDACTED]-E, [REDACTED]-A, [REDACTED]-B, and [REDACTED]-C did not match the information on the canister with regard to canister IDs. Tetra Tech was notified of the discrepancies and the information on the canisters was used to process and report the samples. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the July 20, 2013 full scan analyses contained concentrations of target analytes 2-butanone, acetone and methylene chloride below reporting limits (RL). The method blank associated with July 20, 2013, SIM analyses contained 1,1-dichloroethane, ethyl benzene, m,p-xylene, o-xylene, toluene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride below RLs. The method blank associated with July 21, 2013, SIM analyses contained cis-1,2-dichloroethene, ethyl benzene, m,p-xylene, o-xylene, toluene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory blanks 2-butanone, acetone, and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

RPDs were calculated for field duplicate ([REDACTED]-C and [REDACTED]-E) sample results for all results greater than the RL. All RPDs were ≤ 30 .

October 17, 2013

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the full scan and SIM analyses LCSs and LCSDs within laboratory QC limits. No data were qualified.

SAMPLE DILUTION

Dilution (2.43x) was performed on sample C1-1-C due to high concentrations of acetone, hexane, and toluene in the sample.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory revised this laboratory report to include estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Therefore, sample results less than the RL but greater than the DL were qualified as estimated (flagged "J").

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307289R1

(Twenty-four Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307289R1

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307289R1-01A
Date/Time Collected: 7/12/13 11:28 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 12:09 PM
Dilution Factor: 1.76
Instrument/Filename: msdc:\c072014

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.28	0.69	0.86	14
1,4-Dioxane	123-91-1	0.13	0.51	0.63	0.26 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.73	2.6	28
2-Hexanone	591-78-6	0.24	1.0	3.6	1.0 J
2-Propanol	67-63-0	0.20	0.60	2.2	24
4-Methyl-2-pentanone	108-10-1	0.087	0.58	0.72	7.6
Acetone	67-64-1	0.56	0.58	2.1	180 J
Bromomethane	74-83-9	0.72	0.96	3.4	Not Detected
Carbon Disulfide	75-15-0	0.14	0.77	2.7	0.22 J
Carbon Tetrachloride	56-23-5	0.28	0.88	1.1	0.31 J
Chlorobenzene	108-90-7	0.17	0.65	0.81	Not Detected
Chloroethane	75-00-3	0.26	0.65	2.3	Not Detected
Chloromethane	74-87-3	0.040	0.29	1.8	Not Detected
Cumene	98-82-8	0.11	0.69	0.86	0.84 J
Cyclohexane	110-82-7	0.085	0.48	0.60	7.1
Freon 11	75-69-4	0.082	0.79	0.99	2.9
Freon 113	76-13-1	0.24	1.1	1.3	0.56 J
Freon 12	75-71-8	0.087	0.70	0.87	2.8
Hexane	110-54-3	0.077	0.50	0.62	3.5
Methylene Chloride	75-09-2	0.12	0.49	1.2	1.0 J
Propylbenzene	103-65-1	0.18	0.69	0.86	2.6
Styrene	100-42-5	0.15	0.60	0.75	4.9

DSK

10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
 Lab ID: 1307289R1-01A
 Date/Time Collected: 7/12/13 11:28 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 12:09 PM
 Dilution Factor: 1.76
 Instrument/Filename: msdc.i / c072014

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.50	0.73	2.6	14

J = Estimated value.
 E = Exceeds instrument calibration range.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

DJL
 10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	7/21/13 12:09 PM
Lab ID:	1307289R1-01B	Dilution Factor:	1.76
Date/Time Collecte	7/12/13 11:28 AM	Instrument/Filename:	msdc.i / c072014sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.038	0.19	0.12 J
1,1-Dichloroethane	75-34-3	0.0031	0.028	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.030	0.030	0.14	0.066 J
Benzene	71-43-2	0.045	0.045	0.28	4.5
Chloroform	67-66-3	0.015	NA	0.17	3.6
cis-1,2-Dichloroethene	156-59-2	0.012	0.028	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.030	0.15	8.6
m,p-Xylene	108-38-3	0.015	0.030	0.30	32
Methyl tert-butyl ether	1634-04-4	0.018	0.025	0.63	0.028 J
o-Xylene	95-47-6	0.014	0.030	0.15	10
Tetrachloroethene	127-18-4	0.014	0.048	0.24	0.28
Toluene	108-88-3	0.0057	0.026	0.13	48
trans-1,2-Dichloroethene	156-60-5	0.017	0.028	0.70	Not Detected
Trichloroethene	79-01-6	0.0077	0.038	0.19	Not Detected
Vinyl Chloride	75-01-4	0.0061	0.018	0.045	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	109

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ C	Date/Time Analyzed:	7/21/13 12:09 PM
Lab ID:	1307289R1-01B	Dilution Factor:	1.76
Date/Time Collecte	7/12/13 11:28 AM	Instrument/Filename:	msdc.i / c072014sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1307289R1-02A
Date/Time Collecte: 7/12/13 11:26 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 01:19 PM
Dilution Factor: 1.60
Instrument/Filename: msdc.i / c072015

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.25	0.63	0.79	0.26 J
1,4-Dioxane	123-91-1	0.12	0.46	0.58	0.31 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.19	0.66	2.4	1.6 J
2-Hexanone	591-78-6	0.22	0.92	3.3	0.38 J
2-Propanol	67-63-0	0.18	0.55	2.0	0.61 J
4-Methyl-2-pentanone	108-10-1	0.079	0.52	0.66	0.22 J
Acetone	67-64-1	0.51	0.53	1.9	13
Bromomethane	74-83-9	0.65	0.87	3.1	Not Detected
Carbon Disulfide	75-15-0	0.12	0.70	2.5	Not Detected
Carbon Tetrachloride	56-23-5	0.25	0.80	1.0	0.57 J
Chlorobenzene	108-90-7	0.15	0.59	0.74	Not Detected
Chloroethane	75-00-3	0.23	0.59	2.1	Not Detected
Chloromethane	74-87-3	0.036	0.26	1.6	1.6 J
Cumene	98-82-8	0.10	0.63	0.79	Not Detected
Cyclohexane	110-82-7	0.077	0.44	0.55	Not Detected
Freon 11	75-69-4	0.075	0.72	0.90	Not Detected
Freon 113	76-13-1	0.21	0.98	1.2	1.4
Freon 12	75-71-8	0.079	0.63	0.79	0.60 J
Hexane	110-54-3	0.070	0.45	0.56	2.9
Methylene Chloride	75-09-2	0.11	0.44	1.1	0.26 J
Propylbenzene	103-65-1	0.16	0.63	0.79	0.44 J
Styrene	100-42-5	0.14	0.54	0.68	Not Detected

D57L
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ D	Date/Time Analyzed:	7/21/13 01:19 PM
Lab ID:	1307289R1-02A	Dilution Factor:	1.60
Date/Time Collected:	7/12/13 11:26 AM	Instrument/Filename:	msdc.i / c072015
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.46	0.66	2.4	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	99

DSL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D
 Lab ID: 1307289R1-02B
 Date/Time Collecte: 7/12/13 11:26 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 01:19 PM
 Dilution Factor: 1.60
 Instrument/File name: msdc.i / c072015sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.016	0.035	0.17	0.026 J
1,1-Dichloroethane	75-34-3	0.0028	0.026	0.13	Not Detected
1,2-Dichloroethane	107-06-2	0.027	0.027	0.13	0.069 J
Benzene	71-43-2	0.041	0.041	0.26	0.20 J
Chloroform	67-66-3	0.014	NA	0.16	0.10 J
cis-1,2-Dichloroethene	156-59-2	0.011	0.025	0.13	Not Detected
Ethyl Benzene	100-41-4	0.011	0.028	0.14	0.091 J
m,p-Xylene	108-38-3	0.014	0.028	0.28	0.26 J
Methyl tert-butyl ether	1634-04-4	0.017	0.023	0.58	Not Detected
o-Xylene	95-47-6	0.012	0.028	0.14	Not Detected
Tetrachloroethene	127-18-4	0.013	0.043	0.22	0.096 J
Toluene	108-88-3	0.0052	0.024	0.12	0.025 J
trans-1,2-Dichloroethene	156-60-5	0.015	0.025	0.63	Not Detected
Trichloroethene	79-01-6	0.0070	0.034	0.17	Not Detected
Vinyl Chloride	75-01-4	0.0055	0.016	0.041	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	104

DSK
10117113



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] D	Date/Time Analyzed:	7/21/13 01:19 PM
Lab ID:	1307289R1-02B	Dilution Factor:	1.60
Date/Time Collecte	7/12/13 11:26 AM	Instrument/File name:	msdc.i / c072015sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DJR
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E
Lab ID: 1307289R1-03A
Date/Time Collecte 7/12/13 11:29 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 02:17 PM
Dilution Factor: 2.02
Instrument/File name: msdc1 / c072016

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.32	0.79	0.99	13
1,4-Dioxane	123-91-1	0.14	0.58	0.73	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.83	3.0	26
2-Hexanone	591-78-6	0.27	1.2	4.1	0.81 J
2-Propanol	67-63-0	0.23	0.70	2.5	27
4-Methyl-2-pentanone	108-10-1	0.10	0.66	0.83	7.6
Acetone	67-64-1	0.65	0.67	2.4	180
Bromomethane	74-83-9	0.82	1.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.16	0.88	3.1	0.28 J
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	0.36 J
Chlorobenzene	108-90-7	0.20	0.74	0.93	Not Detected
Chloroethane	75-00-3	0.29	0.75	2.7	Not Detected
Chloromethane	74-87-3	0.046	0.33	2.1	Not Detected
Cumene	98-82-8	0.13	0.79	0.99	0.60 J
Cyclohexane	110-82-7	0.097	0.56	0.70	7.4
Freon 11	75-69-4	0.095	0.91	1.1	2.8
Freon 113	76-13-1	0.27	1.2	1.5	0.80 J
Freon 12	75-71-8	0.099	0.80	1.0	2.8
Hexane	110-54-3	0.089	0.57	0.71	3.6
Methylene Chloride	75-09-2	0.14	0.56	1.4	1.2 J
Propylbenzene	103-65-1	0.20	0.79	0.99	2.2
Styrene	100-42-5	0.17	0.69	0.86	4.8

DJK
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E	Date/Time Analyzed: 7/21/13 02:17 PM
Lab ID: 1307289R1-03A	Dilution Factor: 2.02
Date/Time Collecte: 7/12/13 11:29 AM	Instrument/Filename: msdc.1 / c072016
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.58	0.83	3.0	14

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	96

DJK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1307289R1-03B
Date/Time Collected: 7/12/13 11:29 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 02:17 PM
Dilution Factor: 2.02
Instrument/Filename: msdc.i / c072016sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.044	0.22	0.11 J
1,1-Dichloroethane	75-34-3	0.0035	0.033	0.16	0.0072 J
1,2-Dichloroethane	107-06-2	0.034	0.034	0.16	0.074 J
Benzene	71-43-2	0.052	0.052	0.32	4.6
Chloroform	67-66-3	0.018	NA	0.20	3.6
cis-1,2-Dichloroethene	156-59-2	0.014	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.035	0.18	8.7
m,p-Xylene	108-38-3	0.017	0.035	0.35	32
Methyl tert-butyl ether	1634-04-4	0.021	0.029	0.73	0.031 J
o-Xylene	95-47-6	0.016	0.035	0.18	10
Tetrachloroethene	127-18-4	0.016	0.055	0.27	0.31
Toluene	108-88-3	0.0065	0.030	0.15	48
trans-1,2-Dichloroethene	156-60-5	0.019	0.032	0.80	Not Detected
Trichloroethene	79-01-6	0.0088	0.043	0.22	Not Detected
Vinyl Chloride	75-01-4	0.0070	0.021	0.052	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	108

DSK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	E	Date/Time Analyzed:	7/21/13 02:17 PM
Lab ID:	1307289R1-03B	Dilution Factor:	2.02
Date/Time Collecte	7/12/13 11:29 AM	Instrument/Filename:	msdc.i / c072016sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DTK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1307289R1-04A
Date/Time Collecte: 7/12/13 11:10 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 03:08 PM
Dilution Factor: 1.67
Instrument/Filename: msdc.i / c072017

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.26	0.66	0.82	8.8
1,4-Dioxane	123-91-1	0.12	0.48	0.60	1.2
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.69	2.5	7.0
2-Hexanone	591-78-6	0.22	0.96	3.4	1.3 J
2-Propanol	67-63-0	0.19	0.57	2.0	45
4-Methyl-2-pentanone	108-10-1	0.083	0.55	0.68	3.4
Acetone	67-64-1	0.54	0.56	2.0	120
Bromomethane	74-83-9	0.68	0.91	3.2	Not Detected
Carbon Disulfide	75-15-0	0.13	0.73	2.6	0.44 J
Carbon Tetrachloride	56-23-5	0.26	0.84	1.0	0.50 J
Chlorobenzene	108-90-7	0.16	0.62	0.77	Not Detected
Chloroethane	75-00-3	0.24	0.62	2.2	Not Detected
Chloromethane	74-87-3	0.038	0.28	1.7	1.5 J
Cumene	98-82-8	0.11	0.66	0.82	Not Detected
Cyclohexane	110-82-7	0.080	0.46	0.57	4.4
Freon 11	75-69-4	0.078	0.75	0.94	1.4
Freon 113	76-13-1	0.22	1.0	1.3	0.50 J
Freon 12	75-71-8	0.082	0.66	0.82	4.8
Hexane	110-54-3	0.073	0.47	0.59	21
Methylene Chloride	75-09-2	0.11	0.46	1.2	3.2
Propylbenzene	103-65-1	0.17	0.66	0.82	1.5
Styrene	100-42-5	0.14	0.57	0.71	5.6

D57L
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307289R1-04A
Date/Time Collecte: 7/12/13 11:10 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 03:08 PM
Dilution Factor: 1.67
Instrument/Filename: msdc.i / c072017

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.48	0.69	2.5	1.6 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	99

MSK
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/21/13 03:08 PM
Lab ID:	1307289R1-04B	Dilution Factor:	1.67
Date/Time Collecte	7/12/13 11:10 AM	Instrument/Filename:	msdc.i / c072017sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.016	0.036	0.18	0.074 J
1,1-Dichloroethane	75-34-3	0.0029	0.027	0.14	0.016 J
1,2-Dichloroethane	107-06-2	0.028	0.028	0.14	0.85
Benzene	71-43-2	0.043	0.043	0.27	9.4
Chloroform	67-66-3	0.014	NA	0.16	3.4
cis-1,2-Dichloroethene	156-59-2	0.012	0.026	0.13	Not Detected
Ethyl Benzene	100-41-4	0.012	0.029	0.14	8.4
m,p-Xylene	108-38-3	0.014	0.029	0.29	32
Methyl tert-butyl ether	1634-04-4	0.017	0.024	0.60	0.033 J
o-Xylene	95-47-6	0.013	0.029	0.14	9.5
Tetrachloroethene	127-18-4	0.014	0.045	0.23	0.84
Toluene	108-88-3	0.0054	0.025	0.12	48
trans-1,2-Dichloroethene	156-60-5	0.016	0.026	0.66	Not Detected
Trichloroethene	79-01-6	0.0073	0.036	0.18	0.42
Vinyl Chloride	75-01-4	0.0058	0.017	0.043	0.25

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	108

DJL
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████A	Date/Time Analyzed:	7/21/13 03:08 PM
Lab ID:	1307289R1-04B	Dilution Factor:	1.67
Date/Time Collecte	7/12/13 11:10 AM	Instrument/Filename:	msdc.i / c072017sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DNL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ B	Date/Time Analyzed:	7/21/13 03:54 PM
Lab ID:	1307289R1-05A	Dilution Factor:	1.95
Date/Time Collecte	7/12/13 11:09 AM	Instrument/Filename:	msdc.i / c072018
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.77	0.96	5.8
1,4-Dioxane	123-91-1	0.14	0.56	0.70	1.0
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.80	2.9	6.2
2-Hexanone	591-78-6	0.26	1.1	4.0	1.3 J
2-Propanol	67-63-0	0.22	0.67	2.4	58
4-Methyl-2-pentanone	108-10-1	0.096	0.64	0.80	2.0
Acetone	67-64-1	0.63	0.65	2.3	100
Bromomethane	74-83-9	0.80	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.85	3.0	0.35 J
Carbon Tetrachloride	56-23-5	0.31	0.98	1.2	0.42 J
Chlorobenzene	108-90-7	0.19	0.72	0.90	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	1.7 J
Cumene	98-82-8	0.13	0.77	0.96	Not Detected
Cyclohexane	110-82-7	0.094	0.54	0.67	5.0
Freon 11	75-69-4	0.091	0.88	1.1	1.4
Freon 113	76-13-1	0.26	1.2	1.5	0.54 J
Freon 12	75-71-8	0.096	0.77	0.96	6.7
Hexane	110-54-3	0.086	0.55	0.69	25
Methylene Chloride	75-09-2	0.13	0.54	1.4	4.0
Propylbenzene	103-65-1	0.20	0.77	0.96	0.91 J
Styrene	100-42-5	0.17	0.66	0.83	2.2

DJK
10/17/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307289R1-05A
Date/Time Collecte: 7/12/13 11:09 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/21/13 03:54 PM
Dilution Factor: 1.95
Instrument/Filename: msdc:\c072018

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.80	2.9	1.2 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

1057L
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1307289R1-05B
 Date/Time Collecte: 7/12/13 11:09 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/21/13 03:54 PM
 Dilution Factor: 1.95
 Instrument/Filename: msdc:\c072018sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.064 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	0.014 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.60
Benzene	71-43-2	0.050	0.050	0.31	8.4
Chloroform	67-66-3	0.017	NA	0.19	4.2
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	5.5
m,p-Xylene	108-38-3	0.016	0.034	0.34	22
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	6.6
Tetrachloroethene	127-18-4	0.016	0.053	0.26	1.4
Toluene	108-88-3	0.0063	0.029	0.15	37
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.77	Not Detected
Trichloroethene	79-01-6	0.0085	0.042	0.21	0.51
Vinyl Chloride	75-01-4	0.0067	0.020	0.050	0.059

J = Estimated Value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	106

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/21/13 03:54 PM
Lab ID:	1307289R1-05B	Dilution Factor:	1.95
Date/Time Collecte	7/12/13 11:09 AM	Instrument/Filename:	msdc:1/c072018sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DJL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-C	Date/Time Analyzed:	7/22/13 09:17 AM
Lab ID:	1307289R1-06A	Dilution Factor:	2.43
Date/Time Collected:	7/12/13 11:12 AM	Instrument/Filename:	msdc.i / c072107
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.39	0.96	1.2	21
1,4-Dioxane	123-91-1	0.17	0.70	0.88	1.0
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.28	1.0	3.6	6.5
2-Hexanone	591-78-6	0.33	1.4	5.0	1.1 J
2-Propanol	67-63-0	0.28	0.84	3.0	39
4-Methyl-2-pentanone	108-10-1	0.12	0.80	1.0	2.3
Acetone	67-64-1	0.78	0.81	2.9	130
Bromomethane	74-83-9	0.99	1.3	4.7	Not Detected
Carbon Disulfide	75-15-0	0.19	1.0	3.8	0.23 J
Carbon Tetrachloride	56-23-5	0.38	1.2	1.5	0.39 J
Chlorobenzene	108-90-7	0.24	0.89	1.1	Not Detected
Chloroethane	75-00-3	0.35	0.90	3.2	Not Detected
Chloromethane	74-87-3	0.055	0.40	2.5	1.9 J
Cumene	98-82-8	0.16	0.96	1.2	0.76 J
Cyclohexane	110-82-7	0.12	0.67	0.84	22
Freon 11	75-69-4	0.11	1.1	1.4	1.5
Freon 113	76-13-1	0.32	1.5	1.9	Not Detected
Freon 12	75-71-8	0.12	0.96	1.2	15
Hexane	110-54-3	0.11	0.68	0.86	110
Methylene Chloride	75-09-2	0.17	0.68	1.7	7.4
Propylbenzene	103-65-1	0.25	0.96	1.2	3.7
Styrene	100-42-5	0.21	0.83	1.0	2.2

DSK
10/17/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307289R1-06A
Date/Time Collecte 7/12/13 11:12 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 09:17 AM
Dilution Factor: 2.43
Instrument/Filename: msdc.i / c072107

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.70	1.0	3.6	1.4 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

DTL
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/22/13 09:17 AM
Lab ID: 1307289R1-06B	Dilution Factor: 2.43
Date/Time Collecte: 7/12/13 11:12 AM	Instrument/Filename: msdc.i / c072107sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.024	0.053	0.26	0.073 J
1,1-Dichloroethane	75-34-3	0.0042	0.039	0.20	0.061 J
1,2-Dichloroethane	107-06-2	0.041	0.041	0.20	0.35
Benzene	71-43-2	0.062	0.062	0.39	34
Chloroform	67-66-3	0.021	NA	0.24	18
cis-1,2-Dichloroethene	156-59-2	0.017	0.038	0.19	Not Detected
Ethyl Benzene	100-41-4	0.017	0.042	0.21	21
m,p-Xylene	108-38-3	0.021	0.042	0.42	89
Methyl tert-butyl ether	1634-04-4	0.025	0.035	0.88	Not Detected
o-Xylene	95-47-6	0.019	0.042	0.21	27
Tetrachloroethene	127-18-4	0.020	0.066	0.33	4.7
Toluene	108-88-3	0.0079	0.037	0.18	140
trans-1,2-Dichloroethene	156-60-5	0.023	0.038	0.96	Not Detected
Trichloroethene	79-01-6	0.010	0.052	0.26	Not Detected
Vinyl Chloride	75-01-4	0.0084	0.025	0.062	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102

DJK
10/17/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307289R1-06B
Date/Time Collecte 7/12/13 11:12 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/22/13 09:17 AM
Dilution Factor: 2.43
Instrument/Filename: msdc.i/c072107sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

D57L
10/17/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

Requiring the signature on this document indicates that sample is being shipped in compliance with applicable local, state, federal, and international laws, regulations and ordinances. Any kind of Air Toxics Limited assistance to staff in respect to the collection, handling or shipping of these samples. Refraining signature also indicates agreement to hold harmless, defend and if necessary Air Toxics Limited against any claim, demand or action of any kind, related to the collection, handling, or shipping of samples. D.O.T. Helpline (800) 467-4922

180 BLUE PAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 4 of 4

Project Manager _____

Collected by: Print and Sign _____

Company _____

Address _____

Phone _____

City _____ State _____ Zip _____

County _____

Fax _____

See Page 1

Project Info:		Turn Around Time:	Used (see box)
PO # _____	Project # B-14-710303	<input checked="" type="checkbox"/> Normal	Responsible by _____
Project Name: BZZZMMW Lab 4/5/11		<input type="checkbox"/> Rush	Prescribed on (Date) _____
		_____	N/A

Lab ID	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure (vacuum)	Initial	Final	Receipt	Final
0449	-C	40125	7/12/13	1128	Normal/TAT	-24.5	2.3			
0449	-D	40238		1126		-25.0	0.0			
0449	-E	40304		1129		-24.3	0.0			
0449	-A	40096		1110		-23.4	0.0			
0449	-B	40993		1109		-26.5	0.59			
0449	-C	30937		1112		-25.5	-1.9			

Received by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____
 Relinquished by: (signature) _____ Date/Time _____
 Relinquished by: (signature) _____ Date/Time _____

Shipper Name: _____ Air Bill # _____ Temp (°C) _____ Condition _____ Custody Seal Intact? _____
 Date: _____
 Yes No (None)
 Work Order # _____

1307229
 Form 1285 (04)

October 24, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 24, 2013

Sample Delivery Group (SDG) No.	1307290
Samples	██████-A, ██████-B, ██████-C, ██████-D, ██████-A, ██████-B, ██████-C, ██████-A, ██████-B, ██████-C, ██████-A, ██████-B, ██████-C, ██████-A, and ██████-B

Tetra Tech, Inc. conducted data validation of the analytical results for twelve air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 9 through 12, 2013. The samples were analyzed under SDG No. 1307290 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution



October 24, 2013

- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307290 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the July 22, 2013 full scan analyses contained no target analytes. The method blank associated with the July 23, 2013 full scan analysis contained target analytes acetone, chloromethane, and methylene chloride below reporting limits (RL). The method blank associated with July 22, 2013 SIM analyses contained cis-1,2-dichloroethene, ethyl benzene, mp-xylene, o-xylene, toluene, and trichloroethene below RLs. The method blank associated with the July 23, 2013 SIM analysis contained m,p-xylene, o-xylene, tetrachloroethene, toluene, and vinyl chloride below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory blanks acetone, and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

No field duplicates were included in this SDG.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the full scan and SIM analyses LCSs and LCSDs within laboratory QC limits. No data were qualified.

October 24, 2013

SAMPLE DILUTION

None of the samples in this SDG required dilution due to high concentrations of target analytes.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory included estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Sample results less than the RL but greater than the DL were qualified as estimated (flagged “J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307290

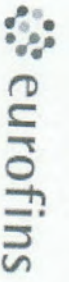
(Forty-eight Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307290

(Two Sheets)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307290-01A
 Date/Time Collected: 7/10/13 01:25 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 11:04 AM
 Dilution Factor: 1.92
 Instrument/Filename: msdc:\c072109

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.76	0.94	1.5
1,4-Dioxane	123-91-1	0.14	0.55	0.69	1.3
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.79	2.8	7.0
2-Hexanone	591-78-6	0.26	1.1	3.9	0.46 J
2-Propanol	67-63-0	0.22	0.66	2.4	16
4-Methyl-2-pentanone	108-10-1	0.095	0.63	0.79	0.62 J
Acetone	67-64-1	0.62	0.64	2.3	58
Bromomethane	74-83-9	0.78	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.30	0.97	1.2	0.40 J
Chlorobenzene	108-90-7	0.18	0.71	0.88	Not Detected
Chloroethane	75-00-3	0.28	0.71	2.5	Not Detected
Chloromethane	74-87-3	0.043	0.32	2.0	1.3 J
Cumene	98-82-8	0.12	0.76	0.94	Not Detected
Cyclohexane	110-82-7	0.092	0.53	0.66	1.0
Freon 11	75-69-4	0.090	0.86	1.1	1.4
Freon 113	76-13-1	0.26	1.2	1.5	0.48 J
Freon 12	75-71-8	0.094	0.76	0.95	3.1
Hexane	110-54-3	0.084	0.54	0.68	1.3
Methylene Chloride	75-09-2	0.13	0.53	1.3	0.70 J
Propylbenzene	103-65-1	0.20	0.76	0.94	0.67 J
Styrene	100-42-5	0.16	0.65	0.82	9.0

D57L
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307290-01A
Date/Time Collected: 7/10/13 01:25 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/22/13 11:04 AM
Dilution Factor: 1.92
Instrument/Filename: msdc.i / c072109

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.79	2.8	2.2 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

DJL
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307290-01B
 Date/Time Collected: 7/10/13 01:25 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 11:04 AM
 Dilution Factor: 1.92
 Instrument/Filename: msdc.i / c072109sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.026 J
1,1-Dichloroethane	75-34-3	0.0033	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.11 J
Benzene	71-43-2	0.049	0.049	0.31	0.33
Chloroform	67-66-3	0.017	NA	0.19	0.24
cis-1,2-Dichloroethene	156-59-2	0.014	0.030	0.15	0.066 J
Ethyl Benzene	100-41-4	0.013	0.033	0.17	2.2
m,p-Xylene	108-38-3	0.016	0.033	0.33	2.0
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.69	0.066 J
o-Xylene	95-47-6	0.015	0.033	0.17	0.77
Tetrachloroethene	127-18-4	0.016	0.052	0.26	1.0
Toluene	108-88-3	0.0062	0.029	0.14	3.7
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.76	Not Detected
Trichloroethene	79-01-6	0.0084	0.041	0.21	0.18 J
Vinyl Chloride	75-01-4	0.0066	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104

DSL
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ A	Date/Time Analyzed:	7/22/13 11:04 AM
Lab ID:	1307290-01B	Dilution Factor:	1.92
Date/Time Collecte	7/10/13 01:25 PM	Instrument/Filename:	msdc.i / c072109sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DJL
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: B	Date/Time Analyzed: 7/22/13 12:49 PM
Lab ID: 1307290-02A	Dilution Factor: 2.06
Date/Time Collected: 7/10/13 01:24 PM	Instrument/Filename: msdc.i/c072111
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.81	1.0	1.3
1,4-Dioxane	123-91-1	0.15	0.59	0.74	1.3
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.85	3.0	7.7
2-Hexanone	591-78-6	0.28	1.2	4.2	0.58 J
2-Propanol	67-63-0	0.24	0.71	2.5	13
4-Methyl-2-pentanone	108-10-1	0.10	0.68	0.84	0.61 J
Acetone	67-64-1	0.66	0.68	2.4	51
Bromomethane	74-83-9	0.84	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.90	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	Not Detected
Chlorobenzene	108-90-7	0.20	0.76	0.95	Not Detected
Chloroethane	75-00-3	0.30	0.76	2.7	Not Detected
Chloromethane	74-87-3	0.046	0.34	2.1	4.5 J
Cumene	98-82-8	0.13	0.81	1.0	Not Detected
Cyclohexane	110-82-7	0.099	0.57	0.71	0.71
Freon 11	75-69-4	0.096	0.92	1.2	1.2
Freon 113	76-13-1	0.28	1.3	1.6	0.37 J
Freon 12	75-71-8	0.10	0.82	1.0	3.0
Hexane	110-54-3	0.090	0.58	0.73	0.81
Methylene Chloride	75-09-2	0.14	0.57	1.4	0.44 J
Propylbenzene	103-65-1	0.21	0.81	1.0	0.68 J
Styrene	100-42-5	0.18	0.70	0.88	9.0

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/22/13 12:49 PM
Lab ID:	1307290-02A	Dilution Factor:	2.06
Date/Time Collected:	7/10/13 01:24 PM	Instrument/Filename:	msdc.i / c072111
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.59	0.85	3.0	1.6 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/22/13 12:49 PM
Lab ID: 1307290-02B	Dilution Factor: 2.06
Date/Time Collected: 7/10/13 01:24 PM	Instrument/Filename: msdc:\c072111sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.045	0.22	0.032 J
1,1-Dichloroethane	75-34-3	0.0036	0.033	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.035	0.035	0.17	0.079 J
Benzene	71-43-2	0.053	0.053	0.33	0.26 J
Chloroform	67-66-3	0.018	NA	0.20	0.15 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	2.1
m,p-Xylene	108-38-3	0.018	0.036	0.36	1.2
Methyl tert-butyl ether	1634-04-4	0.021	0.030	0.74	0.060 J
o-Xylene	95-47-6	0.016	0.036	0.18	0.55
Tetrachloroethene	127-18-4	0.017	0.056	0.28	0.98
Toluene	108-88-3	0.0067	0.031	0.16	2.7
trans-1,2-Dichloroethene	156-60-5	0.020	0.033	0.82	Not Detected
Trichloroethene	79-01-6	0.0090	0.044	0.22	0.018 J
Vinyl Chloride	75-01-4	0.0071	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	105

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307290-02B
Date/Time Collecte 7/10/13 01:24 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/22/13 12:49 PM
Dilution Factor: 2.06
Instrument/Filename: msdc.i / c072111sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

D57L
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307290-03A
Date/Time Collecte 7/10/13 01:27 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 02:01 PM
Dilution Factor: 1.68
Instrument/Filename: msdc.i / 6072112

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.27	0.66	0.82	1.2
1,4-Dioxane	123-91-1	0.12	0.48	0.60	1.8
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.69	2.5	7.0
2-Hexanone	591-78-6	0.23	0.96	3.4	0.43 J
2-Propanol	67-63-0	0.19	0.58	2.1	11
4-Methyl-2-pentanone	108-10-1	0.083	0.55	0.69	0.47 J
Acetone	67-64-1	0.54	0.56	2.0	47
Bromomethane	74-83-9	0.68	0.91	3.3	Not Detected
Carbon Disulfide	75-15-0	0.13	0.73	2.6	Not Detected
Carbon Tetrachloride	56-23-5	0.26	0.84	1.0	0.47 J
Chlorobenzene	108-90-7	0.16	0.62	0.77	Not Detected
Chloroethane	75-00-3	0.24	0.62	2.2	Not Detected
Chloromethane	74-87-3	0.038	0.28	1.7	Not Detected
Cumene	98-82-8	0.11	0.66	0.82	1.3 J
Cyclohexane	110-82-7	0.081	0.46	0.58	Not Detected
Freon 11	75-69-4	0.079	0.76	0.94	0.98
Freon 113	76-13-1	0.22	1.0	1.3	1.3
Freon 12	75-71-8	0.083	0.66	0.83	0.54 J
Hexane	110-54-3	0.074	0.47	0.59	3.0
Methylene Chloride	75-09-2	0.11	0.47	1.2	0.98
Propylbenzene	103-65-1	0.17	0.66	0.82	0.41 J
Styrene	100-42-5	0.14	0.57	0.72	0.58 J
					8.7

DJR

10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████C	Date/Time Analyzed:	7/22/13 02:01 PM
Lab ID:	1307290-03A	Dilution Factor:	1.68
Date/Time Collected:	7/10/13 01:27 PM	Instrument/Filename:	msdc.i / C072112
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.48	0.69	2.5	1.8 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	98

PTL
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307290-03B
Date/Time Collected: 7/10/13 01:27 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 02:01 PM
Dilution Factor: 1.68
Instrument/File Name: msdc.i/c072112sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.016	0.037	0.18	0.025 J
1,1-Dichloroethane	75-34-3	0.0029	0.027	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.028	0.028	0.14	0.098 J
Benzene	71-43-2	0.043	0.043	0.27	0.25 J
Chloroform	67-66-3	0.015	NA	0.16	0.18
cis-1,2-Dichloroethene	156-59-2	0.012	0.027	0.13	Not Detected
Ethyl Benzene	100-41-4	0.012	0.029	0.14	2.1
m,p-Xylene	108-38-3	0.014	0.029	0.29	1.2
Methyl tert-butyl ether	1634-04-4	0.018	0.024	0.60	0.063 J
o-Xylene	95-47-6	0.013	0.029	0.14	0.56
Tetrachloroethene	127-18-4	0.014	0.046	0.23	1.0
Toluene	108-88-3	0.0054	0.025	0.13	2.7
trans-1,2-Dichloroethene	156-60-5	0.016	0.027	0.67	Not Detected
Trichloroethene	79-01-6	0.0073	0.036	0.18	0.020 J
Vinyl Chloride	75-01-4	0.0058	0.017	0.043	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	105

DJL
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307290-03B
Date/Time Collecte 7/10/13 01:27 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 02:01 PM
Dilution Factor: 1.68
Instrument/Filename: msdc.i / c072112sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DJL
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID
Lab ID: 1307290-04A
Date/Time Collecte 7/10/13 01:28 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 02:45 PM
Dilution Factor: 1.94
Instrument/Filename: msdc.i / 6072113

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.76	0.95	Not Detected
1,4-Dioxane	123-91-1	0.14	0.56	0.70	0.35 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.80	2.9	2.9
2-Hexanone	591-78-6	0.26	1.1	4.0	0.58 J
2-Propanol	67-63-0	0.22	0.67	2.4	0.72 J
4-Methyl-2-pentanone	108-10-1	0.096	0.64	0.79	Not Detected
Acetone	67-64-1	0.62	0.64	2.3	20
Bromomethane	74-83-9	0.79	1.0	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.31	0.98	1.2	Not Detected
Chlorobenzene	108-90-7	0.19	0.71	0.89	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	1.6 J
Cumene	98-82-8	0.13	0.76	0.95	Not Detected
Cyclohexane	110-82-7	0.094	0.53	0.67	Not Detected
Freon 11	75-69-4	0.091	0.87	1.1	1.2
Freon 113	76-13-1	0.26	1.2	1.5	0.42 J
Freon 12	75-71-8	0.095	0.77	0.96	2.7
Hexane	110-54-3	0.085	0.55	0.68	Not Detected
Methylene Chloride	75-09-2	0.13	0.54	1.3	0.45 J
Propylbenzene	103-65-1	0.20	0.76	0.95	Not Detected
Styrene	100-42-5	0.17	0.66	0.83	0.19 J

DJK
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 7/22/13 02:45 PM
Lab ID: 1307290-04A	Dilution Factor: 1.94
Date/Time Collected: 7/10/13 01:28 PM	Instrument/Filename: msdc.i/c072113
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.80	2.9	0.65 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

DTK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
 Lab ID: 1307290-04B
 Date/Time Collected: 7/10/13 01:28 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 02:45 PM
 Dilution Factor: 1.94
 Instrument/Filename: msdc.i / c072113sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.022 J
1,1-Dichloroethane	75-34-3	0.0034	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.057 J
Benzene	71-43-2	0.050	0.050	0.31	0.16 J
Chloroform	67-66-3	0.017	NA	0.19	0.14 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	0.11 J
m,p-Xylene	108-38-3	0.016	0.034	0.17	Not Detected
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.34	Not Detected
Tetrachloroethene	127-18-4	0.016	0.053	0.17	Not Detected
Toluene	108-88-3	0.0063	0.029	0.26	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.15	0.49
Trichloroethene	79-01-6	0.0084	0.042	0.77	Not Detected
Vinyl Chloride	75-01-4	0.0067	0.020	0.21	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	104

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
Lab ID: 1307290-04B
Date/Time Collected: 7/10/13 01:28 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 02:45 PM
Dilution Factor: 1.94
Instrument/Filename: msdc.i / c072113sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DSK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████ A
 Lab ID: 1307290-05A
 Date/Time Collected: 7/11/13 10:30 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 03:47 PM
 Dilution Factor: 2.01
 Instrument/Filename: msdc.i / c072114

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.32	0.79	0.99	0.52 J
1,4-Dioxane	123-91-1	0.14	0.58	0.72	0.70
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.83	3.0	3.8
2-Hexanone	591-78-6	0.27	1.2	4.1	0.37 J
2-Propanol	67-63-0	0.23	0.69	2.5	5.6
4-Methyl-2-pentanone	108-10-1	0.099	0.66	0.82	0.43 J
Acetone	67-64-1	0.65	0.67	2.4	41
Bromomethane	74-83-9	0.82	1.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.16	0.88	3.1	0.16 J
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	0.36 J
Chlorobenzene	108-90-7	0.19	0.74	0.92	Not Detected
Chloroethane	75-00-3	0.29	0.74	2.6	Not Detected
Chloromethane	74-87-3	0.045	0.33	2.1	2.2
Cumene	98-82-8	0.13	0.79	0.99	Not Detected
Cyclohexane	110-82-7	0.097	0.55	0.69	0.23 J
Freon 11	75-69-4	0.094	0.90	1.1	1.3
Freon 113	76-13-1	0.27	1.2	1.5	0.76 J
Freon 12	75-71-8	0.099	0.80	0.99	2.7
Hexane	110-54-3	0.088	0.57	0.71	0.43 J
Methylene Chloride	75-09-2	0.14	0.56	0.99	0.41 J
Propylbenzene	103-65-1	0.20	0.79	0.99	Not Detected
Styrene	100-42-5	0.17	0.68	0.86	Not Detected

1.4 du

D51L
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	7/22/13 03:47 PM
Lab ID:	1307290-05A	Dilution Factor:	2.01
Date/Time Collecte	7/11/13 10:30 AM	Instrument/Filename:	msdc.i / c072114
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.58	0.83	3.0	0.68 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

DJL
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307290-05B
Date/Time Collecte 7/11/13 10:30 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 03:47 PM
Dilution Factor: 2.01
Instrument/File name: msdc.i / c072114sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.044	0.22	0.68
1,1-Dichloroethane	75-34-3	0.0035	0.032	0.16	0.017 J
1,2-Dichloroethane	107-06-2	0.034	0.034	0.16	0.95
Benzene	71-43-2	0.052	0.052	0.32	0.30 J
Chloroform	67-66-3	0.017	NA	0.20	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.035	0.17	0.32
m,p-Xylene	108-38-3	0.017	0.035	0.35	0.97
Methyl tert-butyl ether	1634-04-4	0.021	0.029	0.72	Not Detected
o-Xylene	95-47-6	0.016	0.035	0.17	0.32
Tetrachloroethene	127-18-4	0.016	0.054	0.15	2.2
Toluene	108-88-3	0.0065	0.030	0.15	0.029 J
trans-1,2-Dichloroethene	156-60-5	0.019	0.032	0.80	0.25
Trichloroethene	79-01-6	0.0087	0.043	0.22	Not Detected
Vinyl Chloride	75-01-4	0.0069	0.020	0.051	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	105

DSK

10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	7/22/13 03:47 PM
Lab ID:	1307290-05B	Dilution Factor:	2.01
Date/Time Collecte	7/11/13 10:30 AM	Instrument/Filename:	msdc.i / c072114sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DOX
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████ B
 Lab ID: 1307290-06A
 Date/Time Collecte: 7/11/13 10:33 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 10:18 PM
 Dilution Factor: 1.94
 Instrument/Filename: msdc.i / c0722207

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.76	0.95	Not Detected
1,4-Dioxane	123-91-1	0.14	0.56	0.70	0.55 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.80	2.9	3.4
2-Hexanone	591-78-6	0.26	1.1	4.0	0.41 J
2-Propanol	67-63-0	0.22	0.67	2.4	4.8
4-Methyl-2-pentanone	108-10-1	0.096	0.64	0.79	Not Detected
Acetone	67-64-1	0.62	0.64	2.3	29
Bromomethane	74-83-9	0.79	1.0	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.31	0.98	1.2	0.33 J
Chlorobenzene	108-90-7	0.19	0.71	0.89	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	Not Detected
Cumene	98-82-8	0.13	0.76	0.95	2.0
Cyclohexane	110-82-7	0.094	0.53	0.67	Not Detected
Freon 11	75-69-4	0.091	0.87	1.1	Not Detected
Freon 113	76-13-1	0.26	1.2	1.5	1.2
Freon 12	75-71-8	0.095	0.77	0.96	0.49 J
Hexane	110-54-3	0.085	0.55	0.68	2.6
Methylene Chloride	75-09-2	0.13	0.54	1.3	0.28 J
Propylbenzene	103-65-1	0.20	0.76	0.95	Not Detected
Styrene	100-42-5	0.17	0.66	0.83	Not Detected

1.3
1.4

0.47 J
Not Detected
0.35 J

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1307290-06A
Date/Time Collected: 7/1/13 10:33 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/22/13 10:18 PM
Dilution Factor: 1.94
Instrument/Filename: msdc.i / c072207

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.80	2.9	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

DJK
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: B	Date/Time Analyzed: 7/22/13 10:18 PM
Lab ID: 1307290-06B	Dilution Factor: 1.94
Date/Time Collected: 7/11/13 10:33 AM	Instrument/Filename: msdc.i/c072207sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.77
1,1-Dichloroethane	75-34-3	0.0034	0.031	0.16	0.017 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	1.0
Benzene	71-43-2	0.050	0.050	0.31	0.27 J
Chloroform	67-66-3	0.017	NA	0.19	0.18 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	0.018 J
Ethyl Benzene	100-41-4	0.013	0.034	0.17	0.31
m,p-Xylene	108-38-3	0.016	0.034	0.34	0.99
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	0.33
Tetrachloroethene	127-18-4	0.016	0.053	0.15	2.0
Toluene	108-88-3	0.0063	0.029	0.15	0.033 J
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.77	0.28
Trichloroethene	79-01-6	0.0084	0.042	0.21	Not Detected
Vinyl Chloride	75-01-4	0.0067	0.020	0.050	

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104

D57L
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307290-06B
Date/Time Collected: 7/11/13 10:33 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 10:18 PM
Dilution Factor: 1.94
Instrument/Filename: msdc.l / C072207sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DTL
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	7/22/13 11:05 PM
Lab ID:	1307290-07A	Dilution Factor:	2.05
Date/Time Collecte:	7/11/13 10:35 AM	Instrument/File name:	msdc.l / c072208
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.81	1.0	2.7
1,4-Dioxane	123-91-1	0.15	0.59	0.74	0.87
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.85	3.0	21
2-Hexanone	591-78-6	0.28	1.2	4.2	0.99 J
2-Propanol	67-63-0	0.24	0.70	2.5	13
4-Methyl-2-pentanone	108-10-1	0.10	0.67	0.84	0.62 J
Acetone	67-64-1	0.66	0.68	2.4	58
Bromomethane	74-83-9	0.84	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.89	3.2	0.23 J
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	0.35 J
Chlorobenzene	108-90-7	0.20	0.75	0.94	Not Detected
Chloroethane	75-00-3	0.30	0.76	2.7	Not Detected
Chloromethane	74-87-3	0.046	0.34	2.1	2.1
Cumene	98-82-8	0.13	0.81	1.0	Not Detected
Cyclohexane	110-82-7	0.099	0.56	0.70	0.53 J
Freon 11	75-69-4	0.096	0.92	1.2	1.4
Freon 113	76-13-1	0.27	1.2	1.6	0.51 J
Freon 12	75-71-8	0.10	0.81	1.0	3.0
Hexane	110-54-3	0.090	0.58	0.72	0.89
Methylene Chloride	75-09-2	0.14	0.57	1.4	0.52 J
Propylbenzene	103-65-1	0.21	0.81	1.0	0.59 J
Styrene	100-42-5	0.18	0.70	0.87	0.74 J

1.4 u

0.52 J

DSL

10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	7/22/13 11:05 PM
Lab ID:	1307290-07A	Dilution Factor:	2.05
Date/Time Collected:	7/11/13 10:35 AM	Instrument/Filename:	msdc.l/c072208
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.59	0.85	3.0	1.5 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	98

DSK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/22/13 11:05 PM
Lab ID: 1307290-07B	Dilution Factor: 2.05
Date/Time Collecte: 7/11/13 10:35 AM	Instrument/Filename: msdc.i / c072208sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.045	0.22	0.69
1,1-Dichloroethane	75-34-3	0.0036	0.033	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.035	0.035	0.16	7.3
Benzene	71-43-2	0.053	0.053	0.33	1.3
Chloroform	67-66-3	0.018	NA	0.20	0.55
cis-1,2-Dichloroethene	156-59-2	0.014	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	1.6
m,p-Xylene	108-38-3	0.017	0.036	0.36	6.7
Methyl tert-butyl ether	1634-04-4	0.021	0.030	0.74	0.026 J
o-Xylene	95-47-6	0.016	0.036	0.18	2.0
Tetrachloroethene	127-18-4	0.017	0.056	0.28	1.3
Toluene	108-88-3	0.0066	0.031	0.15	10
trans-1,2-Dichloroethene	156-60-5	0.020	0.032	0.81	Not Detected
Trichloroethene	79-01-6	0.0089	0.044	0.22	3.1
Vinyl Chloride	75-01-4	0.0071	0.021	0.052	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	106

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307290-07B
Date/Time Collecte 7/11/13 10:35 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/22/13 11:05 PM
Dilution Factor: 2.05
Instrument/Filename: msdc.i / c072208sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DSK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307290-08A
 Date/Time Collecte: 7/9/13 12:47 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 7/23/13 08:13 AM
 Dilution Factor: 1.93
 Instrument/Filename: msdc.i / c0722209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.76	0.95	Not Detected
1,4-Dioxane	123-91-1	0.14	0.56	0.70	0.69
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.80	2.8	7.8
2-Hexanone	591-78-6	0.26	1.1	4.0	Not Detected
2-Propanol	67-63-0	0.22	0.66	2.4	8.5
4-Methyl-2-pentanone	108-10-1	0.096	0.63	0.79	0.63 J
Acetone	67-64-1	0.62	0.64	2.3	100
Bromomethane	74-83-9	0.79	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	0.17 J
Carbon Tetrachloride	56-23-5	0.30	0.97	1.2	0.31 J
Chlorobenzene	108-90-7	0.19	0.71	0.89	Not Detected
Chloroethane	75-00-3	0.28	0.71	2.5	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	1.8 J
Cumene	98-82-8	0.12	0.76	0.95	Not Detected
Cyclohexane	110-82-7	0.093	0.53	0.66	0.33 J
Freon 11	75-69-4	0.090	0.87	1.1	1.3
Freon 113	76-13-1	0.26	1.2	1.5	0.53 J
Freon 12	75-71-8	0.095	0.76	0.95	2.8
Hexane	110-54-3	0.085	0.54	0.68	1.3
Methylene Chloride	75-09-2	0.13	0.54	1.3	0.35 J
Propylbenzene	103-65-1	0.20	0.76	0.95	0.31 J
Styrene	100-42-5	0.17	0.66	0.82	1.7

1.3 U

DJK
10/24/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/23/13 08:13 AM
Lab ID:	1307290-08A	Dilution Factor:	1.93
Date/Time Collected:	7/9/13 12:47 PM	Instrument/Filename:	msdc.i / c0722209
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.80	2.8	1.8 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	96

BSL
10/24/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/23/13 08:13 AM
Lab ID: 1307290-08B	Dilution Factor: 1.93
Date/Time Collected: 7/9/13 12:47 PM	Instrument/Filename: msdc.i / c072209sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.032 J
1,1-Dichloroethane	75-34-3	0.0034	0.031	0.16	0.025 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.17
Benzene	71-43-2	0.050	0.050	0.31	0.65
Chloroform	67-66-3	0.017	NA	0.19	0.52
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	1.3
m,p-Xylene	108-38-3	0.016	0.034	0.34	4.5
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	1.2
Tetrachloroethene	127-18-4	0.016	0.052	0.26	0.054 J
Toluene	108-88-3	0.0062	0.029	0.14	8.0
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.76	0.082 J
Trichloroethene	79-01-6	0.0084	0.041	0.21	0.063 J
Vinyl Chloride	75-01-4	0.0067	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	106



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307290-08B
Date/Time Collecte 7/9/13 12:47 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/23/13 08:13 AM
Dilution Factor: 1.93
Instrument/Filename: msdc.i / c072209sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DJK

10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/23/13 09:11 AM
Lab ID: 1307290-09A	Dilution Factor: 2.04
Date/Time Collected: 7/9/13 12:49 PM	Instrument/File Name: msdc.i / 6072210
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.32	0.80	1.0	0.68 J
1,4-Dioxane	123-91-1	0.15	0.59	0.74	0.42 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.84	3.0	12
2-Hexanone	591-78-6	0.27	1.2	4.2	2.3 J
2-Propanol	67-63-0	0.23	0.70	2.5	10
4-Methyl-2-pentanone	108-10-1	0.10	0.67	0.84	0.84
Acetone	67-64-1	0.66	0.68	2.4	120
Bromomethane	74-83-9	0.83	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.89	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	0.48 J
Chlorobenzene	108-90-7	0.20	0.75	0.94	Not Detected
Chloroethane	75-00-3	0.30	0.75	2.7	Not Detected
Chloromethane	74-87-3	0.046	0.34	2.1	Not Detected
Cumene	98-82-8	0.13	0.80	1.0	Not Detected
Cyclohexane	110-82-7	0.098	0.56	0.70	0.20 J
Freon 11	75-69-4	0.096	0.92	1.1	1.3
Freon 113	76-13-1	0.27	1.2	1.6	0.66 J
Freon 12	75-71-8	0.10	0.81	1.0	2.6
Hexane	110-54-3	0.090	0.58	0.72	1.4
Methylene Chloride	75-09-2	0.14	0.57	1.4	0.50 J
Propylbenzene	103-65-1	0.21	0.80	1.0	Not Detected
Styrene	100-42-5	0.18	0.70	0.87	1.2

DJL
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/23/13 09:11 AM
Lab ID: 1307290-09A	Dilution Factor: 2.04
Date/Time Collected: 7/9/13 12:49 PM	Instrument/Filename: msdc:\c072210
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.58	0.84	3.0	2.1 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

DSK
10/24/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/23/13 09:11 AM
Lab ID: 1307290-09B	Dilution Factor: 2.04
Date/Time Collecte: 7/9/13 12:49 PM	Instrument/File name: msdc.i / c072210sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.044	0.22	0.031 J
1,1-Dichloroethane	75-34-3	0.0036	0.033	0.16	0.026 J
1,2-Dichloroethane	107-06-2	0.035	0.035	0.16	0.17
Benzene	71-43-2	0.052	0.052	0.32	0.58
Chloroform	67-66-3	0.018	NA	0.20	0.48
cis-1,2-Dichloroethene	156-59-2	0.014	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.035	0.18	1.2
m,p-Xylene	108-38-3	0.017	0.035	0.35	4.0
Methyl tert-butyl ether	1634-04-4	0.021	0.029	0.74	Not Detected
o-Xylene	95-47-6	0.016	0.035	0.18	1.1
Tetrachloroethene	127-18-4	0.017	0.055	0.15	0.055 J
Toluene	108-88-3	0.0066	0.031	0.15	8.0
trans-1,2-Dichloroethene	156-60-5	0.019	0.032	0.81	0.071 J
Trichloroethene	79-01-6	0.0089	0.044	0.22	0.024 J
Vinyl Chloride	75-01-4	0.0070	0.021	0.052	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104

 DJK
 10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1307290-09B
Date/Time Collecte 7/9/13 12:49 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/23/13 09:11 AM
Dilution Factor: 2.04
Instrument/Filename: msdc.i / c072210sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

1357K
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
 Lab ID: 1307290-10A
 Date/Time Collecte: 7/9/13 12:51 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/23/13 10:08 AM
 Dilution Factor: 1.87
 Instrument/File name: msdc.i / c072211

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.74	0.92	1.5
1,4-Dioxane	123-91-1	0.13	0.54	0.67	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.77	2.8	5.4
2-Hexanone	591-78-6	0.25	1.1	3.8	0.98 J
2-Propanol	67-63-0	0.22	0.64	2.3	6.4
4-Methyl-2-pentanone	108-10-1	0.092	0.61	0.77	0.56 J
Acetone	67-64-1	0.60	0.62	2.2	85
Bromomethane	74-83-9	0.76	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.82	2.9	0.15 J
Carbon Tetrachloride	56-23-5	0.30	0.94	1.2	0.40 J
Chlorobenzene	108-90-7	0.18	0.69	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.5	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	1.4 J
Cumene	98-82-8	0.12	0.74	0.92	Not Detected
Cyclohexane	110-82-7	0.090	0.51	0.64	0.23 J
Freon 11	75-69-4	0.088	0.84	1.0	1.4
Freon 113	76-13-1	0.25	1.1	1.4	0.39 J
Freon 12	75-71-8	0.092	0.74	0.92	2.8
Hexane	110-54-3	0.082	0.53	0.66	1.1
Methylene Chloride	75-09-2	0.13	0.52	0.66	0.44 J
Propylbenzene	103-65-1	0.19	0.74	0.92	Not Detected
Styrene	100-42-5	0.16	0.64	0.80	0.88

1.3
4

DDK
10/24/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-C	Date/Time Analyzed:	7/23/13 10:08 AM
Lab ID:	1307290-10A	Dilution Factor:	1.87
Date/Time Collecte	7/9/13 12:51 PM	Instrument/Filename:	msdc.i / c072211
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.54	0.77	2.8	1.7 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

DSK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C	Date/Time Analyzed: 7/23/13 10:08 AM
Lab ID: 1307290-10B	Dilution Factor: 1.87
Date/Time Collecte: 7/9/13 12:51 PM	Instrument/Filename: msdc.i / c072211sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.026 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	0.024 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.14 J
Benzene	71-43-2	0.048	0.048	0.30	0.52
Chloroform	67-66-3	0.016	NA	0.18	0.36
cis-1,2-Dichloroethane	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	0.78
m,p-Xylene	108-38-3	0.016	0.032	0.32	2.5
Methyl tert-butyl ether	1634-04-4	0.019	0.027	0.67	Not Detected
o-Xylene	95-47-6	0.015	0.032	0.16	0.70
Tetrachloroethene	127-18-4	0.015	0.051	0.25	0.48 J
Toluene	108-88-3	0.0060	0.028	0.14	6.1
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.74	0.068 J
Trichloroethene	79-01-6	0.0081	0.040	0.20	0.048 J
Vinyl Chloride	75-01-4	0.0064	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	105

BJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1307290-10B
Date/Time Collecte 7/9/13 12:51 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/23/13 10:08 AM
Dilution Factor: 1.87
Instrument/Filename: msdc.i / c072211sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DSK
10/24/31



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: A	Date/Time Analyzed: 7/23/13 11:05 AM
Lab ID: 1307290-11A	Dilution Factor: 1.66
Date/Time Collecte: 7/12/13 11:33 AM	Instrument/File name: msdc.i / c072212
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.26	0.65	0.82	9.1
1,4-Dioxane	123-91-1	0.12	0.48	0.60	0.64
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.19	0.68	2.4	9.8
2-Hexanone	591-78-6	0.22	0.95	3.4	0.95 J
2-Propanol	67-63-0	0.19	0.57	2.0	13
4-Methyl-2-pentanone	108-10-1	0.082	0.54	0.68	2.0
Acetone	67-64-1	0.53	0.55	2.0	100
Bromomethane	74-83-9	0.68	0.90	3.2	Not Detected
Carbon Disulfide	75-15-0	0.13	0.72	2.6	0.30 J
Carbon Tetrachloride	56-23-5	0.26	0.84	1.0	0.42 J
Chlorobenzene	108-90-7	0.16	0.61	0.76	Not Detected
Chloroethane	75-00-3	0.24	0.61	2.2	Not Detected
Chloromethane	74-87-3	0.038	0.27	1.7	Not Detected
Cumene	98-82-8	0.11	0.65	0.82	Not Detected
Cyclohexane	110-82-7	0.080	0.46	0.57	2.0
Freon 11	75-69-4	0.078	0.75	0.93	1.3
Freon 113	76-13-1	0.22	1.0	1.3	0.44 J
Freon 12	75-71-8	0.082	0.66	0.82	2.8
Hexane	110-54-3	0.073	0.47	0.58	2.0
Methylene Chloride	75-09-2	0.11	0.46	1.2	4.4 J
Propylbenzene	103-65-1	0.17	0.65	0.82	1.6
Styrene	100-42-5	0.14	0.56	0.71	3.9

057L
 10/24/13
 10/24/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/23/13 11:05 AM
Lab ID:	1307290-11A	Dilution Factor:	1.66
Date/Time Collected:	7/12/13 11:33 AM	Instrument/Filename:	msdc.1/c072212
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.48	0.68	2.4	4.6

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

DTL
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/23/13 11:05 AM
Lab ID: 1307290-11B	Dilution Factor: 1.66
Date/Time Collected: 7/12/13 11:33 AM	Instrument/File Name: msdc.i / c072212sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.016	0.036	0.18	0.048 J
1,1-Dichloroethane	75-34-3	0.0029	0.027	0.13	0.0067 J
1,2-Dichloroethane	107-06-2	0.028	0.028	0.13	0.23
Benzene	71-43-2	0.043	0.043	0.26	3.2
Chloroform	67-66-3	0.014	NA	0.16	1.6
cis-1,2-Dichloroethene	156-59-2	0.012	0.026	0.13	Not Detected
Ethyl Benzene	100-41-4	0.011	0.029	0.14	7.1
m,p-Xylene	108-38-3	0.014	0.029	0.29	24
Methyl tert-butyl ether	1634-04-4	0.017	0.024	0.60	Not Detected
o-Xylene	95-47-6	0.013	0.029	0.14	7.8
Tetrachloroethene	127-18-4	0.014	0.045	0.12	0.17 J
Toluene	108-88-3	0.0054	0.025	0.12	40
trans-1,2-Dichloroethene	156-60-5	0.016	0.026	0.66	Not Detected
Trichloroethene	79-01-6	0.0072	0.036	0.18	0.015 J
Vinyl Chloride	75-01-4	0.0057	0.017	0.042	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	106

DJR
10/24/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307290-11B
Date/Time Collecte 7/12/13 11:33 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/23/13 11:05 AM
Dilution Factor: 1.66
Instrument/Filename: msdc.i / C072212sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	95

DSK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: B	Date/Time Analyzed: 7/23/13 12:07 PM
Lab ID: 1307290-12A	Dilution Factor: 1.92
Date/Time Collecte: 7/12/13 11:34 AM	Instrument/File Name: msdc:\c072213
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.76	0.94	2.0
1,4-Dioxane	123-91-1	0.14	0.55	0.69	0.28 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.79	2.8	4.9
2-Hexanone	591-78-6	0.26	1.1	3.9	Not Detected
2-Propanol	67-63-0	0.22	0.66	2.4	8.8
4-Methyl-2-pentanone	108-10-1	0.095	0.63	0.79	2.7
Acetone	67-64-1	0.62	0.64	2.3	68
Bromomethane	74-83-9	0.78	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	0.54 J
Carbon Tetrachloride	56-23-5	0.30	0.97	1.2	Not Detected
Chlorobenzene	108-90-7	0.18	0.71	0.88	Not Detected
Chloroethane	75-00-3	0.28	0.71	2.5	Not Detected
Chloromethane	74-87-3	0.043	0.32	2.0	Not Detected
Cumene	98-82-8	0.12	0.76	0.94	Not Detected
Cyclohexane	110-82-7	0.092	0.53	0.66	0.58 J
Freon 11	75-69-4	0.090	0.86	1.1	1.5
Freon 113	76-13-1	0.26	1.2	1.5	0.44 J
Freon 12	75-71-8	0.094	0.76	0.95	2.9
Hexane	110-54-3	0.084	0.54	0.68	0.84
Methylene Chloride	75-09-2	0.13	0.53	1.3	1.9
Propylbenzene	103-65-1	0.20	0.76	0.94	0.38 J
Styrene	100-42-5	0.16	0.65	0.82	2.0

1357K

10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/23/13 12:07 PM
Lab ID:	1307290-12A	Dilution Factor:	1.92
Date/Time Collected:	7/12/13 11:34 AM	Instrument/Filename:	msdc.i/c072213
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.79	2.8	1.8 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	98

DJK
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/23/13 12:07 PM
Lab ID: 1307290-12B	Dilution Factor: 1.92
Date/Time Collected: 7/12/13 11:34 AM	Instrument/File name: msdc.i / c072213sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.031 J
1,1-Dichloroethane	75-34-3	0.0033	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.11 J
Benzene	71-43-2	0.049	0.049	0.31	0.79
Chloroform	67-66-3	0.017	NA	0.19	0.67
cis-1,2-Dichloroethene	156-59-2	0.014	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.17	2.1
m,p-Xylene	108-38-3	0.016	0.033	0.33	5.1
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.69	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.17	1.7
Tetrachloroethene	127-18-4	0.016	0.052	0.14	18
Toluene	108-88-3	0.0062	0.029	0.76	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.21	Not Detected
Trichloroethene	79-01-6	0.0084	0.041	0.21	Not Detected
Vinyl Chloride	75-01-4	0.0066	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	105

DTL
10/24/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/23/13 12:07 PM
Lab ID:	1307290-12B	Dilution Factor:	1.92
Date/Time Collecte	7/12/13 11:34 AM	Instrument/Filename:	msdc.i / c072213sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DQK
10/24/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 2 of 4

Project Manager _____
 Collected by: (Print and Sign) See Page 1
 Company _____ Email _____
 Address _____ City _____ State _____ Zip _____
 Phone _____ Fax _____

Project Info:
 P.O. # _____
 Project # _____
 Project Name Bozeman Landfill

Turn Around Time: Normal Rush See below
 Lab Use Only: Pressurized by: _____ Date: _____
 Pressurization Gas: _____
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt Final (psi)	
01A	_____	_____	_____	_____	_____	_____	_____	_____	_____
01A	A	929	7/9/13	1633	5-day TAT	-26.0	-5.4		
02A	B	0003	7/11/13	1637		-25.5	-5.0		
03A	A	31137	7/11/13	932		-26.6	-3.7		
04A	B	34392	7/10/13	938		-26.6	-6.0		
05A	A	12683	7/10/13	940		-26.6	-2.9		
06A	A	34742	7/10/13	1325	Normal TAT	-25.6	-6.1		
07A	B	05362	7/11/13	1324		-25.6	-6.3		
08A	C	22510	7/15/13	1327		-25.6	-1.9		
09A	D	932	7/11/13	1328		-26.5	-3.7		
10A	A	931	7/11/13	1030		-26.3	-5.7		

Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) Fed Ex - Bolgrade Date/Time 7/12/13 @ 1400
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) Bozeman Landfill Date/Time 7/15/13 0950

Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Shipper Name Fedex Air Bill # _____ Temp (°C) 0/A Condition Good Custody Seats Intact? Yes No None Work Order # 1307290



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 3 of 4

Project Manager Mark Borsari
 Collected by: (Print and Sign) MRD Workowski
 Company _____ Email _____
 Address see page 1 State _____ Zip _____
 Phone _____ Fax _____

Project Info:
 P.O. # _____
 Project # _____
 Project Name BZOMAN Landfill
 Turn Around Time: Normal Rush see below
 Lab Use Only: Pressurized by: _____ Date: _____
 Pressurization Gas: _____
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Initial	Final	Receipt	Final (psi)
06413	-B	14890	7/11/13	1033	Normal TAT	-25.0	-4.1		
06421	-C	916	7/10/13	1035	5 day TAT	-26.0	-7.0		
06422	-A	35160	7/10/13	738	5 day TAT	-29.3	-6.4		
06423	-B	5694		741		-25.0	-3.3		
06424	-C	403		743		-25.0	-5.0		
08400	A	33560	7/9/13	1247	Normal TAT	-23.9	-4.2		
09400	B	0004		1249		-26.2	-7.0		
10400	C	937		1251		-24.9	-3.2		
11403	-A	5693	7/12/13	1133		-24.5	-0.1		
12406	-B	5607		1134		-25.6	-5.3		

Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) Fedex - Bolgrade Date/Time 7/12/13/091400
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) 18107 Hoffman Ave Date/Time 7/15/13 0950
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Shipper Name Fedex Air Bill # _____ Temp. (°C) N/A Condition Good Custody Seals Intact? Yes No Work Order # 13072910

October 28, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 28, 2013

Sample Delivery Group (SDG) No.	1307291
Samples	██████-A, ██████-B, ██████-A, ██████-B, ██████-C, ██████-A, ██████-B, and ██████-C

Tetra Tech, Inc. conducted data validation of the analytical results for eight air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 9 through 11, 2013. The samples were analyzed under SDG No. 1307291 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field and laboratory duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution



October 28, 2013

- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307291 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analytes 2-butanone, acetone, and methylene chloride below reporting limits (RL). The method blank associated with SIM analyses contained ethylbenzene, m,p-xylene, o-xylene, toluene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory blanks 2-butanone, acetone, and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

No field duplicates were included in this SDG.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the full scan and SIM analyses LCSs and LCSDs within laboratory QC limits. No data were qualified.

SAMPLE DILUTION

None of the samples in this SDG required dilution due to high concentrations of target analytes.

October 28, 2013

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory included estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Sample results less than the RL but greater than the DL were qualified as estimated (flagged "J").

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

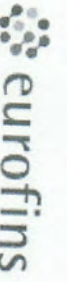
FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307291

(Thirty-two Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307291

(Two Sheets)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1307291-01A
Date/Time Collected: 7/9/13 04:33 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 08:51 AM
Dilution Factor: 1.88
Instrument/Filename: msdc.i / c071809

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.74	0.92	21
1,4-Dioxane	123-91-1	0.14	0.54	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.78	2.8	6.1
2-Hexanone	591-78-6	0.25	1.1	3.8	Not Detected
2-Propanol	67-63-0	0.22	0.65	2.3	7.9
4-Methyl-2-pentanone	108-10-1	0.093	0.62	0.77	Not Detected
Acetone	67-64-1	0.60	0.62	2.2	90
Bromomethane	74-83-9	0.77	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.15	0.82	2.9	0.37 J
Carbon Tetrachloride	56-23-5	0.30	0.95	1.2	0.43 J
Chlorobenzene	108-90-7	0.18	0.69	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.5	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	1.3 J
Cumene	98-82-8	0.12	0.74	0.92	1.3
Cyclohexane	110-82-7	0.091	0.52	0.65	41
Freon 11	75-69-4	0.088	0.84	1.0	1.2
Freon 113	76-13-1	0.25	1.2	1.4	0.35 J
Freon 12	75-71-8	0.092	0.74	0.93	2.3
Hexane	110-54-3	0.083	0.53	0.66	81
Methylene Chloride	75-09-2	0.13	0.52	1.3	Not Detected
Propylbenzene	103-65-1	0.19	0.74	0.92	4.3
Styrene	100-42-5	0.16	0.64	0.80	2.8

DJK
10/28/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307291-01A
Date/Time Collected: 7/9/13 04:33 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 08:51 AM
Dilution Factor: 1.88
Instrument/Filename: msdc.i / c071809

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.54	0.78	2.8	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

DTL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307291-01B
 Date/Time Collected: 7/9/13 04:33 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 08:51 AM
 Dilution Factor: 1.88
 Instrument/File Name: msdc.i / c071809sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.040 J
1,1-Dichloroethane	75-34-3	0.0033	0.030	0.15	0.15 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	6.2
Benzene	71-43-2	0.048	0.048	0.30	18
Chloroform	67-66-3	0.016	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	23
m,p-Xylene	108-38-3	0.016	0.033	0.33	86
Methyl tert-butyl ether	1634-04-4	0.020	0.027	0.68	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	28
Tetrachloroethene	127-18-4	0.015	0.051	0.26	0.33
Toluene	108-88-3	0.0061	0.028	0.14	120
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.74	Not Detected
Trichloroethene	79-01-6	0.0082	0.040	0.20	Not Detected
Vinyl Chloride	75-01-4	0.0065	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	101

DJR
10/28/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-A	Date/Time Analyzed:	7/19/13 08:51 AM
Lab ID:	1307291-01B	Dilution Factor:	1.88
Date/Time Collecte	7/9/13 04:33 PM	Instrument/Filename:	msdc:1 / c071809sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1307291-02A
 Date/Time Collecte: 7/9/13 04:37 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 09:45 AM
 Dilution Factor: 1.89
 Instrument/Filename: msdc.i / 071810

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.74	0.93	7.5
1,4-Dioxane	123-91-1	0.14	0.54	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.78	2.8	5.8
2-Hexanone	591-78-6	0.25	1.1	3.9	0.84 J
2-Propanol	67-63-0	0.22	0.65	2.3	5.3
4-Methyl-2-pentanone	108-10-1	0.094	0.62	0.77	1.3
Acetone	67-64-1	0.61	0.63	2.2	62
Bromomethane	74-83-9	0.77	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.82	2.9	0.48 J
Carbon Tetrachloride	56-23-5	0.30	0.95	1.2	0.48 J
Chlorobenzene	108-90-7	0.18	0.70	0.87	Not Detected
Chloroethane	75-00-3	0.27	0.70	2.5	Not Detected
Chloromethane	74-87-3	0.043	0.31	2.0	1.2 J
Cumene	98-82-8	0.12	0.74	0.93	Not Detected
Cyclohexane	110-82-7	0.091	0.52	0.65	15
Freon 11	75-69-4	0.088	0.85	1.1	1.2
Freon 113	76-13-1	0.25	1.2	1.4	0.42 J
Freon 12	75-71-8	0.093	0.75	0.93	2.5
Hexane	110-54-3	0.083	0.53	0.67	27
Methylene Chloride	75-09-2	0.13	0.52	1.3	Not Detected
Propylbenzene	103-65-1	0.19	0.74	0.93	1.4
Styrene	100-42-5	0.16	0.64	0.80	0.97

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/19/13 09:45 AM
Lab ID:	1307291-02A	Dilution Factor:	1.89
Date/Time Collecte	7/9/13 04:37 PM	Instrument/Filename:	msdc.i / c071810
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.54	0.78	2.8	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

DTL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B	Date/Time Analyzed: 7/19/13 09:45 AM
Lab ID: 1307291-02B	Dilution Factor: 1.89
Date/Time Collecte: 7/9/13 04:37 PM	Instrument/Filename: msdc.i / c071810sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.041	0.21	0.032 J
1,1-Dichloroethane	75-34-3	0.0033	0.030	0.15	0.051 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	1.7
Benzene	71-43-2	0.048	0.048	0.30	6.7
Chloroform	67-66-3	0.016	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	7.7
m,p-Xylene	108-38-3	0.016	0.033	0.33	29
Methyl tert-butyl ether	1634-04-4	0.020	0.027	0.68	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	9.4
Tetrachloroethene	127-18-4	0.016	0.051	0.26	0.11 J
Toluene	108-88-3	0.0061	0.028	0.14	48
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.75	Not Detected
Trichloroethene	79-01-6	0.0082	0.041	0.20	0.024 J
Vinyl Chloride	75-01-4	0.0065	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	102



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ B	Date/Time Analyzed:	7/19/13 09:45 AM
Lab ID:	1307291-02B	Dilution Factor:	1.89
Date/Time Collected:	7/9/13 04:37 PM	Instrument/Filename:	msdc.i / c071810sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

D57L
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
 Lab ID: 1307291-03A
 Date/Time Collecte: 7/11/13 09:32 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 10:31 AM
 Dilution Factor: 1.88
 Instrument/Filename: msdc.i / c071811

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.74	0.92	18
1,4-Dioxane	123-91-1	0.14	0.54	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.78	2.8	6.5
2-Hexanone	591-78-6	0.25	1.1	3.8	Not Detected
2-Propanol	67-63-0	0.22	0.65	2.3	13
4-Methyl-2-pentanone	108-10-1	0.093	0.62	0.77	2.3
Acetone	67-64-1	0.60	0.62	2.2	87
Bromomethane	74-83-9	0.77	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.15	0.82	2.9	0.45 J
Carbon Tetrachloride	56-23-5	0.30	0.95	1.2	0.78 J
Chlorobenzene	108-90-7	0.18	0.69	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.5	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	1.7 J
Cumene	98-82-8	0.12	0.74	0.92	0.92
Cyclohexane	110-82-7	0.091	0.52	0.65	1.5
Freon 11	75-69-4	0.088	0.84	1.0	1.2
Freon 113	76-13-1	0.25	1.2	1.4	0.50 J
Freon 12	75-71-8	0.092	0.74	0.93	2.7
Hexane	110-54-3	0.083	0.53	0.66	5.8
Methylene Chloride	75-09-2	0.13	0.52	0.92	2.8
Propylbenzene	103-65-1	0.19	0.74	0.92	2.8
Styrene	100-42-5	0.16	0.64	0.80	2.4

1.304

0.66 J

DJL

10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] - A
Lab ID: 1307291-03A
Date/Time Collected: 7/11/13 09:32 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/19/13 10:31 AM
Dilution Factor: 1.88
Instrument/Filename: msdc.l / c071811

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.54	0.78	2.8	1.0 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

DSL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307291-03B
Date/Time Collected: 7/1/13 09:32 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 10:31 AM
Dilution Factor: 1.88
Instrument/Filename: msdc.l/c071811sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.026 J
1,1-Dichloroethane	75-34-3	0.0033	0.030	0.15	0.0092 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	1.6
Benzene	71-43-2	0.048	0.048	0.30	8.1
Chloroform	67-66-3	0.016	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	12
m,p-Xylene	108-38-3	0.016	0.033	0.33	53
Methyl tert-butyl ether	1634-04-4	0.020	0.027	0.68	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	17
Tetrachloroethene	127-18-4	0.015	0.051	0.26	1.0
Toluene	108-88-3	0.0061	0.028	0.14	68
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.74	0.024 J
Trichloroethene	79-01-6	0.0082	0.040	0.20	0.097 J
Vinyl Chloride	75-01-4	0.0065	0.019	0.048	0.025 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	105

DJK
10/25/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307291-03B
Date/Time Collecte 7/11/13 09:32 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/19/13 10:31 AM
Dilution Factor: 1.88
Instrument/Filename: msdc.i / c071811sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/19/13 11:23 AM
Lab ID: 1307291-04A	Dilution Factor: 1.92
Date/Time Collecte: 7/11/13 09:38 AM	Instrument/Filename: msdc.i / c071812
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.76	0.94	18
1,4-Dioxane	123-91-1	0.14	0.55	0.69	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.79	2.8	6.8
2-Hexanone	591-78-6	0.26	1.1	3.9	Not Detected
2-Propanol	67-63-0	0.22	0.66	2.4	13
4-Methyl-2-pentanone	108-10-1	0.095	0.63	0.79	2.3
Acetone	67-64-1	0.62	0.64	2.3	90
Bromomethane	74-83-9	0.78	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	0.34 J
Carbon Tetrachloride	56-23-5	0.30	0.97	1.2	0.63 J
Chlorobenzene	108-90-7	0.18	0.71	0.88	Not Detected
Chloroethane	75-00-3	0.28	0.71	2.5	Not Detected
Chloromethane	74-87-3	0.043	0.32	2.0	Not Detected
Cumene	98-82-8	0.12	0.76	0.94	1.6 J
Cyclohexane	110-82-7	0.092	0.53	0.66	0.70 J
Freon 11	75-69-4	0.090	0.86	1.1	1.4
Freon 113	76-13-1	0.26	1.2	1.5	1.3
Freon 12	75-71-8	0.094	0.76	0.95	0.47 J
Hexane	110-54-3	0.084	0.54	0.68	2.8
Methylene Chloride	75-09-2	0.13	0.53	0.68	6.1
Propylbenzene	103-65-1	0.20	0.76	0.94	2.9
Styrene	100-42-5	0.16	0.65	0.82	2.5

1.3
4

0.52 J

DJK

10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] B	Date/Time Analyzed:	7/19/13 11:23 AM
Lab ID:	1307291-04A	Dilution Factor:	1.92
Date/Time Collected:	7/11/13 09:38 AM	Instrument/Filename:	msdc.i / C071812
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.79	2.8	1.0 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

D572
10/28/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-B	Date/Time Analyzed:	7/19/13 11:23 AM
Lab ID:	1307291-04B	Dilution Factor:	1.92
Date/Time Collecte	7/11/13 09:38 AM	Instrument/Filename:	msdc.i / c071812slm
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.029 J
1,1-Dichloroethane	75-34-3	0.0033	0.031	0.16	0.0089 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	1.6
Benzene	71-43-2	0.049	0.049	0.31	8.0
Chloroform	67-66-3	0.017	NA	0.19	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.014	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.17	12
m,p-Xylene	108-38-3	0.016	0.033	0.33	52
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.69	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.17	17
Tetrachloroethene	127-18-4	0.016	0.052	0.26	0.98
Toluene	108-88-3	0.0062	0.029	0.14	68
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.76	Not Detected
Trichloroethene	79-01-6	0.0084	0.041	0.21	0.030 J
Vinyl Chloride	75-01-4	0.0066	0.020	0.049	0.015 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	107

DJK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/19/13 11:23 AM
Lab ID:	1307291-04B	Dilution Factor:	1.92
Date/Time Collecte	7/11/13 09:38 AM	Instrument/Filename:	msdc.i / c071812sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

DJL

10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] C	Date/Time Analyzed:	7/19/13 12:09 PM
Lab ID:	1307291-05A	Dilution Factor:	1.71
Date/Time Collecte	7/11/13 09:40 AM	Instrument/File name:	msdc.i / 6071813
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.27	0.67	0.84	23
1,4-Dioxane	123-91-1	0.12	0.49	0.62	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.71	2.5	8.8
2-Hexanone	591-78-6	0.23	0.98	3.5	Not Detected
2-Propanol	67-63-0	0.20	0.59	2.1	18
4-Methyl-2-pentanone	108-10-1	0.085	0.56	0.70	3.0
Acetone	67-64-1	0.55	0.57	2.0	100
Bromomethane	74-83-9	0.70	0.93	3.3	Not Detected
Carbon Disulfide	75-15-0	0.13	0.74	2.7	0.47 J
Carbon Tetrachloride	56-23-5	0.27	0.86	1.1	0.77 J
Chlorobenzene	108-90-7	0.16	0.63	0.79	Not Detected
Chloroethane	75-00-3	0.25	0.63	2.2	Not Detected
Chloromethane	74-87-3	0.039	0.28	1.8	Not Detected
Cumene	98-82-8	0.11	0.67	0.84	1.6 J
Cyclohexane	110-82-7	0.082	0.47	0.59	1.4
Freon 11	75-69-4	0.080	0.77	0.96	1.7
Freon 113	76-13-1	0.23	1.0	1.3	1.4
Freon 12	75-71-8	0.084	0.68	0.84	0.46 J
Hexane	110-54-3	0.075	0.48	0.60	2.8
Methylene Chloride	75-09-2	0.12	0.48	0.84	9.0
Propylbenzene	103-65-1	0.17	0.67	0.84	4.1
Styrene	100-42-5	0.15	0.58	0.73	3.3

1.204

0.99 J

DJK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/19/13 12:09 PM
Lab ID: 1307291-05A	Dilution Factor: 1.71
Date/Time Collecte: 7/11/13 09:40 AM	Instrument/Filename: msdc.i / c071813
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.49	0.70	2.5	1.4 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

DJK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 7/19/13 12:09 PM
Lab ID: 1307291-05B	Dilution Factor: 1.71
Date/Time Collecte: 7/11/13 09:40 AM	Instrument/Filename: msdc.i / c071813sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.037	0.19	0.036 J
1,1-Dichloroethane	75-34-3	0.0030	0.028	0.14	0.013 J
1,2-Dichloroethane	107-06-2	0.029	0.029	0.14	3.2
Benzene	71-43-2	0.044	0.044	0.27	13
Chloroform	67-66-3	0.015	NA	0.17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.012	0.027	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.030	0.15	18
m,p-Xylene	108-38-3	0.014	0.030	0.30	78
Methyl tert-butyl ether	1634-04-4	0.018	0.025	0.62	Not Detected
o-Xylene	95-47-6	0.013	0.030	0.15	24
Tetrachloroethene	127-18-4	0.014	0.046	0.23	1.2
Toluene	108-88-3	0.0055	0.026	0.13	110
trans-1,2-Dichloroethene	156-60-5	0.016	0.027	0.68	0.021 J
Trichloroethene	79-01-6	0.0074	0.037	0.18	0.046 J
Vinyl Chloride	75-01-4	0.0059	0.017	0.044	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	106

DJK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307291-05B
Date/Time Collecte 7/1/13 09:40 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/19/13 12:09 PM
Dilution Factor: 1.71
Instrument/Filename: msdc.i / c071813sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

D57L
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/19/13 01:15 PM
Lab ID: 1307291-06A	Dilution Factor: 1.91
Date/Time Collected: 7/10/13 07:38 AM	Instrument/File Name: msdc.i / C071814
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.75	0.94	0.80 J
1,4-Dioxane	123-91-1	0.14	0.55	0.69	0.81
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.79	2.8	4.4
2-Hexanone	591-78-6	0.26	1.1	3.9	0.92 J
2-Propanol	67-63-0	0.22	0.66	2.3	16
4-Methyl-2-pentanone	108-10-1	0.094	0.62	0.78	0.64 J
Acetone	67-64-1	0.61	0.64	2.3	38
Bromomethane	74-83-9	0.78	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.83	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.30	0.96	1.2	Not Detected
Chlorobenzene	108-90-7	0.18	0.70	0.88	Not Detected
Chloroethane	75-00-3	0.28	0.70	2.5	Not Detected
Chloromethane	74-87-3	0.043	0.32	2.0	1.2 J
Cumene	98-82-8	0.12	0.75	0.94	Not Detected
Cyclohexane	110-82-7	0.092	0.52	0.66	Not Detected
Freon 11	75-69-4	0.090	0.86	1.1	1.2
Freon 113	76-13-1	0.26	1.2	1.5	0.42 J
Freon 12	75-71-8	0.094	0.76	0.94	2.3
Hexane	110-54-3	0.084	0.54	0.67	0.56 J
Methylene Chloride	75-09-2	0.13	0.53	1.3	0.50 J
Propylbenzene	103-65-1	0.19	0.75	0.94	Not Detected
Styrene	100-42-5	0.16	0.65	0.81	0.99

DRL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	7/19/13 01:15 PM
Lab ID:	1307291-06A	Dilution Factor:	1.91
Date/Time Collecte	7/10/13 07:38 AM	Instrument/Filename:	msdc:i/c071814
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.79	2.8	0.81 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/19/13 01:15 PM
Lab ID: 1307291-06B	Dilution Factor: 1.91
Date/Time Collecte: 7/10/13 07:38 AM	Instrument/File name: msdc.i / c071814sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.031 J
1,1-Dichloroethane	75-34-3	0.0033	0.031	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.10 J
Benzene	71-43-2	0.049	0.049	0.30	0.29 J
Chloroform	67-66-3	0.017	NA	0.19	1.4
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	0.39
m,p-Xylene	108-38-3	0.016	0.033	0.33	0.95
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.69	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	0.31
Tetrachloroethene	127-18-4	0.016	0.052	0.26	0.17 J
Toluene	108-88-3	0.0062	0.029	0.14	5.8
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.76	26
Trichloroethene	79-01-6	0.0083	0.041	0.20	0.049 J
Vinyl Chloride	75-01-4	0.0066	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	101

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307291-06B
Date/Time Collecte 7/10/13 07:38 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/19/13 01:15 PM
Dilution Factor: 1.91
Instrument/Filename: msdc.i / C071814sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DTK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/19/13 03:46 PM
Lab ID:	1307291-07A	Dilution Factor:	1.82
Date/Time Collected:	7/10/13 07:41 AM	Instrument/Filename:	msdc.i / 6071816
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.72	0.89	1.0
1,4-Dioxane	123-91-1	0.13	0.52	0.66	0.38 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.21	0.75	2.7	4.5
2-Hexanone	591-78-6	0.24	1.0	3.7	0.76 J
2-Propanol	67-63-0	0.21	0.63	2.2	15
4-Methyl-2-pentanone	108-10-1	0.090	0.60	0.74	0.60 J
Acetone	67-64-1	0.58	0.60	2.2	43
Bromomethane	74-83-9	0.74	0.99	3.5	Not Detected
Carbon Disulfide	75-15-0	0.14	0.79	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.29	0.92	1.1	0.46 J
Chlorobenzene	108-90-7	0.18	0.67	0.84	Not Detected
Chloroethane	75-00-3	0.26	0.67	2.4	Not Detected
Chloromethane	74-87-3	0.041	0.30	1.9	Not Detected
Cumene	98-82-8	0.12	0.72	0.89	1.5 J
Cyclohexane	110-82-7	0.088	0.50	0.63	Not Detected
Freon 11	75-69-4	0.085	0.82	1.0	0.21 J
Freon 113	76-13-1	0.24	1.1	1.4	1.3
Freon 12	75-71-8	0.090	0.72	0.90	0.48 J
Hexane	110-54-3	0.080	0.51	0.64	2.5
Methylene Chloride	75-09-2	0.12	0.50	0.51	0.93
Propylbenzene	103-65-1	0.18	0.72	0.89	Not Detected
Styrene	100-42-5	0.16	0.62	0.78	1.3

1.3

0.51

MDL 10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/19/13 03:46 PM
Lab ID: 1307291-07A	Dilution Factor: 1.82
Date/Time Collected: 7/10/13 07:41 AM	Instrument/Filename: msdc.i/c071816
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.52	0.75	2.7	1.3 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

DSL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/19/13 03:46 PM
Lab ID: 1307291-07B	Dilution Factor: 1.82
Date/Time Collecte: 7/10/13 07:41 AM	Instrument/File name: msdc.i / e071816sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.040	0.20	0.028 J
1,1-Dichloroethane	75-34-3	0.0032	0.029	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.031	0.031	0.15	0.090 J
Benzene	71-43-2	0.047	0.047	0.29	0.27 J
Chloroform	67-66-3	0.016	NA	0.18	1.1
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.032	0.16	0.47
m,p-Xylene	108-38-3	0.015	0.032	0.32	1.1
Methyl tert-butyl ether	1634-04-4	0.019	0.026	0.66	Not Detected
o-Xylene	95-47-6	0.014	0.032	0.16	0.36
Tetrachloroethene	127-18-4	0.015	0.049	0.25	0.19 J
Toluene	108-88-3	0.0059	0.027	0.14	7.3
trans-1,2-Dichloroethene	156-60-5	0.017	0.029	0.72	3.5
Trichloroethene	79-01-6	0.0079	0.039	0.039	
Vinyl Chloride	75-01-4	0.0063	0.019	0.20 0.20 0.046	0.024 J Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104

10/28/13
DOL



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/19/13 03:46 PM
Lab ID:	1307291-07B	Dilution Factor:	1.82
Date/Time Collecte	7/10/13 07:41 AM	Instrument/Filename:	msdc.i/c071816sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

DTL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
 Lab ID: 1307291-08A
 Date/Time Collecte: 7/10/13 07:43 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/19/13 02:28 PM
 Dilution Factor: 1.98
 Instrument/File name: msdc.i / c071815

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.32	0.78	0.97	1.5
1,4-Dioxane	123-91-1	0.14	0.57	0.71	0.77
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.82	2.9	4.8
2-Hexanone	591-78-6	0.27	1.1	4.0	0.54 J
2-Propanol	67-63-0	0.23	0.68	2.4	15
4-Methyl-2-pentanone	108-10-1	0.098	0.65	0.81	0.42 J
Acetone	67-64-1	0.64	0.66	2.4	47
Bromomethane	74-83-9	0.81	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.86	3.1	0.16 J
Carbon Tetrachloride	56-23-5	0.31	1.0	1.2	0.37 J
Chlorobenzene	108-90-7	0.19	0.73	0.91	Not Detected
Chloroethane	75-00-3	0.29	0.73	2.6	Not Detected
Chloromethane	74-87-3	0.045	0.33	2.0	Not Detected
Cumene	98-82-8	0.13	0.78	0.97	1.5 J
Cyclohexane	110-82-7	0.095	0.54	0.68	0.38 J
Freon 11	75-69-4	0.093	0.89	1.1	0.23 J
Freon 113	76-13-1	0.26	1.2	1.5	1.4
Freon 12	75-71-8	0.097	0.78	0.98	0.49 J
Hexane	110-54-3	0.087	0.56	0.70	2.7
Methylene Chloride	75-09-2	0.14	0.55	0.70	0.66 J
Propylbenzene	103-65-1	0.20	0.78	0.97	0.36 J
Styrene	100-42-5	0.17	0.67	0.84	0.23 J
					1.9

DU

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307291-08A
Date/Time Collected: 7/10/13 07:43 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/19/13 02:28 PM
Dilution Factor: 1.98
Instrument/Filename: msdc.i/c071815

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.57	0.82	2.9	2.1 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-C	Date/Time Analyzed:	7/19/13 02:28 PM
Lab ID:	1307291-08B	Dilution Factor:	1.98
Date/Time Collecte	7/10/13 07:43 AM	Instrument/File name:	msdc.i / c071815sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.043	0.22	0.026 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.034	0.034	0.16	0.095 J
Benzene	71-43-2	0.051	0.051	0.32	0.29 J
Chloroform	67-66-3	0.017	NA	0.19	1.4
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.034	0.17	0.94
m,p-Xylene	108-38-3	0.017	0.034	0.34	1.8
Methyl tert-butyl ether	1634-04-4	0.021	0.028	0.71	Not Detected
o-Xylene	95-47-6	0.016	0.034	0.17	0.55
Tetrachloroethene	127-18-4	0.016	0.054	0.27	0.38
Toluene	108-88-3	0.0064	0.030	0.15	19
trans-1,2-Dichloroethene	156-60-5	0.019	0.031	0.78	7.1
Trichloroethene	79-01-6	0.0086	0.042		
Vinyl Chloride	75-01-4	0.0068	0.020	0.051	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	102

DTL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307291-08B
Date/Time Collecte 7/10/13 07:43 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/19/13 02:28 PM
Dilution Factor: 1.98
Instrument/Filename: msdc.i / c071815sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

B57L
10/28/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Project Manager _____
 Collected by: (Print and Sign) See Page 4
 Company _____ Email _____
 Address _____ City _____ State _____ Zip _____
 Phone _____ Fax _____

Project Info:
 P.O. # _____
 Project # _____
 Project Name Box 20000M (containing)

Turn Around Time:
 Normal
 Rush See below
 Date: _____
 Pressurization Gas: _____
 specify N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt Final (psf)
01A9	-A	929	7/9/13	1633	5-day TAT	-26.0	-5.4	
02A9	-B	0003	↓	1637	↓	-25.5	-5.0	
03A9	-A	31137	7/11/13	932	↓	-26.6	-3.7	
04A9	-B	34392	↓	938	↓	-26.6	-6.0	
05A9	-C	12683	↓	940	↓	-26.6	-2.9	
	-A	34742	7/16/13	1325	Normal TAT	-25.6	-6.1	
	-B	05362	↓	1324	↓	-25.6	-6.3	
	-C	22510	↓	1327	↓	-25.6	-1.9	
	-D	932	↓	1328	↓	-26.1	-3.7	
	-A	931	7/11/13	1030	↓	-26.3	-5.7	

Relinquished by: (signature) _____ Date/Time _____
 Relinquished by: (signature) William Galloway Date/Time 7/12/13 @ 1400
 Received by: (signature) _____ Date/Time _____
 Received by: (signature) Fred EX - Bridge Date/Time 7/12/13 @ 1400
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) Brad Mitchell Date/Time 7/15/13 @ 0950

Shipper Name Feeder Air Bill # _____ Temp (°C) 01A Condition Good Custody Seals Intact? Yes No None Work Order # 1307291



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 3 of 4

Project Manager Mark Pearson

Collected by: (Print and Sign) Mark Pearson

Company _____ Email _____

Address _____ State _____ Zip _____

Phone _____ Fax _____

Project Info:		Turn Around Time:	
P.O. # _____	Project # _____	<input type="checkbox"/> Normal	Lab Use Only Pressurized by: _____
Project Name <u>Bostonway Landfill</u>		<input checked="" type="checkbox"/> Rush <u>see below</u>	Date: _____
		Project Name _____	Pressurization Gas: _____
		Specify _____	N ₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum
						Initial Final Receipt Final (psi)
0649	[REDACTED]	14890	7/11/13	1033	Normal TAT	25.0 22.0
0649	[REDACTED]	916	7/11/13	1035	Normal TAT	26.0 7.0
0649	[REDACTED]	35160	7/10/13	738	5 day TAT	27.3 6.4
0800	[REDACTED]	5694	7/10/13	741	Normal TAT	25.0 3.3
[REDACTED]	[REDACTED]	403	7/10/13	743	Normal TAT	25.0 5.0
[REDACTED]	[REDACTED]	33560	7/9/13	1247	Normal TAT	23.9 4.2
[REDACTED]	[REDACTED]	0004	7/9/13	1249	Normal TAT	26.2 7.0
[REDACTED]	[REDACTED]	937	7/12/13	1251	Normal TAT	24.9 3.2
[REDACTED]	[REDACTED]	5693	7/12/13	1133	Normal TAT	24.5 0.1
[REDACTED]	[REDACTED]	5607	7/12/13	1134	Normal TAT	25.6 5.3

Relinquished by: (signature) [Signature] Date/Time 7/12/13 @ 1400

Received by: (signature) [Signature] Date/Time 7/14/13 @ 1400

Relinquished by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) [Signature] Date/Time 7/15/13 0950

Shipper Name Fedex Air Bill # _____ Temp (°C) N/A Condition Good Custody Seals Intact? Yes No Work Order # 307291

October 18, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 18, 2013

Sample Delivery Group (SDG) No.	1307413
Samples	█-A, █-B, █-C, █-E, █-F, █-A, █-B, █-C, and █-D
Field Duplicates	█-C and █-D

Tetra Tech, Inc. conducted data validation of the analytical results for ten air samples (including one field duplicate) that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 16 and 19, 2013. The samples were analyzed under SDG No. 1307413 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



October 18, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307413 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the July 26 full scan analyses contained concentrations of target analytes 2-propanol, acetone, hexane, and methylene chloride below reporting limits (RL). The method blank associated with the July 27 full scan analyses contained target analyte methylene chloride below the RL. The method blank associated with July 26 SIM analyses contained benzene, chloroform, ethyl benzene, m,p-xylene, o-xylene, toluene, and vinyl chloride below RLs. The method blank associated with July 27 SIM analyses contained benzene, m,p-xylene, and toluene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory blanks acetone, and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

RPDs for field duplicates █████-C and █████-D were within the QC limit (≤ 30) with the exception of 2-propanol (RPD = 36). Laboratory data are not typically qualified because of field duplicate results.

October 18, 2013

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the full scan and SIM analyses LCSs and LCSDs within laboratory QC limits. No data were qualified.

SAMPLE DILUTION

Dilution (5.18x) was performed on sample [REDACTED]-B because of the presence of high concentrations of acetone and 1,2-dichloroethane.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory included estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Sample results less than the RL but greater than the DL were qualified as estimated (flagged "J").

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

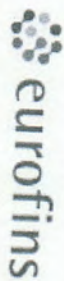
FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307413

(Forty Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307413

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307413-01A
Date/Time Collected: 7/16/13 12:58 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 01:00 PM
Dilution Factor: 1.97
Instrument/Filename: msdc:\c072513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.77	0.97	1.8
1,4-Dioxane	123-91-1	0.14	0.57	0.71	0.50 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.81	2.9	2.8 J
2-Hexanone	591-78-6	0.26	1.1	4.0	0.35 J
2-Propanol	67-63-0	0.23	0.68	2.4	3.6
4-Methyl-2-pentanone	108-10-1	0.097	0.64	0.81	0.42 J
Acetone	67-64-1	0.63	0.66	2.3	40
Bromomethane	74-83-9	0.80	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.86	3.1	0.24 J
Carbon Tetrachloride	56-23-5	0.31	0.99	1.2	0.44 J
Chlorobenzene	108-90-7	0.19	0.72	0.91	Not Detected
Chloroethane	75-00-3	0.29	0.73	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	Not Detected
Cumene	98-82-8	0.13	0.77	0.97	Not Detected
Cyclohexane	110-82-7	0.095	0.54	0.68	Not Detected
Freon 11	75-69-4	0.092	0.88	1.1	2.4
Freon 113	76-13-1	0.26	1.2	1.5	0.70 J
Freon 12	75-71-8	0.097	0.78	0.97	2.8
Hexane	110-54-3	0.086	0.56	0.69	0.75 J+
Methylene Chloride	75-09-2	0.13	0.55	1.4	0.32 J
Propylbenzene	103-65-1	0.20	0.77	0.97	0.26 J
Styrene	100-42-5	0.17	0.67	0.84	0.28 J

DU

0.32 J

DSTL

10/18/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 7/26/13 01:00 PM
Lab ID: 1307413-01A	Dilution Factor: 1.97
Date/Time Collecte: 7/16/13 12:58 PM	Instrument/Filename: msdc.i / c072513
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.81	2.9	1.1 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	96

DTL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1307413-01B
Date/Time Collected: 7/16/13 12:58 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 01:00 PM
Dilution Factor: 1.97
Instrument/Filename: msdc.i / c072513sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.043	0.21	0.10 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	0.0091 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.18
Benzene	71-43-2	0.050	0.051	0.31	0.56
Chloroform	67-66-3	0.017	NA	0.19	0.34
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.034	0.17	0.56
m,p-Xylene	108-38-3	0.017	0.034	0.34	2.0
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.71	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	0.71
Tetrachloroethene	127-18-4	0.016	0.053	0.27	0.11 J
Toluene	108-88-3	0.0064	0.030	0.15	4.2
trans-1,2-Dichloroethene	156-60-5	0.019	0.031	0.78	0.024 J
Trichloroethene	79-01-6	0.0086	0.042	0.21	Not Detected
Vinyl Chloride	75-01-4	0.0068	0.020	0.050	0.048 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	106

0576
10/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-A	Date/Time Analyzed:	7/26/13 01:00 PM
Lab ID:	1307413-01B	Dilution Factor:	1.97
Date/Time Collecte	7/16/13 12:58 PM	Instrument/Filename:	msdc.i / c072513sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

D57L
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1307413-02A
Date/Time Collecte: 7/16/13 12:59 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 01:53 PM
Dilution Factor: 2.18
Instrument/Filename: msdc.i / c072514

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.35	0.86	1.1	1.6
1,4-Dioxane	123-91-1	0.16	0.63	0.78	0.92
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.25	0.90	3.2	5.3
2-Hexanone	591-78-6	0.29	1.2	4.5	0.65 J
2-Propanol	67-63-0	0.25	0.75	2.7	6.5
4-Methyl-2-pentanone	108-10-1	0.11	0.71	0.89	0.37 J
Acetone	67-64-1	0.70	0.72	2.6	55
Bromomethane	74-83-9	0.89	1.2	4.2	Not Detected
Carbon Disulfide	75-15-0	0.17	0.95	3.4	0.24 J
Carbon Tetrachloride	56-23-5	0.34	1.1	1.4	0.54 J
Chlorobenzene	108-90-7	0.21	0.80	1.0	Not Detected
Chloroethane	75-00-3	0.32	0.80	2.9	Not Detected
Chloromethane	74-87-3	0.049	0.36	2.2	Not Detected
Cumene	98-82-8	0.14	0.86	1.1	Not Detected
Cyclohexane	110-82-7	0.10	0.60	0.75	0.59 J
Freon 11	75-69-4	0.10	0.98	1.2	2.3
Freon 113	76-13-1	0.29	1.3	1.7	0.54 J
Freon 12	75-71-8	0.11	0.86	1.1	2.7
Hexane	110-54-3	0.096	0.61	0.77	0.75 J
Methylene Chloride	75-09-2	0.15	0.60	1.5	0.59 J
Propylbenzene	103-65-1	0.22	0.86	1.1	0.24 J
Styrene	100-42-5	0.19	0.74	0.93	0.55 J

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Handwritten notes: D57L, 10/18/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
 Lab ID: 1307413-02A
 Date/Time Collected: 7/16/13 12:59 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 7/26/13 01:53 PM
 Dilution Factor: 2.18
 Instrument/Filename: msdc.i / c072514

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.62	0.90	3.2	0.85 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	97

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
 Lab ID: 1307413-02B
 Date/Time Collected: 7/16/13 12:59 PM
 Media: 6 Liter Summa Canister (SIM Certified)

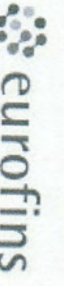
Date/Time Analyzed: 7/26/13 01:53 PM
 Dilution Factor: 2.18
 Instrument/Filename: msdc.i / c072514sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.048	0.24	0.092 J
1,1-Dichloroethane	75-34-3	0.0038	0.035	0.18	0.012 J
1,2-Dichloroethane	107-06-2	0.037	0.037	0.18	0.39
Benzene	71-43-2	0.056	0.056	0.35	1.7
Chloroform	67-66-3	0.019	NA	0.21	0.42
cis-1,2-Dichloroethene	156-59-2	0.015	0.034	0.17	Not Detected
Ethyl Benzene	100-41-4	0.015	0.038	0.19	0.85
m,p-Xylene	108-38-3	0.018	0.038	0.38	2.4
Methyl tert-butyl ether	1634-04-4	0.023	0.031	0.78	Not Detected
o-Xylene	95-47-6	0.017	0.038	0.19	0.88
Tetrachloroethene	127-18-4	0.018	0.059	0.30	0.15 J
Toluene	108-88-3	0.0071	0.033	0.16	30
trans-1,2-Dichloroethene	156-60-5	0.021	0.034	0.86	Not Detected
Trichloroethene	79-01-6	0.0095	0.047	0.23	0.057 J
Vinyl Chloride	75-01-4	0.0075	0.022	0.056	0.012 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	106

DJL
10/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307413-02B
Date/Time Collecte 7/16/13 12:59 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/26/13 01:53 PM
Dilution Factor: 2.18
Instrument/Filename: msdc.i / c072514sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

DOL
1018113



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
 Lab ID: 1307413-03A
 Date/Time Collected: 7/16/13 01:00 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 02:42 PM
 Dilution Factor: 1.86
 Instrument/Filename: msdc.i / c072515

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.73	0.91	1.3
1,4-Dioxane	123-91-1	0.13	0.54	0.67	0.40 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.77	2.7	2.2 J
2-Hexanone	591-78-6	0.25	1.1	3.8	0.45 J
2-Propanol	67-63-0	0.21	0.64	2.3	4.9
4-Methyl-2-pentanone	108-10-1	0.092	0.61	0.76	0.38 J
Acetone	67-64-1	0.60	0.62	2.2	35
Bromomethane	74-83-9	0.76	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.81	2.9	0.14 J
Carbon Tetrachloride	56-23-5	0.29	0.94	1.2	0.51 J
Chlorobenzene	108-90-7	0.18	0.68	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.4	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	Not Detected
Cumene	98-82-8	0.12	0.73	0.91	Not Detected
Cyclohexane	110-82-7	0.090	0.51	0.64	0.26 J
Freon 11	75-69-4	0.087	0.84	1.0	2.1
Freon 113	76-13-1	0.25	1.1	1.4	0.48 J
Freon 12	75-71-8	0.092	0.74	0.92	2.7
Hexane	110-54-3	0.082	0.52	0.66	0.89
Methylene Chloride	75-09-2	0.13	0.52	0.55 J	5+
Propylbenzene	103-65-1	0.19	0.73	0.91	0.19 J
Styrene	100-42-5	0.16	0.63	0.79	0.30 J

1.3 DU
 0.55 J
 5+

DJK
 10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1307413-03A
Date/Time Collected: 7/16/13 01:00 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 02:42 PM
Dilution Factor: 1.86
Instrument/Filename: msdc.i / c072515

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.53	0.77	2.7	0.67 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	99

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
 Lab ID: 1307413-03B
 Date/Time Collected: 7/16/13 01:00 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 7/26/13 02:42 PM
 Dilution Factor: 1.86
 Instrument/Filename: msdc.i / c072515sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.17 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	0.0088 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.16
Benzene	71-43-2	0.048	0.048	0.30	0.59
Chloroform	67-66-3	0.016	NA	0.18	0.40
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	0.56
m,p-Xylene	108-38-3	0.016	0.032	0.32	1.8
Methyl tert-butyl ether	1634-04-4	0.019	0.027	0.67	Not Detected
o-Xylene	95-47-6	0.015	0.032	0.16	0.61
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.13 J
Toluene	108-88-3	0.0060	0.028	0.14	4.8
trans-1,2-Dichloroethene	156-60-5	0.018	0.029	0.74	0.023 J
Trichloroethene	79-01-6	0.0081	0.040	0.20	Not Detected
Vinyl Chloride	75-01-4	0.0064	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	105

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	█-C	Date/Time Analyzed:	7/26/13 02:42 PM
Lab ID:	1307413-03B	Dilution Factor:	1.86
Date/Time Collecte	7/16/13 01:00 PM	Instrument/Filename:	msdc.i / c072515sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-D	Date/Time Analyzed:	7/26/13 03:30 PM
Lab ID:	1307413-04A	Dilution Factor:	1.77
Date/Time Collected:	7/16/13 01:00 PM	Instrument/File Name:	msdc.i / c072516
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.28	0.70	0.87	1.3
1,4-Dioxane	123-91-1	0.13	0.51	0.64	0.43 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.21	0.73	2.6	2.3 J
2-Hexanone	591-78-6	0.24	1.0	3.6	0.56 J
2-Propanol	67-63-0	0.20	0.61	2.2	3.4
4-Methyl-2-pentanone	108-10-1	0.088	0.58	0.72	0.40 J
Acetone	67-64-1	0.57	0.59	2.1	35
Bromomethane	74-83-9	0.72	0.96	3.4	Not Detected
Carbon Disulfide	75-15-0	0.14	0.77	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.28	0.89	1.1	0.49 J
Chlorobenzene	108-90-7	0.17	0.65	0.81	Not Detected
Chloroethane	75-00-3	0.26	0.65	2.3	Not Detected
Chloromethane	74-87-3	0.040	0.29	1.8	3.6
Cumene	98-82-8	0.12	0.70	0.87	Not Detected
Cyclohexane	110-82-7	0.085	0.49	0.61	0.21 J
Freon 11	75-69-4	0.083	0.80	0.99	2.0
Freon 113	76-13-1	0.24	1.1	1.4	0.38 J
Freon 12	75-71-8	0.087	0.70	0.88	2.7
Hexane	110-54-3	0.078	0.50	0.62	0.66
Methylene Chloride	75-09-2	0.12	0.49	1.2	0.42 J
Propylbenzene	103-65-1	0.18	0.70	0.87	0.24 J
Styrene	100-42-5	0.15	0.60	0.75	0.31 J

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D	Date/Time Analyzed: 7/26/13 03:30 PM
Lab ID: 1307413-04A	Dilution Factor: 1.77
Date/Time Collected: 7/16/13 01:00 PM	Instrument/Filename: msdc.i / c072516
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.51	0.73	2.6	0.60 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D	Date/Time Analyzed: 7/26/13 03:30 PM
Lab ID: 1307413-04B	Dilution Factor: 1.77
Date/Time Collecte: 7/16/13 01:00 PM	Instrument/Filename: msdc.i / c072516sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.039	0.19	0.15 J
1,1-Dichloroethane	75-34-3	0.0031	0.029	0.14	0.0088 J
1,2-Dichloroethane	107-06-2	0.030	0.030	0.14	0.15
Benzene	71-43-2	0.045	0.045	0.28	0.56
Chloroform	67-66-3	0.015	NA	0.17	0.38
cis-1,2-Dichloroethene	156-59-2	0.012	0.028	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.031	0.15	0.51
m,p-Xylene	108-38-3	0.015	0.031	0.31	1.7
Methyl tert-butyl ether	1634-04-4	0.018	0.026	0.64	Not Detected
o-Xylene	95-47-6	0.014	0.031	0.15	0.60
Tetrachloroethene	127-18-4	0.014	0.048	0.24	0.12 J
Toluene	108-88-3	0.0057	0.027	0.13	4.2
trans-1,2-Dichloroethene	156-60-5	0.017	0.028	0.70	Not Detected
Trichloroethene	79-01-6	0.0077	0.038	0.19	0.016 J
Vinyl Chloride	75-01-4	0.0061	0.018	0.045	0.024 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	106

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D
Lab ID: 1307413-04B
Date/Time Collecte 7/16/13 01:00 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/26/13 03:30 PM
Dilution Factor: 1.77
Instrument/Filename: msdc.i / C072516sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

DSK
10/13/13
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
 Lab ID: 1307413-05A
 Date/Time Collected: 7/16/13 01:02 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 04:22 PM
 Dilution Factor: 1.84
 Instrument/Filename: msdc.i / c072517

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.72	0.90	1.0
1,4-Dioxane	123-91-1	0.13	0.53	0.66	0.26 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.76	2.7	2.1 J
2-Hexanone	591-78-6	0.25	1.0	3.8	0.26 J
2-Propanol	67-63-0	0.21	0.63	2.3	3.1
4-Methyl-2-pentanone	108-10-1	0.091	0.60	0.75	0.32 J
Acetone	67-64-1	0.59	0.61	2.2	40
Bromomethane	74-83-9	0.75	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.80	2.9	0.15 J
Carbon Tetrachloride	56-23-5	0.29	0.93	1.2	0.48 J
Chlorobenzene	108-90-7	0.18	0.68	0.85	Not Detected
Chloroethane	75-00-3	0.27	0.68	2.4	Not Detected
Chloromethane	74-87-3	0.042	0.30	1.9	Not Detected
Cumene	98-82-8	0.12	0.72	0.90	Not Detected
Cyclohexane	110-82-7	0.089	0.51	0.63	0.21 J
Freon 11	75-69-4	0.086	0.83	1.0	2.1
Freon 113	76-13-1	0.25	1.1	1.4	0.54 J
Freon 12	75-71-8	0.090	0.73	0.91	2.8
Hexane	110-54-3	0.081	0.52	0.65	0.64
Methylene Chloride	75-09-2	0.12	0.51	0.90	0.62 J
Propylbenzene	103-65-1	0.19	0.72	0.90	0.19 J
Styrene	100-42-5	0.16	0.63	0.78	0.23 J

1.3 U

57

D77L
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-E	Date/Time Analyzed: 7/26/13 04:22 PM
Lab ID: 1307413-05A	Dilution Factor: 1.84
Date/Time Collected: 7/16/13 01:02 PM	Instrument/Filename: msdc.i / C072517
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.53	0.76	2.7	0.66 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E
Lab ID: 1307413-05B
Date/Time Collecte 7/16/13 01:02 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 04:22 PM
Dilution Factor: 1.84
Instrument/Filename: msdc.i / c072517sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.040	0.20	0.092 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	0.011 J
1,2-Dichloroethane	107-06-2	0.031	0.031	0.15	0.15 J
Benzene	71-43-2	0.047	0.047	0.29	0.52
Chloroform	67-66-3	0.016	NA	0.18	0.34
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	0.47
m,p-Xylene	108-38-3	0.016	0.032	0.32	1.5
Methyl tert-butyl ether	1634-04-4	0.019	0.026	0.66	Not Detected
o-Xylene	95-47-6	0.014	0.032	0.16	0.55
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.13 J
Toluene	108-88-3	0.0060	0.028	0.14	3.5
trans-1,2-Dichloroethene	156-60-5	0.018	0.029	0.73	Not Detected
Trichloroethene	79-01-6	0.0080	0.040	0.20	0.024 J
Vinyl Chloride	75-01-4	0.0063	0.019	0.047	0.044 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	106

PJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E
Lab ID: 1307413-05B
Date/Time Collecte 7/16/13 01:02 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/26/13 04:22 PM
Dilution Factor: 1.84
Instrument/Filename: msdc.i / c072517sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F
Lab ID: 1307413-06A
Date/Time Collecte 7/16/13 01:04 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 05:15 PM
Dilution Factor: 2.07
Instrument/Filename: msdc.i / c072518

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.81	1.0	Not Detected
1,4-Dioxane	123-91-1	0.15	0.60	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.85	3.0	2.1 J
2-Hexanone	591-78-6	0.28	1.2	4.2	0.45 J
2-Propanol	67-63-0	0.24	0.71	2.5	0.96 J
4-Methyl-2-pentanone	108-10-1	0.10	0.68	0.85	0.24 J
Acetone	67-64-1	0.66	0.69	2.4	14
Bromomethane	74-83-9	0.84	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.90	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.33	1.0	1.3	0.44 J
Chlorobenzene	108-90-7	0.20	0.76	0.95	Not Detected
Chloroethane	75-00-3	0.30	0.76	2.7	Not Detected
Chloromethane	74-87-3	0.047	0.34	2.1	1.2 J
Cumene	98-82-8	0.13	0.81	1.0	Not Detected
Cyclohexane	110-82-7	0.10	0.57	0.71	Not Detected
Freon 11	75-69-4	0.097	0.93	1.2	1.5
Freon 113	76-13-1	0.28	1.3	1.6	0.59 J
Freon 12	75-71-8	0.10	0.82	1.0	2.8
Hexane	110-54-3	0.091	0.58	0.73	0.59 J
Methylene Chloride	75-09-2	0.14	0.58	1.4	0.51 J
Propylbenzene	103-65-1	0.21	0.81	1.0	Not Detected
Styrene	100-42-5	0.18	0.70	0.88	Not Detected

D97L
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-F	Date/Time Analyzed: 7/26/13 05:15 PM
Lab ID: 1307413-06A	Dilution Factor: 2.07
Date/Time Collecte: 7/16/13 01:04 PM	Instrument/Filename: msdc.i / c072518
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.59	0.85	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

PSX
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1307413-06B
Date/Time Collecte: 7/16/13 01:04 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/26/13 05:15 PM
Dilution Factor: 2.07
Instrument/Filename: msdc.i / c072518sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.045	0.22	0.025 J
1,1-Dichloroethane	75-34-3	0.0036	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.035	0.035	0.17	0.063 J
Benzene	71-43-2	0.053	0.053	0.33	0.21 J
Chloroform	67-66-3	0.018	NA	0.20	0.15 J
cis-1,2-Dichloroethene	156-59-2	0.015	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	0.082 J
m,p-Xylene	108-38-3	0.018	0.036	0.36	0.29 J
Methyl tert-butyl ether	1634-04-4	0.022	0.030	0.75	Not Detected
o-Xylene	95-47-6	0.016	0.036	0.18	0.095 J
Tetrachloroethene	127-18-4	0.017	0.056	0.28	0.032 J
Toluene	108-88-3	0.0067	0.031	0.16	0.58
trans-1,2-Dichloroethene	156-60-5	0.020	0.033	0.82	Not Detected
Trichloroethene	79-01-6	0.0090	0.044	0.22	Not Detected
Vinyl Chloride	75-01-4	0.0071	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	107

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F
Lab ID: 1307413-06B
Date/Time Collected: 7/16/13 01:04 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/26/13 05:15 PM
Dilution Factor: 2.07
Instrument/Filename: msdc.i / e072518sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

D57L
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A	Date/Time Analyzed: 7/26/13 06:06 PM
Lab ID: 1307413-07A	Dilution Factor: 1.91
Date/Time Collecte: 7/19/13 08:24 AM	Instrument/File name: msdc.i/c072519
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.75	0.94	2.1
1,4-Dioxane	123-91-1	0.14	0.55	0.69	0.41 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.79	2.8	20
2-Hexanone	591-78-6	0.26	1.1	3.9	1.3 J
2-Propanol	67-63-0	0.22	0.66	2.3	50
4-Methyl-2-pentanone	108-10-1	0.094	0.62	0.78	1.5
Acetone	67-64-1	0.61	0.64	2.3	100
Bromomethane	74-83-9	0.78	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.83	3.0	0.66 J
Carbon Tetrachloride	56-23-5	0.30	0.96	1.2	0.37 J
Chlorobenzene	108-90-7	0.18	0.70	0.88	Not Detected
Chloroethane	75-00-3	0.28	0.70	2.5	0.45 J
Chloromethane	74-87-3	0.043	0.32	2.0	1.8 J
Cumene	98-82-8	0.12	0.75	0.94	Not Detected
Cyclohexane	110-82-7	0.092	0.52	0.66	0.39 J
Freon 11	75-69-4	0.090	0.86	1.1	1.7
Freon 113	76-13-1	0.26	1.2	1.5	0.60 J
Freon 12	75-71-8	0.094	0.76	0.94	3.0
Hexane	110-54-3	0.084	0.54	0.67	0.90
Methylene Chloride	75-09-2	0.13	0.53	1.3	1.5
Propylbenzene	103-65-1	0.19	0.75	0.94	0.39 J
Styrene	100-42-5	0.16	0.65	0.81	4.2

54

DJK

10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/26/13 06:06 PM
Lab ID:	1307413-07A	Dilution Factor:	1.91
Date/Time Collecte	7/19/13 08:24 AM	Instrument/Filename:	msdc.i / c072519
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.79	2.8	15

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	128
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	7/26/13 06:06 PM
Lab ID:	1307413-07B	Dilution Factor:	1.91
Date/Time Collected:	7/19/13 08:24 AM	Instrument/Filename:	msdc.i / c072519sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.040 J
1,1-Dichloroethane	75-34-3	0.0033	0.031	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	98
Benzene	71-43-2	0.049	0.049	0.30	0.66
Chloroform	67-66-3	0.017	NA	0.19	0.86
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	2.4
m,p-Xylene	108-38-3	0.016	0.033	0.33	7.8
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.69	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	2.5
Tetrachloroethene	127-18-4	0.016	0.052	0.26	0.52
Toluene	108-88-3	0.0062	0.029	0.14	13
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.76	0.031 J
Trichloroethene	79-01-6	0.0083	0.041	0.20	0.49
Vinyl Chloride	75-01-4	0.0066	0.020	0.049	0.016 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	108

DSR
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1307413-07B
Date/Time Collecte 7/19/13 08:24 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/26/13 06:06 PM
Dilution Factor: 1.91
Instrument/Filename: msdc.i / c072519sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	93

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/27/13 11:36 AM
Lab ID:	1307413-08A	Dilution Factor:	5.18
Date/Time Collecte	7/19/13 08:27 AM	Instrument/File name:	msdc.i / c072609
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.82	2.0	2.5	3.1
1,4-Dioxane	123-91-1	0.37	1.5	1.9	0.53 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.60	2.1	7.6	27
2-Hexanone	591-78-6	0.70	3.0	11	1.4 J
2-Propanol	67-63-0	0.60	1.8	6.4	54
4-Methyl-2-pentanone	108-10-1	0.26	1.7	2.1	1.5 J
Acetone	67-64-1	1.7	1.7	6.2	120
Bromomethane	74-83-9	2.1	2.8	10	Not Detected
Carbon Disulfide	75-15-0	0.40	2.2	8.1	0.77 J
Carbon Tetrachloride	56-23-5	0.82	2.6	3.2	Not Detected
Chlorobenzene	108-90-7	0.50	1.9	2.4	Not Detected
Chloroethane	75-00-3	0.75	1.9	6.8	Not Detected
Chloromethane	74-87-3	0.12	0.86	5.3	2.2 J
Cumene	98-82-8	0.34	2.0	2.5	Not Detected
Cyclohexane	110-82-7	0.25	1.4	1.8	0.26 J
Freon 11	75-69-4	0.24	2.3	2.9	1.6 J
Freon 113	76-13-1	0.69	3.2	4.0	Not Detected
Freon 12	75-71-8	0.25	2.0	2.6	3.0
Hexane	110-54-3	0.23	1.5	1.8	0.82 J
Methylene Chloride	75-09-2	0.35	1.4	3.6	Not Detected
Propylbenzene	103-65-1	0.53	2.0	2.5	Not Detected
Styrene	100-42-5	0.45	1.8	2.2	8.6

3.6
OH

D57L
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307413-08A
Date/Time Collecte 7/19/13 08:27 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/27/13 11:36 AM
Dilution Factor: 5.18
Instrument/Filename: msdc.i / c072609

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	1.5	2.1	7.6	17

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 7/27/13 11:36 AM
Lab ID: 1307413-08B	Dilution Factor: 5.18
Date/Time Collecte: 7/19/13 08:27 AM	Instrument/Filename: msdc.i / e072609sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.051	0.11	0.56	Not Detected
1,1-Dichloroethane	75-34-3	0.0090	0.084	0.42	Not Detected
1,2-Dichloroethane	107-06-2	0.088	0.088	0.42	350
Benzene	71-43-2	0.13	0.13	0.83	0.92
Chloroform	67-66-3	0.045	NA	0.50	1.0
cis-1,2-Dichloroethene	156-59-2	0.036	0.082	0.41	Not Detected
Ethyl Benzene	100-41-4	0.036	0.090	0.45	3.2
m,p-Xylene	108-38-3	0.044	0.090	0.90	10
Methyl tert-butyl ether	1634-04-4	0.054	0.075	1.9	Not Detected
o-Xylene	95-47-6	0.041	0.090	0.45	3.4
Tetrachloroethene	127-18-4	0.042	0.14	0.70	0.32 J
Toluene	108-88-3	0.017	0.078	0.39	15
trans-1,2-Dichloroethene	156-60-5	0.049	0.082	2.0	Not Detected
Trichloroethene	79-01-6	0.022	0.11	0.56	0.041 J
Vinyl Chloride	75-01-4	0.018	0.053	0.13	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307413-08B
Date/Time Collecte 7/19/13 08:27 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/27/13 11:36 AM
Dilution Factor: 5.18
Instrument/Filename: msdc.i / c072609sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	92

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	7/27/13 10:00 AM
Lab ID:	1307413-09A	Dilution Factor:	1.94
Date/Time Collecte	7/19/13 08:28 AM	Instrument/File name:	msdc.i / 6072607
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.76	0.95	2.4
1,4-Dioxane	123-91-1	0.14	0.56	0.70	0.62 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.80	2.9	20
2-Hexanone	591-78-6	0.26	1.1	4.0	1.6 J
2-Propanol	67-63-0	0.22	0.67	2.4	44
4-Methyl-2-pentanone	108-10-1	0.096	0.64	0.79	1.0
Acetone	67-64-1	0.62	0.64	2.3	96
Bromomethane	74-83-9	0.79	1.0	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	0.67 J
Carbon Tetrachloride	56-23-5	0.31	0.98	1.2	0.34 J
Chlorobenzene	108-90-7	0.19	0.71	0.89	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	0.50 J
Chloromethane	74-87-3	0.044	0.32	2.0	1.8 J
Cumene	98-82-8	0.13	0.76	0.95	Not Detected
Cyclohexane	110-82-7	0.094	0.53	0.67	0.21 J
Freon 11	75-69-4	0.091	0.87	1.1	1.7
Freon 113	76-13-1	0.26	1.2	1.5	0.38 J
Freon 12	75-71-8	0.095	0.77	0.96	2.8
Hexane	110-54-3	0.085	0.55	0.68	0.62 J
Methylene Chloride	75-09-2	0.13	0.54	1.3	0.70 J
Propylbenzene	103-65-1	0.20	0.76	0.95	0.37 J
Styrene	100-42-5	0.17	0.66	0.83	4.5

1.3 DU

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10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]	Date/Time Analyzed:	7/27/13 10:00 AM
Lab ID:	1307413-09A	Dilution Factor:	1.94
Date/Time Collecte	7/19/13 08:28 AM	Instrument/Filename:	msdc.i / c072607
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.80	2.9	13

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	96

DJK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	7/27/13 10:00 AM
Lab ID:	1307413-09B	Dilution Factor:	1.94
Date/Time Collecte	7/19/13 08:28 AM	Instrument/Filename:	msdc.i / c072607.sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.036 J
1,1-Dichloroethane	75-34-3	0.0034	0.031	0.16	0.012 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	96
Benzene	71-43-2	0.050	0.050	0.31	0.64
Chloroform	67-66-3	0.017	NA	0.19	0.84
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	2.5
m,p-Xylene	108-38-3	0.016	0.034	0.34	8.2
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	2.6
Tetrachloroethene	127-18-4	0.016	0.053	0.26	0.37
Toluene	108-88-3	0.0063	0.029	0.15	13
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.77	0.032 J
Trichloroethene	79-01-6	0.0084	0.042	0.21	0.054 J
Vinyl Chloride	75-01-4	0.0067	0.020	0.050	0.035 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	108

DTK
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-C	Date/Time Analyzed:	7/27/13 10:00 AM
Lab ID:	1307413-09B	Dilution Factor:	1.94
Date/Time Collecte	7/19/13 08:28 AM	Instrument/Filename:	msdc.i / c072607sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

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10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 7/27/13 10:48 AM
Lab ID: 1307413-10A	Dilution Factor: 2.13
Date/Time Collecte: 7/19/13 08:38 AM	Instrument/File Name: msdc.i / C072608
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.34	0.84	1.0	Not Detected
1,4-Dioxane	123-91-1	0.15	0.61	0.77	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.25	0.88	3.1	1.7 J
2-Hexanone	591-78-6	0.29	1.2	4.4	0.29 J
2-Propanol	67-63-0	0.24	0.73	2.6	0.67 J
4-Methyl-2-pentanone	108-10-1	0.10	0.70	0.87	0.21 J
Acetone	67-64-1	0.68	0.71	2.5	16
Bromomethane	74-83-9	0.87	1.2	4.1	Not Detected
Carbon Disulfide	75-15-0	0.16	0.93	3.3	Not Detected
Carbon Tetrachloride	56-23-5	0.34	1.1	1.3	0.58 J
Chlorobenzene	108-90-7	0.21	0.78	0.98	Not Detected
Chloroethane	75-00-3	0.31	0.79	2.8	Not Detected
Chloromethane	74-87-3	0.048	0.35	2.2	1.3 J
Cumene	98-82-8	0.14	0.84	1.0	Not Detected
Cyclohexane	110-82-7	0.10	0.59	0.73	Not Detected
Freon 11	75-69-4	0.10	0.96	1.2	1.4
Freon 113	76-13-1	0.28	1.3	1.6	0.77 J
Freon 12	75-71-8	0.10	0.84	1.0	2.9
Hexane	110-54-3	0.094	0.60	0.75	0.42 J
Methylene Chloride	75-09-2	0.14	0.59	1.5	0.48 J
Propylbenzene	103-65-1	0.22	0.84	1.0	Not Detected
Styrene	100-42-5	0.18	0.72	0.91	0.23 J

D57
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]	Date/Time Analyzed:	7/27/13 10:48 AM
Lab ID:	1307413-10A	Dilution Factor:	2.13
Date/Time Collecte	7/19/13 08:38 AM	Instrument/Filename:	msdc.i / c072608
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.61	0.88	3.1	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 7/27/13 10:48 AM
Lab ID: 1307413-10B	Dilution Factor: 2.13
Date/Time Collecte: 7/19/13 08:38 AM	Instrument/Filename: msdc.i / c072608sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.021	0.046	0.23	0.026 J
1,1-Dichloroethane	75-34-3	0.0037	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.036	0.036	0.17	0.12 J
Benzene	71-43-2	0.055	0.055	0.34	0.23 J
Chloroform	67-66-3	0.018	NA	0.21	0.12 J
cis-1,2-Dichloroethene	156-59-2	0.015	0.034	0.17	Not Detected
Ethyl Benzene	100-41-4	0.015	0.037	0.18	0.11 J
m,p-Xylene	108-38-3	0.018	0.037	0.37	0.33 J
Methyl tert-butyl ether	1634-04-4	0.022	0.031	0.77	Not Detected
o-Xylene	95-47-6	0.017	0.037	0.18	0.11 J
Tetrachloroethene	127-18-4	0.017	0.058	0.29	0.029 J
Toluene	108-88-3	0.0069	0.032	0.16	0.58
trans-1,2-Dichloroethene	156-60-5	0.020	0.034	0.84	0.034 J
Trichloroethene	79-01-6	0.0093	0.046	0.23	0.026 J
Vinyl Chloride	75-01-4	0.0074	0.022	0.054	0.014 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	104

DJL
10/18/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]	Date/Time Analyzed:	7/27/13 10:48 AM
Lab ID:	1307413-10B	Dilution Factor:	2.13
Date/Time Collecte	7/19/13 08:38 AM	Instrument/Filename:	msdc.i / c072608sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

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10/18/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager KAREN STEWART
 Collected by: (Print and Sign) Brooks Quintance
 Company TESTA TECH Email MARK.PARSONS@TESTATECH.COM
 Address 851 BRIGER DR. STE 10 City BOZEMAN State MT Zip 59715
 Phone 406-538-8780 Fax _____

Project Info:
 P.O. # _____
 Project # 114-710303.74D
 Project Name BOZEMAN LANDFILL

Turn Around Time: Normal Rush
 Lab Use Only: Pressurized by: _____ Date: _____
 Pressurization Gas: _____
 specify: N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt (psi)
044B	-A	12079	7/16/13	1258	TO 15	-25.0	-5.4	
0249	-B	95640		1259		-26.4	-8.5	
0240	C	12700		1300		-27.0	-6.0	
0440	D	35177		1300		-26.2	-0.0	
0540	E	34028		1302		-25.7	-4.0	
0640	F	35176		1304		-25.5	-7.0	
0440	-A	5753	7/19/13	0824	TO 15	-25.4	-5.0	
0840	-B	34499		0827		-26.4	-8.0	
0440	-C	94952		0828		-26.1	-6.5	
1040	-D	34520		0838		-25.4	-6.9	

Relinquished by: (signature) [Signature] Date/Time 7/19/13-1416
 Received by: (signature) [Signature] Date/Time 07/23 1000
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) [Signature] Date/Time 7/23/13
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Notes:
 XRD DOWNWA CANISTERS ANALY
 NO FLOW CONTROLLERS SHIPPED
 IN 3 BOXES TO AIR TOXICS

Lab Use Only: Shipper Name Felix Air Bill # _____ Temp (°C) NA Condition good Custody Seals Intact? Yes No None Work Order # 1307413

October 28, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 28, 2013

Sample Delivery Group (SDG) No.	1307414
Samples	██████-A, ██████-B, and ██████-C

Tetra Tech, Inc. conducted data validation of the analytical results for three air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 19, 2013. The samples were analyzed under SDG No. 1307414 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis



October 28, 2013

- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307414 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analytes acetone and methylene chloride below reporting limits (RL). The method blank associated with SIM analyses contained ethyl benzene, m,p-xylene, o-xylene, and toluene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory blanks acetone, and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

No field duplicates were included in this SDG.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the full scan and SIM analyses LCSs and LCSDs within laboratory QC limits. No data were qualified.

SAMPLE DILUTION

None of the samples in this SDG required dilution due to the presence of high concentrations of target or non-target analytes.

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RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory included estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Sample results less than the RL but greater than the DL were qualified as estimated (flagged “J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307414

(Twelve Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307414

(One Sheet)



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1307414-01A
Date/Time Collecte 7/19/13 09:57 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/24/13 08:31 AM
Dilution Factor: 1.95
Instrument/Filename: msdc.i / c072307

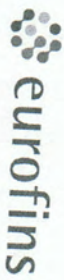
Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.77	0.96	0.99
1,4-Dioxane	123-91-1	0.14	0.56	0.70	1.2
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.80	2.9	2.8 J
2-Hexanone	591-78-6	0.26	1.1	4.0	0.97 J
2-Propanol	67-63-0	0.22	0.67	2.4	4.5
4-Methyl-2-pentanone	108-10-1	0.096	0.64	0.80	0.72 J
Acetone	67-64-1	0.63	0.65	2.3	47
Bromomethane	74-83-9	0.80	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.85	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.31	0.98	1.2	0.42 J
Chlorobenzene	108-90-7	0.19	0.72	0.90	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	2.0 J
Cumene	98-82-8	0.13	0.77	0.96	Not Detected
Cyclohexane	110-82-7	0.094	0.54	0.67	0.13 J
Freon 11	75-69-4	0.091	0.88	1.1	1.2
Freon 113	76-13-1	0.26	1.2	1.5	0.58 J
Freon 12	75-71-8	0.096	0.77	0.96	2.5
Hexane	110-54-3	0.086	0.55	0.69	0.63 J
Methylene Chloride	75-09-2	0.13	0.54	0.96	Not Detected
Propylbenzene	103-65-1	0.20	0.77	0.96	Not Detected
Styrene	100-42-5	0.17	0.66	0.83	0.95

14.04

0.48 J

D57L

10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1307414-01A
Date/Time Collecte: 7/19/13 09:57 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/24/13 08:31 AM
Dilution Factor: 1.95
Instrument/Filename: msdc.i / c072307

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.80	2.9	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	99

DJL

10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1307414-01B
 Date/Time Collected: 7/19/13 09:57 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/24/13 08:31 AM
 Dilution Factor: 1.95
 Instrument/Filename: msdc.i / c072307sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.044 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	0.018 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.094 J
Benzene	71-43-2	0.050	0.050	0.31	0.38
Chloroform	67-66-3	0.017	NA	0.19	0.27
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	0.52
m,p-Xylene	108-38-3	0.016	0.034	0.34	0.86
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	0.27
Tetrachloroethene	127-18-4	0.016	0.053	0.26	0.049 J
Toluene	108-88-3	0.0063	0.029	0.15	4.4
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.77	0.042 J
Trichloroethene	79-01-6	0.0085	0.042	0.21	0.052 J
Vinyl Chloride	75-01-4	0.0067	0.020	0.050	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	102

DJL
10/28/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ A	Date/Time Analyzed:	7/24/13 08:31 AM
Lab ID:	1307414-01B	Dilution Factor:	1.95
Date/Time Collecte	7/19/13 09:57 AM	Instrument/Filename:	msdc.l / c072307sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DJK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1307414-02A
 Date/Time Collected: 7/19/13 09:58 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/24/13 09:24 AM
 Dilution Factor: 1.91
 Instrument/File Name: msdc.i / c072308

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.75	0.94	0.99
1,4-Dioxane	123-91-1	0.14	0.55	0.69	1.4
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.79	2.8	3.3
2-Hexanone	591-78-6	0.26	1.1	3.9	0.99 J
2-Propanol	67-63-0	0.22	0.66	2.3	4.7
4-Methyl-2-pentanone	108-10-1	0.094	0.62	0.78	0.65 J
Acetone	67-64-1	0.61	0.64	2.3	56
Bromomethane	74-83-9	0.78	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.83	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.30	0.96	1.2	0.41 J
Chlorobenzene	108-90-7	0.18	0.70	0.88	Not Detected
Chloroethane	75-00-3	0.28	0.70	2.5	Not Detected
Chloromethane	74-87-3	0.043	0.32	2.0	2.0 J
Cumene	98-82-8	0.12	0.75	0.94	Not Detected
Cyclohexane	110-82-7	0.092	0.52	0.66	Not Detected
Freon 11	75-69-4	0.090	0.86	1.1	Not Detected
Freon 113	76-13-1	0.26	1.2	1.5	1.3
Freon 12	75-71-8	0.094	0.76	0.94	0.44 J
Hexane	110-54-3	0.084	0.54	0.67	2.4
Methylene Chloride	75-09-2	0.13	0.53	1.3	0.58 J
Propylbenzene	103-65-1	0.19	0.75	0.94	0.42 J
Styrene	100-42-5	0.16	0.65	0.81	Not Detected

057L
10/28/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1307414-02A
 Date/Time Collecte: 7/19/13 09:58 AM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 7/24/13 09:24 AM
 Dilution Factor: 1.91
 Instrument/File name: msdc.i / c072308

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.79	2.8	0.64 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

D57L
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1307414-02B
Date/Time Collected: 7/19/13 09:58 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/24/13 09:24 AM
Dilution Factor: 1.91
Instrument/Filename: msdc.i / c072308sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.047 J
1,1-Dichloroethane	75-34-3	0.0033	0.031	0.15	0.019 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.11 J
Benzene	71-43-2	0.049	0.049	0.30	0.34
Chloroform	67-66-3	0.017	NA	0.19	0.27
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	0.61
m,p-Xylene	108-38-3	0.016	0.033	0.33	0.86
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.69	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	0.27
Tetrachloroethene	127-18-4	0.016	0.052	0.26	0.041 J
Toluene	108-88-3	0.0062	0.029	0.14	4.8
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.76	0.023 J
Trichloroethene	79-01-6	0.0083	0.041	0.20	0.033 J
Vinyl Chloride	75-01-4	0.0066	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	102

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	7/24/13 09:24 AM
Lab ID:	1307414-02B	Dilution Factor:	1.91
Date/Time Collecte	7/19/13 09:58 AM	Instrument/Filename:	msdc.i / c072308sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	95

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
 Lab ID: 1307414-03A
 Date/Time Collected: 7/19/13 09:59 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/24/13 10:32 AM
 Dilution Factor: 2.15
 Instrument/File Name: msdc.i / e072309

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.34	0.84	1.0	0.48 J
1,4-Dioxane	123-91-1	0.15	0.62	0.77	0.64 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.25	0.89	3.2	3.1 J
2-Hexanone	591-78-6	0.29	1.2	4.4	0.43 J
2-Propanol	67-63-0	0.25	0.74	2.6	2.3 J
4-Methyl-2-pentanone	108-10-1	0.11	0.70	0.88	0.33 J
Acetone	67-64-1	0.69	0.72	2.6	38
Bromomethane	74-83-9	0.88	1.2	4.2	Not Detected
Carbon Disulfide	75-15-0	0.17	0.94	3.3	Not Detected
Carbon Tetrachloride	56-23-5	0.34	1.1	1.4	0.43 J
Chlorobenzene	108-90-7	0.21	0.79	0.99	Not Detected
Chloroethane	75-00-3	0.31	0.79	2.8	Not Detected
Chloromethane	74-87-3	0.049	0.36	2.2	Not Detected
Cumene	98-82-8	0.14	0.84	1.0	1.5 J
Cyclohexane	110-82-7	0.10	0.59	0.74	Not Detected
Freon 11	75-69-4	0.10	0.97	1.2	0.11 J
Freon 113	76-13-1	0.29	1.3	1.6	1.3
Freon 12	75-71-8	0.10	0.85	1.1	0.56 J
Hexane	110-54-3	0.094	0.61	0.76	2.8
Methylene Chloride	75-09-2	0.15	0.60	1.0	0.69 J
Propylbenzene	103-65-1	0.22	0.84	1.0	0.30 J
Styrene	100-42-5	0.18	0.73	0.92	0.26 J

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1307414-03A
Date/Time Collecte: 7/19/13 09:59 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 7/24/13 10:32 AM
Dilution Factor: 2.15
Instrument/Filename: msdc.i / C072309

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.62	0.89	3.2	0.88 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	96

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] C	Date/Time Analyzed:	7/24/13 10:32 AM
Lab ID:	1307414-03B	Dilution Factor:	2.15
Date/Time Collecte	7/19/13 09:59 AM	Instrument/File name:	msdc.i / e072309sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.021	0.047	0.23	0.033 J
1,1-Dichloroethane	75-34-3	0.0037	0.035	0.17	0.012 J
1,2-Dichloroethane	107-06-2	0.036	0.036	0.17	0.060 J
Benzene	71-43-2	0.055	0.055	0.34	0.30 J
Chloroform	67-66-3	0.019	NA	0.21	0.26
cis-1,2-Dichloroethene	156-59-2	0.015	0.034	0.17	Not Detected
Ethyl Benzene	100-41-4	0.015	0.037	0.19	2.7
m,p-Xylene	108-38-3	0.018	0.037	0.37	1.1
Methyl tert-butyl ether	1634-04-4	0.022	0.031	0.78	Not Detected
o-Xylene	95-47-6	0.017	0.037	0.19	0.35
Tetrachloroethene	127-18-4	0.018	0.058	0.29	0.085 J
Toluene	108-88-3	0.0070	0.032	0.16	3.4
trans-1,2-Dichloroethene	156-60-5	0.020	0.034	0.85	Not Detected
Trichloroethene	79-01-6	0.0094	0.046	0.23	0.021 J
Vinyl Chloride	75-01-4	0.0074	0.022	0.055	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	102

DK
10/28/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	7/24/13 10:32 AM
Lab ID:	1307414-03B	Dilution Factor:	2.15
Date/Time Collecte	7/19/13 09:59 AM	Instrument/Filename:	msdc.i / c072309sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	95

D57L
10/28/13

October 28, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 28, 2013

Sample Delivery Group (SDG) No.	1307476
Samples	█-A, █-B, and █-C

Tetra Tech, Inc. conducted data validation of the analytical results for three air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on July 23, 2013. The samples were analyzed under SDG No. 1307476 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis



October 28, 2013

- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1307476 was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained target analyte methylene chloride below the reporting limit (RL). The method blank associated with SIM analyses contained benzene, m,p-xylene, and toluene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

No field duplicates were included in this SDG.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the full scan and SIM analyses LCSs and LCSDs within laboratory QC limits. No data were qualified.

SAMPLE DILUTION

None of the samples in this SDG required dilution due to the presence of high concentrations of target or non-target analytes.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

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ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory included estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Sample results less than the RL but greater than the DL were qualified as estimated (flagged “J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1307476

(Twelve Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1307476

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	JA	Date/Time Analyzed:	7/27/13 12:45 PM
Lab ID:	1307476-01A	Dilution Factor:	2.24
Date/Time Collecte	7/23/13 08:37 AM	Instrument/File Name:	msdc.i / c072610
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.36	0.88	1.1	1.4
1,4-Dioxane	123-91-1	0.16	0.64	0.81	0.36 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.26	0.92	3.3	1.6 J
2-Hexanone	591-78-6	0.30	1.3	4.6	0.32 J
2-Propanol	67-63-0	0.26	0.77	2.8	1.6 J
4-Methyl-2-pentanone	108-10-1	0.11	0.73	0.92	0.29 J
Acetone	67-64-1	0.72	0.74	2.7	19
Bromomethane	74-83-9	0.91	1.2	4.3	Not Detected
Carbon Disulfide	75-15-0	0.17	0.98	3.5	Not Detected
Carbon Tetrachloride	56-23-5	0.35	1.1	1.4	0.55 J
Chlorobenzene	108-90-7	0.22	0.82	1.0	Not Detected
Chloroethane	75-00-3	0.32	0.83	3.0	Not Detected
Chloromethane	74-87-3	0.051	0.37	2.3	1.4 J
Cumene	98-82-8	0.14	0.88	1.1	Not Detected
Cyclohexane	110-82-7	0.11	0.62	0.77	0.23 J
Freon 11	75-69-4	0.10	1.0	1.2	1.5
Freon 113	76-13-1	0.30	1.4	1.7	Not Detected
Freon 12	75-71-8	0.11	0.89	1.1	2.6
Hexane	110-54-3	0.098	0.63	0.79	0.88
Methylene Chloride	75-09-2	0.15	0.62	1.6	4.9 J
Propylbenzene	103-65-1	0.23	0.88	1.1	0.25 J
Styrene	100-42-5	0.19	0.76	0.95	0.22 J

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10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	1307476-01A	Date/Time Analyzed:	7/27/13 12:45 PM
Lab ID:	7/23/13 08:37 AM	Dilution Factor:	2.24
Date/Time Collecte	6 Liter Summa Canister (SIM Certified)	Instrument/Filename:	msdc.i / c072610
Media:			

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.64	0.92	3.3	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

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10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ A	Date/Time Analyzed:	7/27/13 12:45 PM
Lab ID:	1307476-01B	Dilution Factor:	2.24
Date/Time Collecte	7/23/13 08:37 AM	Instrument/Filename:	msdc.i / c072610sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.049	0.24	0.062 J
1,1-Dichloroethane	75-34-3	0.0039	0.036	0.18	0.010 J
1,2-Dichloroethane	107-06-2	0.038	0.038	0.18	0.53
Benzene	71-43-2	0.058	0.058	0.36	0.95
Chloroform	67-66-3	0.019	NA	0.22	0.25
cis-1,2-Dichloroethene	156-59-2	0.016	0.036	0.18	Not Detected
Ethyl Benzene	100-41-4	0.015	0.039	0.19	0.93
m,p-Xylene	108-38-3	0.019	0.039	0.39	3.5
Methyl tert-butyl ether	1634-04-4	0.023	0.032	0.81	Not Detected
o-Xylene	95-47-6	0.018	0.039	0.19	1.2
Tetrachloroethene	127-18-4	0.018	0.061	0.30	0.039 J
Toluene	108-88-3	0.0072	0.034	0.17	5.0
trans-1,2-Dichloroethene	156-60-5	0.021	0.036	0.89	Not Detected
Trichloroethene	79-01-6	0.0098	0.048	0.24	0.018 J
Vinyl Chloride	75-01-4	0.0077	0.023	0.057	0.026 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	105

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	7/27/13 12:45 PM
Lab ID:	1307476-01B	Dilution Factor:	2.24
Date/Time Collecte	7/23/13 08:37 AM	Instrument/Filename:	msdc.i / c072610sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	█-B	Date/Time Analyzed:	7/27/13 01:35 PM
Lab ID:	1307476-02A	Dilution Factor:	1.87
Date/Time Collected:	7/23/13 08:42 AM	Instrument/Filename:	msdc.i / c072611
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.74	0.92	2.0
1,4-Dioxane	123-91-1	0.13	0.54	0.67	0.33 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.77	2.8	2.0 J
2-Hexanone	591-78-6	0.25	1.1	3.8	0.41 J
2-Propanol	67-63-0	0.22	0.64	2.3	2.7
4-Methyl-2-pentanone	108-10-1	0.092	0.61	0.77	0.26 J
Acetone	67-64-1	0.60	0.62	2.2	32
Bromomethane	74-83-9	0.76	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.82	2.9	Not Detected
Carbon Tetrachloride	56-23-5	0.30	0.94	1.2	0.34 J
Chlorobenzene	108-90-7	0.18	0.69	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.5	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	1.6 J
Cumene	98-82-8	0.12	0.74	0.92	Not Detected
Cyclohexane	110-82-7	0.090	0.51	0.64	0.84
Freon 11	75-69-4	0.088	0.84	1.0	1.4
Freon 113	76-13-1	0.25	1.1	1.4	0.59 J
Freon 12	75-71-8	0.092	0.74	0.92	2.8
Hexane	110-54-3	0.082	0.53	0.66	3.5
Methylene Chloride	75-09-2	0.13	0.52	1.3	2.6
Propylbenzene	103-65-1	0.19	0.74	0.92	0.36 J
Styrene	100-42-5	0.16	0.64	0.80	0.36 J

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-B	Date/Time Analyzed:	7/27/13 01:35 PM
Lab ID:	1307476-02A	Dilution Factor:	1.87
Date/Time Collecte	7/23/13 08:42 AM	Instrument/Filename:	msdc.i / c072611
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.54	0.77	2.8	0.68 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	124
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

DKL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B	Date/Time Analyzed: 7/27/13 01:35 PM
Lab ID: 1307476-02B	Dilution Factor: 1.87
Date/Time Collecte: 7/23/13 08:42 AM	Instrument/Filename: msdc.i / c072611sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.22
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	0.0091 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.21
Benzene	71-43-2	0.048	0.048	0.30	2.3
Chloroform	67-66-3	0.016	NA	0.18	0.66
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	1.7
m,p-Xylene	108-38-3	0.016	0.032	0.32	6.6
Methyl tert-butyl ether	1634-04-4	0.019	0.027	0.67	Not Detected
o-Xylene	95-47-6	0.015	0.032	0.16	2.2
Tetrachloroethene	127-18-4	0.015	0.051	0.25	0.24 J
Toluene	108-88-3	0.0060	0.028	0.14	12
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.74	Not Detected
Trichloroethene	79-01-6	0.0081	0.040	0.20	0.046 J
Vinyl Chloride	75-01-4	0.0064	0.019	0.048	0.031 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	106

DJR
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	█-B	Date/Time Analyzed:	7/27/13 01:35 PM
Lab ID:	1307476-02B	Dilution Factor:	1.87
Date/Time Collecte	7/23/13 08:42 AM	Instrument/Filename:	msdc.i / c072611sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	94

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
 Lab ID: 1307476-03A
 Date/Time Collecte: 7/23/13 08:44 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/27/13 02:37 PM
 Dilution Factor: 2.19
 Instrument/Filename: msdc.i / c072612

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.35	0.86	1.1	1.0 J
1,4-Dioxane	123-91-1	0.16	0.63	0.79	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.26	0.90	3.2	1.3 J
2-Hexanone	591-78-6	0.29	1.2	4.5	Not Detected
2-Propanol	67-63-0	0.25	0.75	2.7	0.41 J
4-Methyl-2-pentanone	108-10-1	0.11	0.72	0.90	0.17 J
Acetone	67-64-1	0.70	0.73	2.6	10
Bromomethane	74-83-9	0.89	1.2	4.2	Not Detected
Carbon Disulfide	75-15-0	0.17	0.95	3.4	Not Detected
Carbon Tetrachloride	56-23-5	0.34	1.1	1.4	Not Detected
Chlorobenzene	108-90-7	0.21	0.81	1.0	Not Detected
Chloroethane	75-00-3	0.32	0.81	2.9	Not Detected
Chloromethane	74-87-3	0.050	0.36	2.3	1.6 J
Cumene	98-82-8	0.14	0.86	1.1	Not Detected
Cyclohexane	110-82-7	0.10	0.60	0.75	Not Detected
Freon 11	75-69-4	0.10	0.98	1.2	1.4
Freon 113	76-13-1	0.29	1.3	1.7	0.34 J
Freon 12	75-71-8	0.11	0.87	1.1	2.8
Hexane	110-54-3	0.096	0.62	0.77	0.24 J
Methylene Chloride	75-09-2	0.15	0.61	1.5	0.33 J
Propylbenzene	103-65-1	0.22	0.86	1.1	Not Detected
Styrene	100-42-5	0.19	0.75	0.93	Not Detected

DJL
10/25/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1307476-03A
Date/Time Collecte: 7/23/13 08:44 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/27/13 02:37 PM
Dilution Factor: 2.19
Instrument/Filename: msdc.i / c072612

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.63	0.90	3.2	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	97

DRK
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C	Date/Time Analyzed: 7/27/13 02:37 PM
Lab ID: 1307476-03B	Dilution Factor: 2.19
Date/Time Collecte: 7/23/13 08:44 AM	Instrument/Filename: msdc.i / c072612sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.048	0.24	0.025 J
1,1-Dichloroethane	75-34-3	0.0038	0.035	0.18	Not Detected
1,2-Dichloroethane	107-06-2	0.037	0.037	0.18	0.072 J
Benzene	71-43-2	0.056	0.056	0.35	0.16 J
Chloroform	67-66-3	0.019	NA	0.21	0.088 J
cis-1,2-Dichloroethene	156-59-2	0.015	0.035	0.17	Not Detected
Ethyl Benzene	100-41-4	0.015	0.038	0.19	0.071 J
m,p-Xylene	108-38-3	0.019	0.038	0.38	0.27 J
Methyl tert-butyl ether	1634-04-4	0.023	0.032	0.79	Not Detected
o-Xylene	95-47-6	0.017	0.038	0.19	0.11 J
Tetrachloroethene	127-18-4	0.018	0.059	0.30	Not Detected
Toluene	108-88-3	0.0071	0.033	0.16	0.48
trans-1,2-Dichloroethene	156-60-5	0.021	0.035	0.87	Not Detected
Trichloroethene	79-01-6	0.0095	0.047	0.24	Not Detected
Vinyl Chloride	75-01-4	0.0076	0.022	0.056	0.010 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	104

DJL
10/28/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1307476-03B
Date/Time Collected: 7/23/13 08:44 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 7/27/13 02:37 PM
Dilution Factor: 2.19
Instrument/Filename: msdc.i / c072612sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	93

DJK
10/28/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager Karen Stepperson

Collected by: (Print and sign) Brecks Quantance

Company Tetra Tech Email Mark.Pearson@tetratech.com

Address 851 Bridger Dr Ste 6 City Bozeman State MT Zip 59718

Phone 406-582-8780 Fax _____

Project Info:

P.O. # _____

Project # 114-710303.740

Project Name Bozeman Landfill

Turn Around Time: Normal Rush

Lab Use Only Pressurized by: _____ Date: _____

Pressurization Gas: _____

specify N₂ He

Canister Pressure/Vacuum

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Initial	Final	Receipt	Final (psi)
O1A	A	5742	7/23/13	0837	TO15	-25.6	-6.7		
O2A	B	25264	7/23/13	0842	TO15	-26.2	-5.4		
O3A	C	5563	7/23/13	0844	TO15	-28.5	-10.0		

Relinquished by: (signature) Brandon Staub Date/Time 7/24/13 1235 Received by: (signature) [Signature] Date/Time 7/23/13 0945

Relinquished by: (signature) _____ Date/Time _____ Received by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____ Received by: (signature) _____ Date/Time _____

Notes: Tetra Tech photo copied this OC prior to shipping. 3 samples are included in 1 box. No lab COCs were available at the time of shipping.

Lab Use Only Shipper Name FedEx Air Bill # _____ Temp. (°C) N/A Condition good Custody Seals Intact? Yes No None Work Order # 1307476

November 1, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: November 1, 2013

Sample Delivery Group (SDG) No.	1308607AR1
Samples	██████-SS1, ██████-SS1, ██████-SS1, ██████-A, ██████-D, ██████-A, ██████-SS1, ██████-SS1, and ██████-SS1

Tetra Tech, Inc. conducted data validation of the analytical results for nine air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on August 21 and 22, 2013. The samples were analyzed under SDG No. 1308607AR1 by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution



November 1, 2013

- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1308607A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation or holding times. Regarding sample receipt, the number of samples received by the laboratory did not match the information on the chain-of-custody (COC) form. Sample AI-1-SS1 was listed on the form but was not received. The laboratory notified Tetra Tech and the sample cancelled on September 3, 2013. Also, sample [REDACTED]-SS1 is listed as [REDACTED]-SS1 on the COC form. At Tetra Tech's request, the lab report was reissued as 1308607AR1 on September 23, 2013 changing the sample ID to [REDACTED]-SS1. No data were qualified.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analytes acetone and hexane below reporting limits (RL). The method blank associated with SIM analyses contained 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, m,p-xylene, and toluene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant acetone) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

No field duplicates were included in this SDG.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All target analytes were recovered from the SIM analysis LCS and LCSD within laboratory QC limits. All target analytes were recovered from the full scan analysis LCS and LCSD with two exceptions.

November 1, 2013

Carbon disulfide and carbon tetrachloride were recovered from the LCS (143 and 133) and LCSD (146 and 137) above the QC. All carbon disulfide and carbon tetrachloride detections were qualified as estimated and possibly biased high (“J+”).

SAMPLE DILUTION

Dilution was performed on sample [REDACTED]-SS1 (4.08x) due to the presence of high concentrations of target analytes.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory included estimated values for target compound hits below RLs but above DLs. Since the canisters used for this project were certified to the RLs only, concentrations below the RLs may be false positives. Sample results less than the RL but greater than the DL were qualified as estimated (flagged “J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

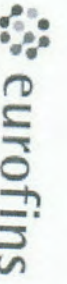
**FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG
1308607AR1**

(Thirty-six Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1308607AR1

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████ SS1
 Lab ID: 1308607AR1-01A
 Date/Time Collected: 8/21/13 02:12 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/30/13 08:28 AM
 Dilution Factor: 1.90
 Instrument/Filename: msdvi1/v082916

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.18	0.37	0.93	7.7
1,4-Dioxane	123-91-1	0.18	0.27	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.2	2.8	7.9
2-Hexanone	591-78-6	0.26	3.1	3.9	0.60 J
2-Propanol	67-63-0	0.24	1.9	2.3	12
4-Methyl-2-pentanone	108-10-1	0.13	0.31	0.78	0.85
Acetone	67-64-1	0.32	1.8	2.2	69
Bromomethane	74-83-9	0.78	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	0.45 J +
Chlorobenzene	108-90-7	0.087	0.35	0.87	Not Detected
Chloroethane	75-00-3	0.32	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.087	0.16	2.0	Not Detected
Cumene	98-82-8	0.13	0.37	0.93	Not Detected
Cyclohexane	110-82-7	0.10	0.26	0.65	0.55 J
Freon 11	75-69-4	0.23	0.43	1.1	1.6
Freon 113	76-13-1	0.39	0.58	1.4	1.4
Freon 12	75-71-8	0.14	0.38	0.94	0.78 J
Hexane	110-54-3	0.11	0.27	0.67	2.9
Methylene Chloride	75-09-2	0.14	0.26	1.3	1.3
Propylbenzene	103-65-1	0.16	0.37	0.93	0.43 J
Styrene	100-42-5	0.12	0.32	0.81	1.3

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1308607AR1-01A
Date/Time Collected: 8/21/13 02:12 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/30/13 08:28 AM
Dilution Factor: 1.90
Instrument/Filename: msdv.i / V082916

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt Limit (ug/m ³)	Amount (ug/m ³)
Tetrahydrofuran	109-99-9	0.21	0.22	2.8	4.5

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

D516
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1308607AR1-01B
Date/Time Collected: 8/21/13 02:12 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/30/13 08:28 AM
Dilution Factor: 1.90
Instrument/Filename: msdv.i / v082916sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.041	0.21	0.078 J
1,1-Dichloroethane	75-34-3	0.0045	0.031	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.014	0.031	0.15	Not Detected
Benzene	71-43-2	0.018	0.061	0.30	1.6
Chloroform	67-66-3	0.0060	NA	0.18	0.075 J
cis-1,2-Dichloroethene	156-59-2	0.0074	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0044	0.033	0.16	4.1
m,p-Xylene	108-38-3	0.010	0.033	0.33	14
Methyl tert-butyl ether	1634-04-4	0.0067	0.027	0.68	0.33 J
o-Xylene	95-47-6	0.012	0.033	0.16	5.6
Tetrachloroethane	127-18-4	0.010	0.052	0.26	7.2
Toluene	108-88-3	0.013	0.029	0.14	15
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.75	Not Detected
Trichloroethene	79-01-6	0.056	0.056	0.20	Not Detected
Vinyl Chloride	75-01-4	0.011	0.019	0.048	0.045 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	94

DJK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1	Date/Time Analyzed: 8/30/13 08:28 AM		
Lab ID: 1308607AR1-01B	Dilution Factor: 1.90		
Date/Time Collected: 8/21/13 02:12 PM	Instrument/Filename: msdv.i / v082916sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	Limits	%Recovery	
Toluene-d8	2037-26-5	70-130	104

D5K
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	8/29/13 11:14 PM
Lab ID:	1308607AR1-02A	Dilution Factor:	2.02
Date/Time Collected:	8/21/13 05:13 PM	Instrument/Filename:	msd\j\V082915
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	0.99	15
1,4-Dioxane	123-91-1	0.19	0.29	0.73	3.9
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	27
2-Hexanone	591-78-6	0.27	3.3	4.1	1.2 J
2-Propanol	67-63-0	0.26	2.0	2.5	27
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.83	2.4
Acetone	67-64-1	0.34	1.9	2.4	310 E/S
Bromomethane	74-83-9	0.83	3.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.1	0.45 J
Carbon Tetrachloride	56-23-5	0.16	0.51	1.3	0.78 J
Chlorobenzene	108-90-7	0.093	0.37	0.93	Not Detected
Chloroethane	75-00-3	0.34	2.1	2.7	Not Detected
Chloromethane	74-87-3	0.093	0.17	2.1	Not Detected
Cumene	98-82-8	0.14	0.40	0.99	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	2.1
Freon 11	75-69-4	0.24	0.45	1.1	1.6
Freon 113	76-13-1	0.42	0.62	1.5	0.50 J
Freon 12	75-71-8	0.15	0.40	1.0	7.4
Hexane	110-54-3	0.12	0.28	0.71	5.9
Methylene Chloride	75-09-2	0.15	0.28	1.4	0.33 J
Propylbenzene	103-65-1	0.17	0.40	0.99	3.1
Styrene	100-42-5	0.13	0.34	0.86	2.8

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1308607AR1-02A
Date/Time Collected: 8/21/13 05:13 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 11:14 PM
Dilution Factor: 2.02
Instrument/Filename: msdv.i / V082915

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	3.0	5.7

J = Estimated value.
E = Exceeds instrument calibration range.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	104

DJL
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
 Lab ID: 1308607AR1-02B
 Date/Time Collected: 8/21/13 05:13 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 11:14 PM
 Dilution Factor: 2.02
 Instrument/Filename: msdv.i/v082915sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.045 J
1,1-Dichloroethane	75-34-3	0.0048	0.033	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.033	0.16	0.19
Benzene	71-43-2	0.019	0.064	0.32	4.5
Chloroform	67-66-3	0.0064	NA	0.20	0.11 J
cis-1,2-Dichloroethene	156-59-2	0.0079	0.032	0.16	0.058 J
Ethyl Benzene	100-41-4	0.0046	0.035	0.18	11
m,p-Xylene	108-38-3	0.011	0.035	0.35	27
Methyl tert-butyl ether	1634-04-4	0.0071	0.029	0.73	0.035 J
o-Xylene	95-47-6	0.013	0.035	0.18	9.8
Tetrachloroethene	127-18-4	0.011	0.055	0.27	9.7
Toluene	108-88-3	0.014	0.030	0.15	25
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.80	Not Detected
Trichloroethene	79-01-6	0.060	0.060	0.22	0.095 J
Vinyl Chloride	75-01-4	0.012	0.021	0.052	0.11

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	96

DJK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	8/29/13 11:14 PM
Lab ID:	1308607AR1-02B	Dilution Factor:	2.02
Date/Time Collected:	8/21/13 05:13 PM	Instrument/Filename:	msdv.i / v082915sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	105

DJL
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
Lab ID: 1308607AR1-03A
Date/Time Collected: 8/21/13 11:11 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/30/13 10:56 AM
Dilution Factor: 4.08
Instrument/Filename: msdv.i / V082919

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.40	0.80	2.0	8.4
1,4-Dioxane	123-91-1	0.39	0.59	1.5	7.4
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.77	4.8	6.0	25
2-Hexanone	591-78-6	0.55	6.7	8.4	Not Detected
2-Propanol	67-63-0	0.52	4.0	5.0	17
4-Methyl-2-pentanone	108-10-1	0.29	0.67	1.7	1.1 J
Acetone	67-64-1	0.68	3.9	4.8	150
Bromomethane	74-83-9	1.7	6.3	7.9	Not Detected
Carbon Disulfide	75-15-0	0.41	5.1	6.4	Not Detected
Carbon Tetrachloride	56-23-5	0.33	1.0	2.6	Not Detected
Chlorobenzene	108-90-7	0.19	0.75	1.9	0.70 J +
Chloroethane	75-00-3	0.70	4.3	5.4	Not Detected
Chloromethane	74-87-3	0.19	0.34	4.2	Not Detected
Cumene	98-82-8	0.28	0.80	2.0	Not Detected
Cyclohexane	110-82-7	0.22	0.56	1.4	Not Detected
Freon 11	75-69-4	0.49	0.92	2.3	4.2
Freon 113	76-13-1	0.84	1.2	3.1	Not Detected
Freon 12	75-71-8	0.30	0.81	2.0	5.0
Hexane	110-54-3	0.24	0.58	1.4	2.7
Methylene Chloride	75-09-2	0.31	0.57	2.8	0.46 J
Propylbenzene	103-65-1	0.34	0.80	2.0	1.1 J
Styrene	100-42-5	0.27	0.70	1.7	2.4

DJL
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1308607AR1-03A
Date/Time Collected: 8/21/13 11:11 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/30/13 10:56 AM
Dilution Factor: 4.08
Instrument/Filename: msdv.i / V082919

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.45	0.48	6.0	230

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

DJL
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
 Lab ID: 1308607AR1-03B
 Date/Time Collected: 8/21/13 11:11 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/30/13 10:56 AM
 Dilution Factor: 4.08
 Instrument/Filename: msdv.i / v082919sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.024	0.089	0.44	0.060 J
1,1-Dichloroethane	75-34-3	0.0097	0.066	0.33	Not Detected
1,2-Dichloroethane	107-06-2	0.031	0.066	0.33	0-056-J
Benzene	71-43-2	0.039	0.13	0.65	0.77
Chloroform	67-66-3	0.013	NA	0.40	0.35 J
cis-1,2-Dichloroethene	156-59-2	0.016	0.065	0.32	Not Detected
Ethyl Benzene	100-41-4	0.0094	0.071	0.35	3.5
m,p-Xylene	108-38-3	0.022	0.071	0.71	1.1
Methyl tert-butyl ether	1634-04-4	0.014	0.059	1.5	Not Detected
o-Xylene	95-47-6	0.027	0.071	0.35	4.7
Tetrachloroethene	127-18-4	0.022	0.11	0.55	1.2
Toluene	108-88-3	0.028	0.061	0.31	7.1
trans-1,2-Dichloroethene	156-60-5	0.033	0.065	1.6	Not Detected
Trichloroethene	79-01-6	0.12	0.12	0.44	0.16 J
Vinyl Chloride	75-01-4	0.024	0.042	0.10	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	96

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1	Date/Time Analyzed: 8/30/13 10:56 AM		
Lab ID: 1308607AR1-03B	Dilution Factor: 4.08		
Date/Time Collected: 8/21/13 11:11 AM	Instrument/Filename: msdv.i / V082919sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	Limits	%Recovery	
Toluene-d8	2037-26-5	70-130	104

D5K
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1308607AR1-04A
 Date/Time Collected: 8/22/13 11:37 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 10:24 PM
 Dilution Factor: 1.92
 Instrument/Filename: msdv.i / V082914

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.94	0.55 J
1,4-Dioxane	123-91-1	0.18	0.28	0.69	0.28 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.3	2.8	7.7
2-Hexanone	591-78-6	0.26	3.1	3.9	Not Detected
2-Propanol	67-63-0	0.25	1.9	2.4	32
4-Methyl-2-pentanone	108-10-1	0.13	0.31	0.79	1.5
Acetone	67-64-1	0.32	1.8	2.3	34
Bromomethane	74-83-9	0.79	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	0.31 J +
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	0.67 J +
Chlorobenzene	108-90-7	0.088	0.35	0.88	Not Detected
Chloroethane	75-00-3	0.33	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.088	0.16	2.0	Not Detected
Cumene	98-82-8	0.13	0.38	0.94	Not Detected
Cyclohexane	110-82-7	0.10	0.26	0.66	0.25 J
Freon 11	75-69-4	0.23	0.43	1.1	1.4
Freon 113	76-13-1	0.39	0.59	1.5	0.50 J
Freon 12	75-71-8	0.14	0.38	0.95	2.6
Hexane	110-54-3	0.11	0.27	0.68	0.99
Methylene Chloride	75-09-2	0.14	0.27	1.3	0.48 J
Propylbenzene	103-65-1	0.16	0.38	0.94	0.47 J
Styrene	100-42-5	0.12	0.33	0.82	0.32 J

D57L
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1308607AR1-04A
Date/Time Collected: 8/22/13 11:37 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 10:24 PM
Dilution Factor: 1.92
Instrument/Filename: msdv1/v082914

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.23	2.8	3.0

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	102

D57L
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1308607AR1-04B
Date/Time Collected: 8/22/13 11:37 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 10:24 PM
Dilution Factor: 1.92
Instrument/Filename: msdvi.i/v082914sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.042	0.21	0.045 J
1,1-Dichloroethane	75-34-3	0.0046	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.031	0.16	Not Detected
Benzene	71-43-2	0.018	0.061	0.31	0.094 J
Chloroform	67-66-3	0.0061	NA	0.19	0.79
cis-1,2-Dichloroethene	156-59-2	0.0075	0.030	0.15	0.089 J
Ethyl Benzene	100-41-4	0.0044	0.033	0.17	Not Detected
m,p-Xylene	108-38-3	0.010	0.033	0.33	0.81
Methyl tert-butyl ether	1634-04-4	0.0068	0.028	0.69	2.2
o-Xylene	95-47-6	0.012	0.033	0.17	Not Detected
Tetrachloroethane	127-18-4	0.010	0.052	0.26	0.75
Toluene	108-88-3	0.013	0.029	0.14	0.18 J
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.14	4.1
Trichloroethene	79-01-6	0.057	0.057	0.76	3.1
Vinyl Chloride	75-01-4	0.011	0.020	0.21	0.097 J
				0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	96

DJL
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A		
Lab ID: 1308607AR1-04B		
Date/Time Collected: 8/22/13 11:37 AM		
Media: 6 Liter Summa Canister (SIM Certified)		
	Date/Time Analyzed: 8/29/13 10:24 PM	
	Dilution Factor: 1.92	
	Instrument/Filename: msdv.i / V082914sim	
Surrogates	CAS#	Limits %Recovery
Toluene-d8	2037-26-5	70-130 104

D57L
11/11/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID
 Lab ID: 1308607AR1-05A
 Date/Time Collected: 8/22/13 01:23 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 8/29/13 09:31 PM
 Dilution Factor: 2.31
 Instrument/File Name: msdvi/v082913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.22	0.45	1.1	Not Detected
1,4-Dioxane	123-91-1	0.22	0.33	0.83	0.28 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.43	2.7	3.4	1.6 J
2-Hexanone	591-78-6	0.31	3.8	4.7	Not Detected
2-Propanol	67-63-0	0.30	2.3	2.8	0.72 J
4-Methyl-2-pentanone	108-10-1	0.16	0.38	0.95	Not Detected
Acetone	67-64-1	0.38	2.2	2.7	12
Bromomethane	74-83-9	0.95	3.6	4.5	Not Detected
Carbon Disulfide	75-15-0	0.23	2.9	3.6	Not Detected
Carbon Tetrachloride	56-23-5	0.18	0.58	1.4	0.59 J +
Chlorobenzene	108-90-7	0.11	0.42	1.1	Not Detected
Chloroethane	75-00-3	0.39	2.4	3.0	Not Detected
Chloromethane	74-87-3	0.11	0.19	2.4	Not Detected
Cumene	98-82-8	0.16	0.45	1.1	Not Detected
Cyclohexane	110-82-7	0.12	0.32	0.80	Not Detected
Freon 11	75-69-4	0.28	0.52	1.3	1.3
Freon 113	76-13-1	0.48	0.71	1.8	0.57 J
Freon 12	75-71-8	0.17	0.46	1.1	1.2
Hexane	110-54-3	0.14	0.32	0.32	0.32 J -
Methylene Chloride	75-09-2	0.18	0.32	1.6	Not Detected
Propylbenzene	103-65-1	0.19	0.45	1.1	Not Detected
Styrene	100-42-5	0.15	0.39	0.98	Not Detected

0.81
0.4

DJK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
Lab ID: 1308607AR1-05A
Date/Time Collected: 8/22/13 01:23 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 8/29/13 09:31 PM
Dilution Factor: 2.31
Instrument/File Name: msdv.i / V082913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.26	0.27	3.4	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	106

DJK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
Lab ID: 1308607AR1-05B
Date/Time Collected: 8/22/13 01:23 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 09:31 PM
Dilution Factor: 2.31
Instrument/Filename: msdv.i / V082913sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.014	0.050	0.25	0.031 J
1,1-Dichloroethane	75-34-3	0.0055	0.037	0.19	Not Detected
1,2-Dichloroethane	107-06-2	0.018	0.037	0.19	0.058 J
Benzene	71-43-2	0.022	0.074	0.37	0.50
Chloroform	67-66-3	0.0073	NA	0.22	0.058 J
cis-1,2-Dichloroethene	156-59-2	0.0091	0.037	0.18	Not Detected
Ethyl Benzene	100-41-4	0.0053	0.040	0.20	0.098 J
m,p-Xylene	108-38-3	0.013	0.040	0.40	0.17 J
Methyl tert-butyl ether	1634-04-4	0.0082	0.033	0.83	Not Detected
o-Xylene	95-47-6	0.015	0.040	0.20	0.078 J
Tetrachloroethene	127-18-4	0.012	0.063	0.31	0.027 J
Toluene	108-88-3	0.016	0.035	0.17	0.54
trans-1,2-Dichloroethene	156-60-5	0.019	0.037	0.92	Not Detected
Trichloroethene	79-01-6	0.068	0.068	0.25	Not Detected
Vinyl Chloride	75-01-4	0.014	0.024	0.059	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	97

DJK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 8/29/13 09:31 PM	
Lab ID: 1308607AR1-05B	Dilution Factor: 2.31	
Date/Time Collected: 8/22/13 01:23 PM	Instrument/File Name: msdv.i / V082913sim	
Media: 6 Liter Summa Canister (SIM Certified)		
Surrogates	Limits	%Recovery
Toluene-d8	2037-26-5 70-130	104

DJL
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1308607AR1-06A
Date/Time Collected: 8/22/13 11:56 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 08:31 PM
Dilution Factor: 2.07
Instrument/Filename: msdvi/v082912

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.41	1.0	4.6
1,4-Dioxane	123-91-1	0.20	0.30	0.74	0.23 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.39	2.4	3.0	22
2-Hexanone	591-78-6	0.28	3.4	4.2	Not Detected
2-Propanol	67-63-0	0.27	2.0	2.5	71
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.85	Not Detected
Acetone	67-64-1	0.34	2.0	2.4	68
Bromomethane	74-83-9	0.85	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.52	1.3	0.87 J +
Chlorobenzene	108-90-7	0.095	0.38	0.95	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.095	0.17	2.1	1.4 J
Cumene	98-82-8	0.14	0.41	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.71	0.38 J
Freon 11	75-69-4	0.25	0.46	1.2	1.3
Freon 113	76-13-1	0.42	0.63	1.6	0.51 J
Freon 12	75-71-8	0.15	0.41	1.0	2.2
Hexane	110-54-3	0.12	0.29	0.73	1.4
Methylene Chloride	75-09-2	0.16	0.29	1.4	0.62 J
Propylbenzene	103-65-1	0.17	0.41	1.0	0.38 J
Styrene	100-42-5	0.14	0.35	0.88	0.52 J

DJK
11/11/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ A	Date/Time Analyzed:	8/29/13 08:31 PM
Lab ID:	1308607AR1-06A	Dilution Factor:	2.07
Date/Time Collected:	8/22/13 11:56 AM	Instrument/Filename:	msdv.i / V082912
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.24	3.0	79

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	102

DSL
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1308607AR1-06B
Date/Time Collected: 8/22/13 11:56 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 08:31 PM
Dilution Factor: 2.07
Instrument/Filename: msdv.i / v082912sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.22	0.45
1,1-Dichloroethane	75-34-3	0.0049	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.016	0.034	0.17	Not Detected
Benzene	71-43-2	0.020	0.066	0.33	1.2
Chloroform	67-66-3	0.0066	NA	0.20	0.19 J
cis-1,2-Dichloroethene	156-59-2	0.0081	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0048	0.036	0.18	0.78
m,p-Xylene	108-38-3	0.011	0.036	0.36	2.3
Methyl tert-butyl ether	1634-04-4	0.0073	0.030	0.75	0.016 J
o-Xylene	95-47-6	0.014	0.036	0.18	0.95
Tetrachloroethene	127-18-4	0.011	0.056	0.28	0.079 J
Toluene	108-88-3	0.014	0.031	0.16	3.2
trans-1,2-Dichloroethene	156-60-5	0.017	0.033	0.82	Not Detected
Trichloroethene	79-01-6	0.061	0.061	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	98

D57L
11/1/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] A	Date/Time Analyzed:	8/29/13 08:31 PM
Lab ID:	1308607AR1-06B	Dilution Factor:	2.07
Date/Time Collected:	8/22/13 11:56 AM	Instrument/Filename:	msdv.i / V082912sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	104

D57L
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
 Lab ID: 1308607AR1-07A
 Date/Time Collected: 8/22/13 10:37 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 07:35 PM
 Dilution Factor: 1.87
 Instrument/File name: msdv.i / V082911

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.18	0.37	0.92	7.6
1,4-Dioxane	123-91-1	0.18	0.27	0.67	0.22 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.35	2.2	2.8	7.7
2-Hexanone	591-78-6	0.25	3.1	3.8	0.69 J
2-Propanol	67-63-0	0.24	1.8	2.3	18
4-Methyl-2-pentanone	108-10-1	0.13	0.31	0.77	0.59 J
Acetone	67-64-1	0.31	1.8	2.2	52
Bromomethane	74-83-9	0.77	2.9	3.6	Not Detected
Carbon Disulfide	75-15-0	0.19	2.3	2.9	30
Carbon Tetrachloride	56-23-5	0.15	0.47	1.2	0.40 J +
Chlorobenzene	108-90-7	0.086	0.34	0.86	Not Detected
Chloroethane	75-00-3	0.32	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.086	0.15	1.9	Not Detected
Cumene	98-82-8	0.13	0.37	0.92	0.60 J
Cyclohexane	110-82-7	0.10	0.26	0.64	0.47 J
Freon 11	75-69-4	0.22	0.42	1.0	6.2
Freon 113	76-13-1	0.38	0.57	1.4	0.71 J
Freon 12	75-71-8	0.14	0.37	0.92	95
Hexane	110-54-3	0.11	0.26	0.66	0.78
Methylene Chloride	75-09-2	0.14	0.26	1.3	0.56 J
Propylbenzene	103-65-1	0.16	0.37	0.92	1.1
Styrene	100-42-5	0.12	0.32	0.80	2.0

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1308607AR1-07A
Date/Time Collected: 8/22/13 10:37 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 07:35 PM
Dilution Factor: 1.87
Instrument/Filename: msdv.i / V082911

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.22	2.8	1.8 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	103

057L
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
 Lab ID: 1308607AR1-07B
 Date/Time Collected: 8/22/13 10:37 AM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 8/29/13 07:35 PM
 Dilution Factor: 1.87
 Instrument/Filename: msdv.i / V082911sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.041	0.20	0.18 J
1,1-Dichloroethane	75-34-3	0.0045	0.030	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.014	0.030	0.15	Not Detected
Benzene	71-43-2	0.018	0.060	0.30	0.69
Chloroform	67-66-3	0.0059	NA	0.18	0.84
cis-1,2-Dichloroethene	156-59-2	0.0073	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0043	0.032	0.16	3.5
m,p-Xylene	108-38-3	0.010	0.032	0.32	11
Methyl tert-butyl ether	1634-04-4	0.0066	0.027	0.67	0.018 J
o-Xylene	95-47-6	0.012	0.032	0.16	4.6
Tetrachloroethene	127-18-4	0.010	0.051	0.25	210
Toluene	108-88-3	0.013	0.028	0.14	7.6
trans-1,2-Dichloroethene	156-60-5	0.015	0.030	0.74	Not Detected
Trichloroethene	79-01-6	0.055	0.055	0.20	5.6
Vinyl Chloride	75-01-4	0.011	0.019	0.048	0.034 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	100

DK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1	Date/Time Analyzed: 8/29/13 07:35 PM		
Lab ID: 1308607AR1-07B	Dilution Factor: 1.87		
Date/Time Collected: 8/22/13 10:37 AM	Instrument/Filename: msdv.i / V082911sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	105

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	8/29/13 06:41 PM
Lab ID:	1308607AR1-08A	Dilution Factor:	2.03
Date/Time Collected:	8/22/13 02:35 PM	Instrument/Filename:	msdvi/v082910
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	1.0	12
1,4-Dioxane	123-91-1	0.19	0.29	0.73	0.32 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	10
2-Hexanone	591-78-6	0.27	3.3	4.2	Not Detected
2-Propanol	67-63-0	0.26	2.0	2.5	7.8
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.83	0.79 J
Acetone	67-64-1	0.34	1.9	2.4	110
Bromomethane	74-83-9	0.83	3.2	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.2	0.89 J +
Carbon Tetrachloride	56-23-5	0.16	0.51	1.3	0.75 J +
Chlorobenzene	108-90-7	0.093	0.37	0.93	Not Detected
Chloroethane	75-00-3	0.35	2.1	2.7	Not Detected
Chloromethane	74-87-3	0.093	0.17	2.1	Not Detected
Cumene	98-82-8	0.14	0.40	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	0.85
Freon 11	75-69-4	0.24	0.46	1.1	1.4
Freon 113	76-13-1	0.42	0.62	1.6	0.54 J
Freon 12	75-71-8	0.15	0.40	1.0	4.3
Hexane	110-54-3	0.12	0.29	0.72	1.6
Methylene Chloride	75-09-2	0.15	0.28	1.4	0.58 J
Propylbenzene	103-65-1	0.17	0.40	1.0	1.9
Styrene	100-42-5	0.13	0.34	0.86	3.0

DJK
11/1/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: SS1
 Lab ID: 1308607AR1-08A
 Date/Time Collected: 8/22/13 02:35 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 06:41 PM
 Dilution Factor: 2.03
 Instrument/Filename: msdv.i / V082910

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	3.0	3.2

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	104

DNK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
Lab ID: 1308607AR1-08B
Date/Time Collected: 8/22/13 02:35 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 06:41 PM
Dilution Factor: 2.03
Instrument/Filename: msdv.i / v082910sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.047 J
1,1-Dichloroethane	75-34-3	0.0048	0.033	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.016	0.033	0.16	0.12 J
Benzene	71-43-2	0.020	0.065	0.32	2.0
Chloroform	67-66-3	0.0064	NA	0.20	0.36
cis-1,2-Dichloroethene	156-59-2	0.0080	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0047	0.035	0.18	4.9
m,p-Xylene	108-38-3	0.011	0.035	0.35	17
Methyl tert-butyl ether	1634-04-4	0.0072	0.029	0.73	Not Detected
o-Xylene	95-47-6	0.013	0.035	0.18	6.7
Tetrachloroethene	127-18-4	0.011	0.055	0.28	8.6
Toluene	108-88-3	0.014	0.030	0.15	13
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.80	Not Detected
Trichloroethene	79-01-6	0.060	0.060	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.052	0.037 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	101

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1308607AR1-08B
Date/Time Collected: 8/22/13 02:35 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 8/29/13 06:41 PM
Dilution Factor: 2.03
Instrument/Filename: msd\j / \V082910sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	105

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
 Lab ID: 1308607AR1-09A
 Date/Time Collected: 8/22/13 03:34 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 8/29/13 05:50 PM
 Dilution Factor: 2.25
 Instrument/Filename: msd\j\j\V082909

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.22	0.44	1.1	7.6
1,4-Dioxane	123-91-1	0.21	0.32	0.81	0.85
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.42	2.6	3.3	140
2-Hexanone	591-78-6	0.30	3.7	4.6	Not Detected
2-Propanol	67-63-0	0.29	2.2	2.8	5.7
4-Methyl-2-pentanone	108-10-1	0.16	0.37	0.92	0.71 J
Acetone	67-64-1	0.37	2.1	2.7	60
Bromomethane	74-83-9	0.92	3.5	4.4	Not Detected
Carbon Disulfide	75-15-0	0.23	2.8	3.5	0.59 J +
Carbon Tetrachloride	56-23-5	0.18	0.57	1.4	0.64 J +
Chlorobenzene	108-90-7	0.10	0.41	1.0	Not Detected
Chloroethane	75-00-3	0.38	2.4	3.0	Not Detected
Chloromethane	74-87-3	0.10	0.18	2.3	Not Detected
Cumene	98-82-8	0.16	0.44	1.1	Not Detected
Cyclohexane	110-82-7	0.12	0.31	0.77	Not Detected
Freon 11	75-69-4	0.27	0.50	1.3	Not Detected
Freon 113	76-13-1	0.46	0.69	1.7	1.5
Freon 12	75-71-8	0.16	0.44	1.1	Not Detected
Hexane	110-54-3	0.13	0.32	1.1	4.4
Methylene Chloride	75-09-2	0.17	0.31	0.79	0.66 J -
Propylbenzene	103-65-1	0.19	0.44	1.6	0.30 J
Styrene	100-42-5	0.15	0.38	1.1	1.4
				0.96	1.5

DJK
11/11/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
Lab ID: 1308607AR1-09A
Date/Time Collected: 8/22/13 03:34 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 8/29/13 05:50 PM
Dilution Factor: 2.25
Instrument/Filename: msdv.i / V082909

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt Limit (ug/m ³)	Amount (ug/m ³)
Tetrahydrofuran	109-99-9	0.25	0.26	3.3	140

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	105

D57L
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXX SS1
 Lab ID: 1308607AR1-09B
 Date/Time Collected: 8/22/13 03:34 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 8/29/13 05:50 PM
 Dilution Factor: 2.25
 Instrument/Filename: msd\j\V082909sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.013	0.049	0.24	0.037 J
1,1-Dichloroethane	75-34-3	0.0054	0.036	0.18	Not Detected
1,2-Dichloroethane	107-06-2	0.017	0.036	0.18	0.070 J
Benzene	71-43-2	0.022	0.072	0.36	0.81
Chloroform	67-66-3	0.0071	NA	0.22	0.79
cis-1,2-Dichloroethene	156-59-2	0.0088	0.036	0.18	Not Detected
Ethyl Benzene	100-41-4	0.0052	0.039	0.20	3.3
m,p-Xylene	108-38-3	0.012	0.039	0.39	12
Methyl tert-butyl ether	1634-04-4	0.0079	0.032	0.81	0.013 J
o-Xylene	95-47-6	0.015	0.039	0.20	4.7
Tetrachloroethane	127-18-4	0.012	0.061	0.30	2.2
Toluene	108-88-3	0.015	0.034	0.17	7.7
trans-1,2-Dichloroethene	156-60-5	0.018	0.036	0.89	Not Detected
Trichloroethene	79-01-6	0.066	0.066	0.24	Not Detected
Vinyl Chloride	75-01-4	0.013	0.023	0.058	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	95

DJK
11/1/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1	Date/Time Analyzed: 8/29/13 05:50 PM
Lab ID: 1308607AR1-09B	Dilution Factor: 2.25
Date/Time Collected: 8/22/13 03:34 PM	Instrument/Filename: msdv.i / V082909sim
Media: 6 Liter Summa Canister (SIM Certified)	
Surrogates	Limits %Recovery
Toluene-d8	2037-26-5 70-130 104

DSNL
11/1/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Receipting signature or the document indicates that a sample is being shipped in compliance with applicable local, state, federal, national, and international laws, regulations and orders of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Receipting signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling or shipping of samples. D.O.T. Notice 18001-467-4022

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020
 Page 1 of 2

Project Manager: Mark Pearson
 Collected by: pears and son Nick Swain
 Company: Telo Tech Email: nick@telotech.com
 Address: 351 Bridger Dr, Skelly Bldg State: UT Zip: 84705
 Phone: 406-582-8780 Fax: _____

Project Info:
 P.O. # _____
 Project # 114-710 305, 740
 Project Name: Pearson Landfill

Turn Amount: 1 Normal
5 Push
 Date: _____
 Pressure: _____
 Type: _____

Lab ID	Field Sample ID (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum
01A	SS1	5680	6/21/13	1412	TO15, APH, CH4, He	-26.0 -5.0
01A	SS2	12699	"	1413	"	-24.5 -6.5
01A	SS1	12417	"	1111	"	-25.3 -6.6
04A	-A	35135	6/22/13	1134	TO15, APH, CH4	-24.6 -5.4
05A	-D	4413	"	1323	"	-25.5 -8.6
06A	-A	13345	"	1156	"	-26.1 -7.5
07A	-SS1	4222	"	1037	TO15, APH, CH4, He	-25.8 -5.9
08A	-SS1	3424	"	1135	"	-25.0 -5.9
09A	-SS1	4422	"	1534	TO15, APH, CH4	-25.5 -8.0
10A	-SS1	12209	"	1737	TO15, APH, CH4, He	-26.5 -5.5

Received by: (signature) Mark Pearson Date/Time 6/21/13 08:40
 Received by: (signature) _____ Date/Time _____
 Notes: 17 cans in 5 boxes (41 bags + 1 small)

Shipper Name: Air Toxics Air Box # _____
 Condition: Good
 Custody Seals Intact? Yes No (None) Work Order # 1308007

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: December 11, 2013

Sample Delivery Group (SDG) No.	1309104A
Samples	█-SSI, █-SS1, █-A, █-B, █-C, █-D, and █-SS1
Field Duplicates	█-SSI and █-SS2, █-SS1 and █-SS2, and █-SS1, and █-SS2

Tetra Tech, Inc. conducted data validation of the analytical results for ten air samples (including three field duplicates) that were collected at the Bozeman Landfill site in Bozeman, Montana, on September 4 through 6, 2013. The samples were analyzed under SDG No. 1305104A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates

December 11, 2013

- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1309104A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation or holding times. The chain-of-custody (COC) form information for sample █████-D did not match the information on the canister with regard to the canister identification number. Tetra Tech was notified of the discrepancy and the information on the canister was used to process and report the sample. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the September 10, 2013 full scan analysis contained target analytes acetone and carbon disulfide below reporting limits (RL). The method blank associated with the September 10, 2013 full scan analysis contained target analytes acetone and carbon disulfide below RLs. The method blank associated with the September 12, 2013 full scan analysis contained target analytes methylene chloride, 1,4-dioxane, 4-methyl-2-pentanone, and 2-hexanone below RLs. The method blank associated with the September 10, 2013 SIM analyses contained target analyte benzene below the RL. The method blank associated with the September 12, 2013 SIM analyses contained target analytes 1,1-dichloroethane, trichloroethene, tetrachloroethene, ethyl benzene, m,p-xylene, and o-xylene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminants acetone and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits. No data were qualified.

FIELD DUPLICATES

RPDs were calculated for field duplicate pairs (████-SSI and █████-SS2, █████-SS1 and █████-SS2, and █████-SS1 and █████-SS2) sample results for all results greater than the RL. All RPDs were ≤ 30 with the

December 11, 2013

following exceptions. For field duplicate pair [REDACTED]-SS1 and [REDACTED]-SS2, the RPD for 2-propanol is 31, the RPD for acetone is 126, and the RPD for hexane is 33. Analytical data are not typically qualified solely on the basis of field duplicate exceedences.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits with the exception of carbon tetrachloride. The September 10, 2013, LCS percent recovery was okay, but the September 10, 2013, LCSD percent recovery (68) was below the QC limit. The September 12, 2013, LCS and LCSD percent recoveries (59 and 59) were below the QC limit. Therefore, results for carbon tetrachloride were qualified as estimated (flagged “J” or “UJ”, as appropriate) for all samples.

SAMPLE DILUTION

None of the samples required dilution due to the presence of high concentrations of target or non-target analytes.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech’s request, the laboratory reported estimated values for target compound hits that are below the RL but greater than the DL. All canisters used for this project were certified to the RL for the target analytes included in this data package. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated (“J”) and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1309104A

(Twenty Sheets)

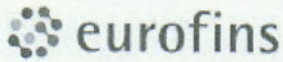


ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1309104A

(One Sheet)





Air Toxics

Client Sample ID: █████-SS1

Lab ID#: 1309104A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091017	Date of Collection:	9/4/13 6:36:00 PM
Dil. Factor:	1.95	Date of Analysis:	9/10/13 09:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.20	1.2	0.96	6.0
Chloromethane	0.98	Not Detected	2.0	Not Detected
Bromomethane	0.98	0.24 J	3.8	0.95 J
Chloroethane	0.98	Not Detected	2.6	Not Detected
Freon 11	0.20	0.23	1.1	1.3
Freon 113	0.20	Not Detected	1.5	Not Detected
Acetone	0.98	6.2	2.3	15
2-Propanol	0.98	1.7	2.4	4.3
Carbon Disulfide	0.98	0.43 J	3.0 <i>u</i>	1.3 J
Methylene Chloride	0.39	Not Detected	1.4	Not Detected
Hexane	0.20	0.24	0.69	0.84
2-Butanone (Methyl Ethyl Ketone)	0.98	1.0	2.9	3.1
Tetrahydrofuran	0.98	Not Detected	2.9	Not Detected
Carbon Tetrachloride	0.20	Not Detected	1.2 <i>u</i>	Not Detected
1,4-Dioxane	0.20	Not Detected	0.70	Not Detected
4-Methyl-2-pentanone	0.20	0.11 J	0.80	0.46 J
2-Hexanone	0.98	Not Detected	4.0	Not Detected
Chlorobenzene	0.20	Not Detected	0.90	Not Detected
Styrene	0.20	0.16 J	0.83	0.67 J
Cumene	0.20	Not Detected	0.96	Not Detected
Propylbenzene	0.20	0.19 J	0.96	0.93 J
1,2,4-Trimethylbenzene	0.20	1.6	0.96	7.9
Cyclohexane	0.20	Not Detected	0.67	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	103	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: █████-SS1

Lab ID#: 1309104A-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091017sim	Date of Collection:	9/4/13 6:36:00 PM
Dil. Factor:	1.95	Date of Analysis:	9/10/13 09:26 PM

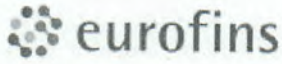
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.020	0.0045 J	0.050	0.012 J
1,1-Dichloroethane	0.039	Not Detected	0.16	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.15	Not Detected
1,1,1-Trichloroethane	0.039	0.10	0.21	0.58
Benzene	0.098	0.14	0.31	0.46
1,2-Dichloroethane	0.039	0.0069 J	0.16	0.028 J
Trichloroethene	0.039	0.29	0.21	1.6
Toluene	0.039	1.1	0.15	4.3
Tetrachloroethene	0.039	8.8	0.26	60
Ethyl Benzene	0.039	0.29	0.17	1.2
m,p-Xylene	0.078	1.2	0.34	5.4
o-Xylene	0.039	0.49	0.17	2.1
trans-1,2-Dichloroethene	0.20	Not Detected	0.77	Not Detected
Methyl tert-butyl ether	0.20	Not Detected	0.70	Not Detected
Chloroform	0.039	Not Detected	0.19	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

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

DJTL
12/11/13



Air Toxics

Client Sample ID: [REDACTED]-SS2

Lab ID#: 1309104A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091018	Date of Collection:	9/4/13 6:36:00 PM
Dil. Factor:	1.96	Date of Analysis:	9/10/13 10:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.20	1.0	0.97	5.2
Chloromethane	0.98	0.34 J	2.0	0.69 J
Bromomethane	0.98	0.30 J	3.8	1.2 J
Chloroethane	0.98	Not Detected	2.6	Not Detected
Freon 11	0.20	0.19 J	1.1	1.0 J
Freon 113	0.20	Not Detected	1.5	Not Detected
Acetone	0.98	5.1	2.3	12
2-Propanol	0.98	1.2	2.4	3.0
Carbon Disulfide	0.98	0.68 J	3.0 U	2.1 J
Methylene Chloride	0.39	Not Detected	1.4	Not Detected
Hexane	0.20	0.073 J	0.69	0.26 J
2-Butanone (Methyl Ethyl Ketone)	0.98	0.76 J	2.9	2.2 J
Tetrahydrofuran	0.98	Not Detected	2.9	Not Detected
Carbon Tetrachloride	0.20	Not Detected	1.2 LJ	Not Detected
1,4-Dioxane	0.20	Not Detected	0.71	Not Detected
4-Methyl-2-pentanone	0.20	0.094 J	0.80	0.39 J
2-Hexanone	0.98	Not Detected	4.0	Not Detected
Chlorobenzene	0.20	Not Detected	0.90	Not Detected
Styrene	0.20	0.17 J	0.83	0.71 J
Cumene	0.20	0.044 J	0.96	0.22 J
Propylbenzene	0.20	0.18 J	0.96	0.90 J
1,2,4-Trimethylbenzene	0.20	1.7	0.96	8.6
Cyclohexane	0.20	Not Detected	0.67	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

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

DJL
12/11/13



Air Toxics

Client Sample ID: [REDACTED]-SS2

Lab ID#: 1309104A-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091018sim	Date of Collection:	9/4/13 6:36:00 PM
Dil. Factor:	1.96	Date of Analysis:	9/10/13 10:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.020	0.0071 J	0.050	0.018 J
1,1-Dichloroethane	0.039	Not Detected	0.16	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.039	0.11	0.21	0.60
Benzene	0.098	0.13	0.31	0.41
1,2-Dichloroethane	0.039	0.0057 J	0.16	0.023 J
Trichloroethene	0.039	0.30	0.21	1.6
Toluene	0.039	1.0	0.15	3.8
Tetrachloroethene	0.039	9.1	0.26	62
Ethyl Benzene	0.039	0.27	0.17	1.2
m,p-Xylene	0.078	1.2	0.34	5.3
o-Xylene	0.039	0.49	0.17	2.1
trans-1,2-Dichloroethene	0.20	Not Detected	0.78	Not Detected
Methyl tert-butyl ether	0.20	Not Detected	0.71	Not Detected
Chloroform	0.039	Not Detected	0.19	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: ████████-SS1

Lab ID#: 1309104A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091019	Date of Collection:	9/5/13 8:34:00 AM
Dil. Factor:	1.74	Date of Analysis:	9/10/13 11:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	1.2	0.86	6.1
Chloromethane	0.87	Not Detected	1.8	Not Detected
Bromomethane	0.87	0.23 J	3.4	0.89 J
Chloroethane	0.87	Not Detected	2.3	Not Detected
Freon 11	0.17	0.23	0.98	1.3
Freon 113	0.17	Not Detected	1.3	Not Detected
Acetone	0.87	5.6	2.1	13
2-Propanol	0.87	1.9	2.1	4.7
Carbon Disulfide	0.87	0.36 J	2.7	1.1 J
Methylene Chloride	0.35	Not Detected	1.2	Not Detected
Hexane	0.17	0.28	0.61	1.0
2-Butanone (Methyl Ethyl Ketone)	0.87	0.69 J	2.6	2.0 J
Tetrahydrofuran	0.87	0.32 J	2.6	0.95 J
Carbon Tetrachloride	0.17	Not Detected	1.1	Not Detected
1,4-Dioxane	0.17	Not Detected	0.63	Not Detected
4-Methyl-2-pentanone	0.17	0.15 J	0.71	0.61 J
2-Hexanone	0.87	Not Detected	3.6	Not Detected
Chlorobenzene	0.17	Not Detected	0.80	Not Detected
Styrene	0.17	0.16 J	0.74	0.70 J
Cumene	0.17	0.15 J	0.86	0.73 J
Propylbenzene	0.17	0.15 J	0.86	0.73 J
1,2,4-Trimethylbenzene	0.17	1.2	0.86	6.2
Cyclohexane	0.17	0.11 J	0.60	0.38 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	104	70-130

DJK
12/11/13

Client Sample ID: ██████-SS1

Lab ID#: 1309104A-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091019sim	Date of Collection:	9/5/13 8:34:00 AM
Dil. Factor:	1.74	Date of Analysis:	9/10/13 11:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	0.010 J	0.044	0.026 J
1,1-Dichloroethane	0.035	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.035	0.0071 J	0.19	0.039 J
Benzene	0.087	0.38	0.28	1.2
1,2-Dichloroethane	0.035	0.014 J	0.14	0.057 J
Trichloroethene	0.035	0.0038 J	0.19	0.021 J
Toluene	0.035	1.7	0.13	6.3
Tetrachloroethene	0.035	1.3	0.24	9.0
Ethyl Benzene	0.035	0.36	0.15	1.6
m,p-Xylene	0.070	1.5	0.30	6.3
o-Xylene	0.035	0.57	0.15	2.5
trans-1,2-Dichloroethene	0.17	Not Detected	0.69	Not Detected
Methyl tert-butyl ether	0.17	0.0038 J	0.63	0.014 J
Chloroform	0.035	Not Detected	0.17	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	106	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: ████████-SS2

Lab ID#: 1309104A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091020	Date of Collection:	9/5/13 8:34:00 AM
Dil. Factor:	1.79	Date of Analysis:	9/11/13 08:09 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.18	1.5	0.88	7.3
Chloromethane	0.90	0.30 J	1.8	0.61 J
Bromomethane	0.90	0.32 J	3.5	1.3 J
Chloroethane	0.90	Not Detected	2.4	Not Detected
Freon 11	0.18	0.26	1.0	1.4
Freon 113	0.18	Not Detected	1.4	Not Detected
Acetone	0.90	33	2.1	79
2-Propanol	0.90	3.0	2.2	7.3
Carbon Disulfide	0.90	3.5	2.8	11
Methylene Chloride	0.36	Not Detected	1.2	Not Detected
Hexane	0.18	0.45	0.63	1.6
2-Butanone (Methyl Ethyl Ketone)	0.90	1.6	2.6	4.7
Tetrahydrofuran	0.90	0.48 J	2.6	1.4 J
Carbon Tetrachloride	0.18	Not Detected	1.1 LJ	Not Detected
1,4-Dioxane	0.18	0.42	0.64	1.5
4-Methyl-2-pentanone	0.18	0.23	0.73	0.92
2-Hexanone	0.90	Not Detected	3.7	Not Detected
Chlorobenzene	0.18	Not Detected	0.82	Not Detected
Styrene	0.18	0.20	0.76	0.86
Cumene	0.18	0.16 J	0.88	0.78 J
Propylbenzene	0.18	0.16 J	0.88	0.78 J
1,2,4-Trimethylbenzene	0.18	1.2	0.88	6.0
Cyclohexane	0.18	0.19	0.62	0.66

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	105	70-130

DJL
12/11/13

Client Sample ID: ██████-SS2

Lab ID#: 1309104A-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e091020sim	Date of Collection:	9/5/13 8:34:00 AM
Dil. Factor:	1.79	Date of Analysis:	9/11/13 08:09 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	0.0095 J	0.046	0.024 J
1,1-Dichloroethane	0.036	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.036	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.036	0.0075 J	0.20	0.041 J
Benzene	0.090	0.42	0.28	1.3
1,2-Dichloroethane	0.036	0.014 J	0.14	0.055 J
Trichloroethene	0.036	0.0071 J	0.19	0.038 J
Toluene	0.036	2.0	0.13	7.4
Tetrachloroethene	0.036	1.2	0.24	8.5
Ethyl Benzene	0.036	0.38	0.16	1.7
m,p-Xylene	0.072	1.5	0.31	6.6
o-Xylene	0.036	0.59	0.16	2.6
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
Methyl tert-butyl ether	0.18	0.0039 J	0.64	0.014 J
Chloroform	0.036	Not Detected	0.17	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

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

DJK
12/11/13



Air Toxics

Client Sample ID: ██████-A

Lab ID#: 1309104A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091207	Date of Collection:	9/6/13 8:42:00 AM
Dil. Factor:	1.97	Date of Analysis:	9/12/13 02:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.20	0.48	0.97	2.4
Chloromethane	0.98	0.44 J	2.0	0.91 J
Bromomethane	0.98	Not Detected	3.8	Not Detected
Chloroethane	0.98	Not Detected	2.6	Not Detected
Freon 11	0.20	0.19 J	1.1	1.1 J
Freon 113	0.20	0.074 J	1.5	0.57 J
Acetone	0.98	4.8	2.3	11
2-Propanol	0.98	1.5	2.4	3.8
Carbon Disulfide	0.98	Not Detected	3.1	Not Detected
Methylene Chloride	0.39	0.38 J	1.4	1.3 J
Hexane	0.20	0.29	0.69	1.0
2-Butanone (Methyl Ethyl Ketone)	0.98	0.53 J	2.9	1.6 J
Tetrahydrofuran	0.98	Not Detected	2.9	Not Detected
Carbon Tetrachloride	0.20	0.069 J	1.2	0.43 J
1,4-Dioxane	0.20	Not Detected	0.71	Not Detected
4-Methyl-2-pentanone	0.20	0.058 J	0.81	0.24 J
2-Hexanone	0.98	Not Detected	4.0	Not Detected
Chlorobenzene	0.20	Not Detected	0.91	Not Detected
Styrene	0.20	Not Detected	0.84	Not Detected
Cumene	0.20	Not Detected	0.97	Not Detected
Propylbenzene	0.20	Not Detected	0.97	Not Detected
1,2,4-Trimethylbenzene	0.20	0.11 J	0.97	0.55 J
Cyclohexane	0.20	0.055 J	0.68	0.19 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	90	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: ██████-A

Lab ID#: 1309104A-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091207sim	Date of Collection:	9/6/13 8:42:00 AM
Dil. Factor:	1.97	Date of Analysis:	9/12/13 02:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.020	0.0040 J	0.050	0.010 J
1,1-Dichloroethane	0.039	Not Detected	0.16	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.039	0.0048 J	0.21	0.026 J
Benzene	0.098	0.18	0.31	0.56
1,2-Dichloroethane	0.039	0.023 J	0.16	0.094 J
Trichloroethene	0.039	0.0036 J	0.21	0.019 J
Toluene	0.039	0.74	0.15	2.8
Tetrachloroethene	0.039	0.066	0.27	0.45
Ethyl Benzene	0.039	0.083	0.17	0.36
m,p-Xylene	0.079	0.29	0.34	1.2
o-Xylene	0.039	0.10	0.17	0.44
trans-1,2-Dichloroethene	0.20	0.013 J	0.78	0.050 J
Methyl tert-butyl ether	0.20	Not Detected	0.71	Not Detected
Chloroform	0.039	Not Detected	0.19	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	97	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: [REDACTED]-B

Lab ID#: 1309104A-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091208	Date of Collection:	9/6/13 8:43:00 AM
Dil. Factor:	1.91	Date of Analysis:	9/12/13 03:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.19	0.52	0.94	2.6
Chloromethane	0.96	0.36 J	2.0	0.75 J
Bromomethane	0.96	Not Detected	3.7	Not Detected
Chloroethane	0.96	Not Detected	2.5	Not Detected
Freon 11	0.19	0.19	1.1	1.1
Freon 113	0.19	0.053 J	1.5	0.41 J
Acetone	0.96	5.6	2.3	13
2-Propanol	0.96	2.0	2.3	5.0
Carbon Disulfide	0.96	Not Detected	3.0	Not Detected
Methylene Chloride	0.38	0.40	1.3	1.4 J+
Hexane	0.19	0.22	0.67	0.76
2-Butanone (Methyl Ethyl Ketone)	0.96	0.59 J	2.8	1.7 J
Tetrahydrofuran	0.96	Not Detected	2.8	Not Detected
Carbon Tetrachloride	0.19	0.066 J	1.2	0.42 J
1,4-Dioxane	0.19	Not Detected	0.69	Not Detected
4-Methyl-2-pentanone	0.19	0.074 J	0.78 u	0.30 J-
2-Hexanone	0.96	Not Detected	3.9	Not Detected
Chlorobenzene	0.19	Not Detected	0.88	Not Detected
Styrene	0.19	Not Detected	0.81	Not Detected
Cumene	0.19	Not Detected	0.94	Not Detected
Propylbenzene	0.19	Not Detected	0.94	Not Detected
1,2,4-Trimethylbenzene	0.19	0.11 J	0.94	0.52 J
Cyclohexane	0.19	0.060 J	0.66	0.21 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	92	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: ██████-B

Lab ID#: 1309104A-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091208sim	Date of Collection:	9/6/13 8:43:00 AM
Dil. Factor:	1.91	Date of Analysis:	9/12/13 03:20 PM

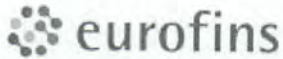
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	Not Detected	0.049	Not Detected
1,1-Dichloroethane	0.038	Not Detected	0.15	Not Detected
cis-1,2-Dichloroethene	0.038	Not Detected	0.15	Not Detected
1,1,1-Trichloroethane	0.038	0.0041 J	0.21	0.022 J
Benzene	0.096	0.19	0.30	0.61
1,2-Dichloroethane	0.038	0.024 J	0.15	0.096 J
Trichloroethene	0.038	0.0035 J	0.20 <i>u</i>	0.019 J
Toluene	0.038	0.77	0.14	2.9
Tetrachloroethene	0.038	0.066	0.26	0.45
Ethyl Benzene	0.038	0.087	0.16	0.38
m,p-Xylene	0.076	0.31	0.33	1.3
o-Xylene	0.038	0.11	0.16	0.47
trans-1,2-Dichloroethene	0.19	0.012 J	0.76	0.049 J
Methyl tert-butyl ether	0.19	Not Detected	0.69	Not Detected
Chloroform	0.038	Not Detected	0.19	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

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

DJK
12/11/13



Air Toxics

Client Sample ID: [REDACTED] C

Lab ID#: 1309104A-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091209	Date of Collection:	9/6/13 8:45:00 AM
Dil. Factor:	1.91	Date of Analysis:	9/12/13 04:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.19	0.48	0.94	2.4
Chloromethane	0.96	0.51 J	2.0	1.0 J
Bromomethane	0.96	Not Detected	3.7	Not Detected
Chloroethane	0.96	Not Detected	2.5	Not Detected
Freon 11	0.19	0.20	1.1	1.1
Freon 113	0.19	0.055 J	1.5	0.42 J
Acetone	0.96	26	2.3	62
2-Propanol	0.96	91 E	2.3	220 E
Carbon Disulfide	0.96	0.32 J	3.0	0.99 J
Methylene Chloride	0.38	0.33 J	1.3 u	4.1 J
Hexane	0.19	0.38	0.67	1.3
2-Butanone (Methyl Ethyl Ketone)	0.96	2.3	2.8	6.9
Tetrahydrofuran	0.96	Not Detected	2.8	Not Detected
Carbon Tetrachloride	0.19	0.10 J	1.2	0.64 J
1,4-Dioxane	0.19	Not Detected	0.69	Not Detected
4-Methyl-2-pentanone	0.19	0.28	0.78	1.1
2-Hexanone	0.96	0.22 J	3.9 u	0.88 J
Chlorobenzene	0.19	Not Detected	0.88	Not Detected
Styrene	0.19	0.18 J	0.81	0.77 J
Cumene	0.19	Not Detected	0.94	Not Detected
Propylbenzene	0.19	0.054 J	0.94	0.27 J
1,2,4-Trimethylbenzene	0.19	0.37	0.94	1.8
Cyclohexane	0.19	0.18 J	0.66	0.61 J

J = Estimated value.

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: [REDACTED]-C

Lab ID#: 1309104A-07B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091209sim	Date of Collection:	9/6/13 8:45:00 AM
Dil. Factor:	1.91	Date of Analysis:	9/12/13 04:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	0.0047 J	0.049	0.012 J
1,1-Dichloroethane	0.038	0.0015 J	0.15 u	0.0061 J
cis-1,2-Dichloroethene	0.038	Not Detected	0.15	Not Detected
1,1,1-Trichloroethane	0.038	0.0046 J	0.21	0.025 J
Benzene	0.096	0.30	0.30	0.94
1,2-Dichloroethane	0.038	0.37	0.15	1.5
Trichloroethene	0.038	0.0056 J	0.20 u	0.030 J
Toluene	0.038	2.6	0.14	9.7
Tetrachloroethene	0.038	0.064	0.26	0.44
Ethyl Benzene	0.038	0.30	0.16	1.3
m,p-Xylene	0.076	0.99	0.33	4.3
o-Xylene	0.038	0.35	0.16	1.5
trans-1,2-Dichloroethene	0.19	0.011 J	0.76	0.044 J
Methyl tert-butyl ether	0.19	Not Detected	0.69	Not Detected
Chloroform	0.038	Not Detected	0.19	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	103	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: █████-D

Lab ID#: 1309104A-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091210	Date of Collection:	9/6/13 8:47:00 AM
Dil. Factor:	2.30	Date of Analysis:	9/12/13 04:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.23	0.47	1.1	2.3
Chloromethane	1.2	0.53 J	2.4	1.1 J
Bromomethane	1.2	Not Detected	4.5	Not Detected
Chloroethane	1.2	Not Detected	3.0	Not Detected
Freon 11	0.23	0.28	1.3	1.6
Freon 113	0.23	0.074 J	1.8	0.57 J
Acetone	1.2	6.4	2.7	15
2-Propanol	1.2	1.9	2.8	4.7
Carbon Disulfide	1.2	0.50 J	3.6	1.6 J
Methylene Chloride	0.46	0.52	1.6	1.8 J+
Hexane	0.23	0.78	0.81	2.7
2-Butanone (Methyl Ethyl Ketone)	1.2	0.87 J	3.4	2.6 J
Tetrahydrofuran	1.2	Not Detected	3.4	Not Detected
Carbon Tetrachloride	0.23	0.072 J	1.4	0.45 J
1,4-Dioxane	0.23	Not Detected	0.83	Not Detected
4-Methyl-2-pentanone	0.23	0.10 J	0.94	0.42 J-
2-Hexanone	1.2	Not Detected	4.7	Not Detected
Chlorobenzene	0.23	Not Detected	1.0	Not Detected
Styrene	0.23	0.074 J	0.98	0.32 J
Cumene	0.23	Not Detected	1.1	Not Detected
Propylbenzene	0.23	Not Detected	1.1	Not Detected
1,2,4-Trimethylbenzene	0.23	0.10 J	1.1	0.50 J
Cyclohexane	0.23	0.12 J	0.79	0.42 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	89	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: [REDACTED]-D

Lab ID#: 1309104A-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091210sim	Date of Collection:	9/6/13 8:47:00 AM
Dil. Factor:	2.30	Date of Analysis:	9/12/13 04:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.023	0.0050 J	0.059	0.013 J
1,1-Dichloroethane	0.046	Not Detected	0.19	Not Detected
cis-1,2-Dichloroethene	0.046	Not Detected	0.18	Not Detected
1,1,1-Trichloroethane	0.046	0.0050 J	0.25	0.027 J
Benzene	0.12	0.12	0.37	0.39
1,2-Dichloroethane	0.046	0.018 J	0.19	0.071 J
Trichloroethene	0.046	0.0092 J	0.25	0.049 J
Toluene	0.046	1.5	0.17	5.6
Tetrachloroethene	0.046	0.076	0.31	0.52
Ethyl Benzene	0.046	0.12	0.20	0.51
m,p-Xylene	0.092	0.31	0.40	1.4
o-Xylene	0.046	0.11	0.20	0.47
trans-1,2-Dichloroethene	0.23	0.020 J	0.91	0.080 J
Methyl tert-butyl ether	0.23	Not Detected	0.83	Not Detected
Chloroform	0.046	Not Detected	0.22	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

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

DJK
12/11/13

Client Sample ID: █████-SS1

Lab ID#: 1309104A-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091211	Date of Collection:	9/5/13 12:48:00 PM
Dil. Factor:	2.28	Date of Analysis:	9/12/13 05:45 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.23	0.55	1.1	2.7
Chloromethane	1.1	0.24 J	2.4	0.49 J
Bromomethane	1.1	Not Detected	4.4	Not Detected
Chloroethane	1.1	Not Detected	3.0	Not Detected
Freon 11	0.23	0.21 J	1.3	1.2 J
Freon 113	0.23	0.048 J	1.7	0.37 J
Acetone	1.1	6.4	2.7	15
2-Propanol	1.1	0.70 J	2.8	1.7 J
Carbon Disulfide	1.1	0.19 J	3.6	0.60 J
Methylene Chloride	0.46	0.59	1.6	2.0 J+
Hexane	0.23	0.17 J	0.80	0.61 J
2-Butanone (Methyl Ethyl Ketone)	1.1	1.5	3.4	4.3
Tetrahydrofuran	1.1	0.68 J	3.4	2.0 J
Carbon Tetrachloride	0.23	0.073 J	1.4	0.46 J
1,4-Dioxane	0.23	Not Detected	0.82	Not Detected
4-Methyl-2-pentanone	0.23	0.19 J	0.93	0.77 J
2-Hexanone	1.1	0.11 J	4.7	0.45 J
Chlorobenzene	0.23	0.050 J	1.0	0.23 J
Styrene	0.23	0.47	0.97	2.0
Cumene	0.23	0.36	1.1	1.8
Propylbenzene	0.23	0.13 J	1.1	0.62 J
1,2,4-Trimethylbenzene	0.23	0.81	1.1	4.0
Cyclohexane	0.23	0.077 J	0.78	0.26 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: █████-SS1

Lab ID#: 1309104A-09B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091211sim	Date of Collection:	9/5/13 12:48:00 PM
Dil. Factor:	2.28	Date of Analysis:	9/12/13 05:45 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.023	0.0097 J	0.058	0.025 J
1,1-Dichloroethane	0.046	Not Detected	0.18	Not Detected
cis-1,2-Dichloroethene	0.046	Not Detected	0.18	Not Detected
1,1,1-Trichloroethane	0.046	0.015 J	0.25	0.084 J
Benzene	0.11	0.70	0.36	2.2
1,2-Dichloroethane	0.046	0.014 J	0.18	0.056 J
Trichloroethene	0.046	0.0091 J	0.24	0.049 J
Toluene	0.046	2.4	0.17	8.9
Tetrachloroethene	0.046	0.18	0.31	1.2
Ethyl Benzene	0.046	0.47	0.20	2.0
m,p-Xylene	0.091	1.8	0.40	7.6
o-Xylene	0.046	0.61	0.20	2.6
trans-1,2-Dichloroethene	0.23	Not Detected	0.90	Not Detected
Methyl tert-butyl ether	0.23	Not Detected	0.82	Not Detected
Chloroform	0.046	Not Detected	0.22	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	101	70-130

DJK
12/11/13



Air Toxics

Client Sample ID: [REDACTED]-SS2

Lab ID#: 1309104A-10A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091212	Date of Collection:	9/5/13 12:48:00 PM
Dil. Factor:	2.11	Date of Analysis:	9/12/13 06:35 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.21	0.59	1.0	2.9
Chloromethane	1.0	0.17 J	2.2	0.36 J
Bromomethane	1.0	Not Detected	4.1	Not Detected
Chloroethane	1.0	Not Detected	2.8	Not Detected
Freon 11	0.21	0.20 J	1.2	1.1 J
Freon 113	0.21	0.068 J	1.6	0.52 J
Acetone	1.0	9.2	2.5	22
2-Propanol	1.0	0.82 J	2.6	2.0 J
Carbon Disulfide	1.0	0.21 J	3.3	0.66 J
Methylene Chloride	0.42	0.62	1.5	2.1 J+
Hexane	0.21	0.15 J	0.74	0.53 J
2-Butanone (Methyl Ethyl Ketone)	1.0	2.0	3.1	5.9
Tetrahydrofuran	1.0	0.77 J	3.1	2.3 J
Carbon Tetrachloride	0.21	0.070 J	1.3	0.44 J
1,4-Dioxane	0.21	Not Detected	0.76	Not Detected
4-Methyl-2-pentanone	0.21	0.20 J	0.86 J	0.81 J-
2-Hexanone	1.0	0.18 J	4.3 J	0.74 J-
Chlorobenzene	0.21	0.047 J	0.97	0.22 J
Styrene	0.21	0.45	0.90	1.9
Cumene	0.21	0.34	1.0	1.6
Propylbenzene	0.21	0.14 J	1.0	0.67 J
1,2,4-Trimethylbenzene	0.21	0.87	1.0	4.3
Cyclohexane	0.21	0.097 J	0.73	0.33 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	97	70-130

DJK
12/11/13

Client Sample ID: █████-SS2

Lab ID#: 1309104A-10B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091212sim	Date of Collection:	9/5/13 12:48:00 PM
Dil. Factor:	2.11	Date of Analysis:	9/12/13 06:35 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.021	0.013 J	0.054	0.033 J
1,1-Dichloroethane	0.042	Not Detected	0.17	Not Detected
cis-1,2-Dichloroethene	0.042	Not Detected	0.17	Not Detected
1,1,1-Trichloroethane	0.042	0.016 J	0.23	0.090 J
Benzene	0.10	0.68	0.34	2.2
1,2-Dichloroethane	0.042	0.010 J	0.17	0.043 J
Trichloroethene	0.042	0.0070 J	0.23	0.038 J
Toluene	0.042	2.4	0.16	8.9
Tetrachloroethene	0.042	0.18	0.29	1.2
Ethyl Benzene	0.042	0.47	0.18	2.0
m,p-Xylene	0.084	1.8	0.37	7.6
o-Xylene	0.042	0.65	0.18	2.8
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Methyl tert-butyl ether	0.21	Not Detected	0.76	Not Detected
Chloroform	0.042	Not Detected	0.21	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	101	70-130

DJK
12/11/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, state, federal, state and international laws, regulations and ordinances of any law. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling or shipping of samples. D.O.I. Hotline (800) 467-6972

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 2

Project Manager: Mark Pearson
 Collected by: (Print and Sign) Mark Siver
 Company: TR-10 - Tech Email: mark.pearson@tr-10.com
 Address: 251 Bridge Dr, Sibley, Colorado State: CO Zip: 80115
 Phone: 404-582-6780 Fax: _____

Project Info:
 PO # _____
 Project # _____
 Project Name: TR-10 Area Landfill

Turn Around Time: _____
 Normal
 Rush
 Date: _____
 Pressurization Gas: _____
 N He

Lab ID	Field Sample ID (Location)	Can #	Date of Collection	Time of Collection	Analysis Requested	Canister Pressure/Vacuum		
						Initial	Final	Residual
01AB	-SS1	5586	9-4-13	1836	TO15, AR14, CH4, H2	-26.0	-5.5	
02AB	-SS2	5731	"	1836	"	-18.0	-5.0	
03AB	-SS1	1582	9-5-13	0834	"	-26.5	-4.0	
04AB	-SS1	12675	"	0834	"	-27.0	-6.0	
05AB	-A	9421	9-6-13	0842	TO15, AR14, CH4	-25.0	5.0	
06AB	-B	34277	"	0843	"	-26.0	-3.5	
07AB	-C	610017	"	0845	"	-25.5	-5.0	
08AB	-D	1577	"	0847	"	-24.5	-6.5	
09AB	-SS1	36045	9-5-13	1248	TO15, AR14, CH4	-26.0	-11.0	
10AB	-SS2	01000	"	1248	"	-26.0	-9.5	

Relinquished by (signature): _____ Date/Time: 9-6-13 1515
 Relinquished by (signature): _____ Date/Time: _____

Received by (signature): _____ Date/Time: 9-7-13 2145
 Received by (signature): _____ Date/Time: _____

Notes: 4 boxes sent, includes 2 unused canisters and 2 unused flow controllers

Lab Use Only: Shipper Name: TR-10 Air Bill #: _____
 Condition: Good Custody Seals Intact? Yes No
 Work Order #: 1308104

December 11, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: December 11, 2013

Sample Delivery Group (SDG) No.	1309105A
Samples	██████-SS1, ██████-SS1, ██████-SS1, and ██████-SS1

Tetra Tech, Inc. conducted data validation of the analytical results for four air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on September 5 and 6, 2013. The samples were analyzed under SDG No. 1305105A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



December 11, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1309105A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analysis contained target analytes methylene chloride, 1,4-dioxane, 4-methyl-2-pentanone, and 2-hexanone below reporting limits (RL). The method blank associated with the SIM analyses contained target analytes 1,1-dichloroethane, trichloroethene, tetrachloroethene, ethyl benzene, m,p-xylene, and o-xylene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits. No data were qualified.

FIELD DUPLICATES

There were no field duplicates included in this data package.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits with the exception of carbon tetrachloride. The LCS and LCSD percent recoveries (59 and 59) were below the QC limit. Therefore, results for carbon tetrachloride were qualified as estimated (flagged "J" or "UJ", as appropriate) for all samples.

December 11, 2013

SAMPLE DILUTION

Dilution (20.1x) was performed on samples █████-SS1 and █████-SS1 due to the presence of high concentrations of target species acetone, 2-butanone, and tetrahydrofuran. Dilution (4x) was performed on █████-SS1 due to the presences of a high concentration of tetrachloroethene.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

The concentration of tetrahydrofuran in sample █████-SS1 (2700 µg/m³) exceeded the instrument calibration range, so the result was qualified as estimated (“J”).

Per Tetra Tech’s request, the laboratory reported estimated values for target compound hits that are below the RL but greater than the DL. All canisters used for this project were certified to the RL for the target analytes included in this data package. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated (“J”) and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1309105A

(Eight Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1309105A

(One Sheet)





Air Toxics

Client Sample ID: [REDACTED]-SS1

Lab ID#: 1309105A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091215	Date of Collection:	9/5/13 2:59:00 PM
Dil. Factor:	20.1	Date of Analysis:	9/12/13 09:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.0	1.5 J	9.9	7.4 J
Chloromethane	10	1.7 J	21	3.5 J
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	10	Not Detected	26	Not Detected
Freon 11	2.0	0.23 J	11	1.3 J
Freon 113	2.0	Not Detected	15	Not Detected
Acetone	10	78	24	180
2-Propanol	10	Not Detected	25	Not Detected
Carbon Disulfide	10	0.76 J	31	2.4 J
Methylene Chloride	4.0	1.0 J	14	3.6 J
Hexane	2.0	Not Detected	7.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	10	750	30	2200
Tetrahydrofuran	10	520	30	1500
Carbon Tetrachloride	2.0	Not Detected	13	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
4-Methyl-2-pentanone	2.0	Not Detected	8.2	Not Detected
2-Hexanone	10	Not Detected	41	Not Detected
Chlorobenzene	2.0	Not Detected	9.2	Not Detected
Styrene	2.0	Not Detected	8.6	Not Detected
Cumene	2.0	0.97 J	9.9	4.8 J
Propylbenzene	2.0	Not Detected	9.9	Not Detected
1,2,4-Trimethylbenzene	2.0	Not Detected	9.9	Not Detected
Cyclohexane	2.0	Not Detected	6.9	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	96	70-130

DJL
12/11/13

Client Sample ID: █████-SS1

Lab ID#: 1309105A-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091215sim	Date of Collection:	9/5/13 2:59:00 PM
Dil. Factor:	20.1	Date of Analysis:	9/12/13 09:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.20	0.23	0.51	0.58
1,1-Dichloroethane	0.40	Not Detected	1.6	Not Detected
cis-1,2-Dichloroethene	0.40	Not Detected	1.6	Not Detected
1,1,1-Trichloroethane	0.40	Not Detected	2.2	Not Detected
Benzene	1.0	0.33 J	3.2	1.1 J
1,2-Dichloroethane	0.40	Not Detected	1.6	Not Detected
Trichloroethene	0.40	Not Detected	2.2	Not Detected
Toluene	0.40	0.36 J	1.5	1.4 J
Tetrachloroethene	0.40	0.41	2.7	2.8
Ethyl Benzene	0.40	0.079 J	1.7	0.34 J
m,p-Xylene	0.80	0.33 J	3.5	1.4 J
o-Xylene	0.40	0.11 J	1.7	0.49 J
trans-1,2-Dichloroethene	2.0	Not Detected	8.0	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
Chloroform	0.40	Not Detected	2.0	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	104	70-130

DJL
12/11/13

Client Sample ID: █████-SS1

Lab ID#: 1309105A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091216	Date of Collection:	9/5/13 3:54:00 PM
Dil. Factor:	20.1	Date of Analysis:	9/12/13 09:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.0	1.1 J	9.9	5.3 J
Chloromethane	10	1.1 J	21	2.3 J
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	10	Not Detected	26	Not Detected
Freon 11	2.0	0.23 J	11	1.3 J
Freon 113	2.0	Not Detected	15	Not Detected
Acetone	10	310	24	730
2-Propanol	10	Not Detected	25	Not Detected
Carbon Disulfide	10	Not Detected	31	Not Detected
Methylene Chloride	4.0	1.0 J	14	3.6 J
Hexane	2.0	Not Detected	7.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	10	190	30	570
Tetrahydrofuran	10	900 E	30	2700 E / J
Carbon Tetrachloride	2.0	Not Detected	13	Not Detected
1,4-Dioxane	2.0	1.7 J	7.2	6.3 J
4-Methyl-2-pentanone	2.0	Not Detected	8.2	Not Detected
2-Hexanone	10	Not Detected	41	Not Detected
Chlorobenzene	2.0	Not Detected	9.2	Not Detected
Styrene	2.0	Not Detected	8.6	Not Detected
Cumene	2.0	2.0	9.9	10
Propylbenzene	2.0	Not Detected	9.9	Not Detected
1,2,4-Trimethylbenzene	2.0	Not Detected	9.9	Not Detected
Cyclohexane	2.0	Not Detected	6.9	Not Detected

J = Estimated value.

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	103	70-130

DJTK
12/11/13



Air Toxics

Client Sample ID: [redacted] SS1

Lab ID#: 1309105A-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091216sim	Date of Collection:	9/5/13 3:54:00 PM
Dil. Factor:	20.1	Date of Analysis:	9/12/13 09:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.20	Not Detected	0.51	Not Detected
1,1-Dichloroethane	0.40	Not Detected	1.6	Not Detected
cis-1,2-Dichloroethene	0.40	Not Detected	1.6	Not Detected
1,1,1-Trichloroethane	0.40	Not Detected	2.2	Not Detected
Benzene	1.0	0.68 J	3.2	2.2 J
1,2-Dichloroethane	0.40	Not Detected	1.6	Not Detected
Trichloroethene	0.40	Not Detected	2.2	Not Detected
Toluene	0.40	0.68	1.5	2.6
Tetrachloroethene	0.40	0.40	2.7	2.7
Ethyl Benzene	0.40	0.16 J	1.7 <u>u</u>	0.71 J
m,p-Xylene	0.80	0.42 J	3.5 <u>u</u>	1.8 J
o-Xylene	0.40	0.16 J	1.7 <u>u</u>	0.69 J
trans-1,2-Dichloroethene	2.0	Not Detected	8.0	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
Chloroform	0.40	0.059 J	2.0	0.29 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	108	70-130

DJL
12/11/13

Client Sample ID: [REDACTED]-SS1

Lab ID#: 1309105A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091213	Date of Collection:	9/6/13 11:19:00 AM
Dil. Factor:	2.13	Date of Analysis:	9/12/13 07:28 PM

Compound	Rot. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.21	0.52	1.0	2.6
Chloromethane	1.1	0.084 J	2.2	0.17 J
Bromomethane	1.1	Not Detected	4.1	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	0.21	0.20 J	1.2	1.1 J
Freon 113	0.21	0.045 J	1.6	0.34 J
Acetone	1.1	26	2.5	61
2-Propanol	1.1	14	2.6	35
Carbon Disulfide	1.1	0.33 J	3.3	1.0 J
Methylene Chloride	0.43	0.40 J	1.5 <i>U</i>	1.4 J
Hexane	0.21	0.41	0.75	1.4
2-Butanone (Methyl Ethyl Ketone)	1.1	3.4	3.1	10
Tetrahydrofuran	1.1	1.7	3.1	5.1
Carbon Tetrachloride	0.21	Not Detected	1.3 <i>UJ</i>	Not Detected
1,4-Dioxane	0.21	0.33	0.77	1.2
4-Methyl-2-pentanone	0.21	0.45	0.87	1.8
2-Hexanone	1.1	0.20 J	4.4 <i>U</i>	0.83 J
Chlorobenzene	0.21	0.097 J	0.98	0.45 J
Styrene	0.21	0.83	0.91	3.5
Cumene	0.21	0.76	1.0	3.8
Propylbenzene	0.21	0.23	1.0	1.1
1,2,4-Trimethylbenzene	0.21	1.2	1.0	5.8
Cyclohexane	0.21	0.24	0.73	0.81

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

DJK
12/11/13

Client Sample ID: █████-SS1

Lab ID#: 1309105A-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091213sim	Date of Collection:	9/6/13 11:19:00 AM
Dil. Factor:	2.13	Date of Analysis:	9/12/13 07:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.021	Not Detected	0.054	Not Detected
1,1-Dichloroethane	0.043	Not Detected	0.17	Not Detected
cis-1,2-Dichloroethene	0.043	Not Detected	0.17	Not Detected
1,1,1-Trichloroethane	0.043	0.0060 J	0.23	0.033 J
Benzene	0.11	2.8	0.34	9.0
1,2-Dichloroethane	0.043	0.015 J	0.17	0.062 J
Trichloroethene	0.043	0.014 J	0.23 U	0.073 J
Toluene	0.043	5.0	0.16	19
Tetrachloroethene	0.043	0.21	0.29	1.4
Ethyl Benzene	0.043	1.0	0.18	4.6
m,p-Xylene	0.085	4.0	0.37	17
o-Xylene	0.043	1.3	0.18	5.5
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Methyl tert-butyl ether	0.21	0.0080 J	0.77	0.029 J
Chloroform	0.043	Not Detected	0.21	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

DQTC
12/11/13

Client Sample ID: ████ SS1

Lab ID#: 1309105A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091214	Date of Collection: 9/6/13 12:46:00 PM
Dil. Factor:	4.00	Date of Analysis: 9/12/13 08:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.40	12	2.0	58
Chloromethane	2.0	Not Detected	4.1	Not Detected
Bromomethane	2.0	Not Detected	7.8	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.40	0.38 J	2.2	2.1 J
Freon 113	0.40	Not Detected	3.1	Not Detected
Acetone	2.0	22	4.8	54
2-Propanol	2.0	6.5	4.9	16
Carbon Disulfide	2.0	0.11 J	6.2	0.33 J
Methylene Chloride	0.80	0.64 J	2.8 <i>u</i>	2.2 J
Hexane	0.40	1.2	1.4	4.1
2-Butanone (Methyl Ethyl Ketone)	2.0	2.0 J	5.9	5.8 J
Tetrahydrofuran	2.0	0.42 J	5.9	1.2 J
Carbon Tetrachloride	0.40	Not Detected	2.5 <i>u</i>	Not Detected
1,4-Dioxane	0.40	Not Detected	1.4	Not Detected
4-Methyl-2-pentanone	0.40	0.19 J	1.6 <i>u</i>	0.76 J
2-Hexanone	2.0	0.13 J	8.2 <i>u</i>	0.54 J
Chlorobenzene	0.40	Not Detected	1.8	Not Detected
Styrene	0.40	0.48	1.7	2.1
Cumene	0.40	0.20 J	2.0	1.0 J
Propylbenzene	0.40	0.17 J	2.0	0.84 J
1,2,4-Trimethylbenzene	0.40	0.80	2.0	3.9
Cyclohexane	0.40	0.49	1.4	1.7

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	94	70-130

DJTL
12/11/13



Air Toxics

Client Sample ID: █████ SS1

Lab ID#: 1309105A-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	c091214sim	Date of Collection:	9/6/13 12:46:00 PM
Dil. Factor:	4.00	Date of Analysis:	9/12/13 08:16 PM

Compound	Rot. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.040	0.018 J	0.10	0.045 J
1,1-Dichloroethane	0.080	Not Detected	0.32	Not Detected
cis-1,2-Dichloroethene	0.080	Not Detected	0.32	Not Detected
1,1,1-Trichloroethane	0.080	0.060 J	0.44	0.33 J
Benzene	0.20	0.66	0.64	2.1
1,2-Dichloroethane	0.080	0.068 J	0.32	0.28 J
Trichloroethene	0.080	1.0	0.43	5.5
Toluene	0.080	4.8	0.30	18
Tetrachloroethene	0.080	50	0.54	340
Ethyl Benzene	0.080	0.94	0.35	4.1
m,p-Xylene	0.16	2.5	0.69	11
o-Xylene	0.080	0.90	0.35	3.9
trans-1,2-Dichloroethene	0.40	Not Detected	1.6	Not Detected
Methyl tert-butyl ether	0.40	Not Detected	1.4	Not Detected
Chloroform	0.080	Not Detected	0.39	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	100	70-130

DTL
12/11/13

2. 5. 2.

Lab ID	Field Sample ID	Case #	Collection Date	Collection Time	Analyses	Use in	Use for	Transport Temp
17A9 01AB	[REDACTED]	200199	9-5-13	1459	TO15, 4814, 4814, 4814	-25.0	-7.0	
12A 02AB	[REDACTED]	33496	9-5-13	1554	"	-26.5	-6.0	
13A 03AB	[REDACTED]	33450	9-6-13	1119	"	-29.0	-8.0	
14A 04AB	[REDACTED]	5726	9-6-13	1246	"	-25.0	-9.0	

Reimbursement by: [Signature] 9-6-13 | 1515

Received by: [Signature] 9-7-13 8940

Custody Seal Intact? [Signature]
Y/N/None Temp [Signature]

1309105

January 14, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: January 14, 2014

Sample Delivery Group (SDG) No.	1309556A
Sample	█-2

Tetra Tech, Inc. conducted data validation of the analytical results for one air sample that was collected at the Bozeman Landfill site in Bozeman, Montana, on September 26, 2013. The sample was analyzed under SDG No. 1309556A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of qualifiers that may be used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis

January 14, 2013

- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

Sample [REDACTED] was not analyzed by SIM because of high levels of interfering non-target compounds. No data were qualified.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times with the following exception. The sample collection date on the chain-of-custody (COC) form ("9-26") was incomplete; the year of collection was assumed to be 2013. Also, the identification number for sample [REDACTED] was not provided on the sample tag. The identification number on the COC form was used to process and report the sample. No qualifications were applied.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. Method blank associated with the full scan analyses was free of target analytes.

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences for the LCS and LCSD were within QC limits.

SAMPLE DILUTION

Sample [REDACTED] was diluted (2.13x and 15.2x) due to the presence of high levels non-target compounds. The laboratory report was originally issued with results from the 15.2x dilution, which resulted in excessively high RLs. Per Tetra Tech request, the laboratory report was reissued (1309556AR1) on 12/18/2013 with the results from the 2.13x dilution. Acetone and styrene concentrations changed slightly as a result. No data were qualified.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

January 14, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as received.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1309556A

(Three Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1309556A

(One Sheet)





Air Toxics

EPA METHOD TO-15 GC/MS
Bozeman Landfill

Client ID: [REDACTED]
 Lab ID: 1309556AR1-01A
 Date/Time Collected: 9/26/13 05:47 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 10/5/13 06:54 AM
 Dilution Factor: 2.13
 Instrument/Filename: msd14.i / 14100417

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	16	35	58	Not Detected
1,1-Dichloroethane	75-34-3	8.6	26	43	Not Detected
1,2,4-Trimethylbenzene	95-63-6	20	31	52	Not Detected
1,2-Dichloroethane	107-06-2	13	26	43	Not Detected
1,4-Dioxane	123-91-1	11	38	150	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5.5	31	120	7.5 J
2-Hexanone	591-78-6	15	44	170	Not Detected
2-Propanol	67-63-0	11	26	100	34 J
4-Methyl-2-pentanone	108-10-1	20	26	44	Not Detected
Acetone	67-64-1	13	25	100	210
Benzene	71-43-2	10	20	34	Not Detected
Bromomethane	74-83-9	11	25	41	Not Detected
Carbon Disulfide	75-15-0	4.8	20	33	Not Detected
Carbon Tetrachloride	56-23-5	14	40	67	Not Detected
Chlorobenzene	108-90-7	13	29	49	Not Detected
Chloroethane	75-00-3	9.6	28	110	Not Detected
Chloroform	67-66-3	16	31	52	Not Detected
Chloromethane	74-87-3	12	22	88	Not Detected
cis-1,2-Dichloroethene	156-59-2	7.3	25	42	Not Detected
Cumene	98-82-8	15	31	52	27 J
Cyclohexane	110-82-7	5.0	22	37	Not Detected
Ethyl Benzene	100-41-4	15	28	46	Not Detected

DOTL
1/14/14



Air Toxics

EPA METHOD TO-15 GC/MS
Bozeman Landfill

Client ID: [REDACTED]
 Lab ID: 1309556AR1-01A
 Date/Time Collecte: 9/26/13 05:47 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 10/5/13 06:54 AM
 Dilution Factor: 2.13
 Instrument/File name: msd14.1 / 14100417

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	75-69-4	12	36	60	59 J
Freon 113	76-13-1	24	49	82	Not Detected
Freon 12	75-71-8	9.7	32	53	Not Detected
Hexane	110-54-3	6.3	22	38	Not Detected
m,p-Xylene	108-38-3	11	28	46	Not Detected
Methyl tert-butyl ether	1634-04-4	6.7	23	38	Not Detected
Methylene Chloride	75-09-2	9.6	22	37	Not Detected
o-Xylene	95-47-6	11	28	46	Not Detected
Propylbenzene	103-65-1	18	31	52	Not Detected
Styrene	100-42-5	10	27	45	Not Detected
Tetrachloroethene	127-18-4	30	43	72	Not Detected
Tetrahydrofuran	109-99-9	11	19	31	37
Toluene	108-88-3	12	24	40	29 J
trans-1,2-Dichloroethene	156-60-5	10	25	42	Not Detected
Trichloroethene	79-01-6	16	34	57	Not Detected
Vinyl Chloride	75-01-4	7.0	16	27	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	126

0572
1/14/14



Air Toxics

EPA METHOD TO-15 GC/MS
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1309556AR1-01A
Date/Time Collecte 9/26/13 05:47 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/5/13 06:54 AM
Dilution Factor: 2.13
Instrument/Filename: msd14.1 / 14100417

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	111

DD7L
1/14/14



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Project Manager MARK ROBERTSON
 Collected by: (Print and Sign) MARK ROBERTSON; MIKE SOMMER
 Company TECHN-TECH Email MARK.ROBERTSON@TECHN-TECH.COM
 Address 857 BUBBLET DR. STE. 6 City BOZEMAN State MT Zip 59715
 Phone 406-582-8780 Fax _____

Project Info:
 P.O. # _____
 Project # 114-710303, 7410
 Project Name BOZEMAN LAURELL

Turn Around Time: Normal Rush
 Date: _____
 Pressurization Gas: _____
 Lab Use Only: Pressurized by: _____
 He _____ Ne _____

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Initial	Final	Receipt	Final (psi)
<u>01A</u>	<u>[REDACTED]</u>	<u>4237</u>	<u>9-26</u>	<u>1947</u>	<u>TO15, APH, CH4, He-26.2</u>		<u>-75</u>		

Relinquished by: (signature) [Signature] Date/Time 9-27/1604
 Received by: (signature) [Signature] Date/Time 09/30/13 1000
 Notes: 1 can in 1 box (flow controller INCL.)

Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____
 Shipper Name TECH Air Bill # _____ Temp (°C) NA Condition good
 Custody Seals Intact? Yes No None Work Order # 1309556

November 15, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: November 15, 2013

Sample Delivery Group (SDG) No.	1310066A
Samples	████-B, █████-C, █████-A, █████-B, █████-C, █████-D, and █████-E

Tetra Tech, Inc. conducted data validation of the analytical results for seven air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 2, 2013. The samples were analyzed under SDG No. 1310066A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



November 15, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310066A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG.

The method blank associated with full scan analysis contained target analyte methylene chloride below the reporting limit (RL). The method blank associated with the SIM analyses contained target analytes benzene, tetrachloroethene, toluene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits.

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

November 15, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310066A

(Twenty-eight Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310066A

(Two Sheets)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
 Lab ID: 1310066A-01A
 Date/Time Collected: 10/2/13 09:07 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 07:49 PM
 Dilution Factor: 1.93
 Instrument/Filename: msdc:\c100413

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.76	0.95	1.8
1,4-Dioxane	123-91-1	0.14	0.56	0.70	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.80	2.8	4.2
2-Hexanone	591-78-6	0.26	1.1	4.0	0.40 J
2-Propanol	67-63-0	0.22	0.66	2.4	63
4-Methyl-2-pentanone	108-10-1	0.096	0.63	0.79	Not Detected
Acetone	67-64-1	0.62	0.64	2.3	56
Bromomethane	74-83-9	0.79	1.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.15	0.84	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.30	0.97	1.2	0.52 J
Chlorobenzene	108-90-7	0.19	0.71	0.89	Not Detected
Chloroethane	75-00-3	0.28	0.71	2.5	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	1.3 J
Cumene	98-82-8	0.12	0.76	0.95	Not Detected
Cyclohexane	110-82-7	0.093	0.53	0.66	1.1
Freon 11	75-69-4	0.090	0.87	1.1	1.8
Freon 113	76-13-1	0.26	1.2	1.5	0.64 J
Freon 12	75-71-8	0.095	0.76	0.95	2.6
Hexane	110-54-3	0.085	0.54	0.68	1.9
Methylene Chloride	75-09-2	0.13	0.54	1.3	0.77 J
Propylbenzene	103-65-1	0.20	0.76	0.95	0.26 J
Styrene	100-42-5	0.17	0.66	0.82	0.68 J

DJK
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1310066A-01A
Date/Time Collected: 10/2/13 09:07 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 07:49 PM
Dilution Factor: 1.93
Instrument/Filename: msdc.i / c100413

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.55	0.80	2.8	1.1 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	95

DML
11/5/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B	Date/Time Analyzed: 10/4/13 07:49 PM
Lab ID: 1310066A-01B	Dilution Factor: 1.93
Date/Time Collected: 10/2/13 09:07 AM	Instrument/Filename: msdc:\c100413sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.041 J
1,1-Dichloroethane	75-34-3	0.0034	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.66
Benzene	71-43-2	0.050	0.050	0.31	1.3
Chloroform	67-66-3	0.017	NA	0.19	1.3
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	1.5
m,p-Xylene	108-38-3	0.016	0.034	0.34	5.5
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	1.7
Tetrachloroethene	127-18-4	0.016	0.052	0.26	0.93 J
Toluene	108-88-3	0.0062	0.029	0.14	15
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.76	0.047 J
Trichloroethene	79-01-6	0.0084	0.041	0.21	0.034 J
Vinyl Chloride	75-01-4	0.0067	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	107

DJL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-B	Date/Time Analyzed:	10/4/13 07:49 PM
Lab ID:	1310066A-01B	Dilution Factor:	1.93
Date/Time Collected:	10/2/13 09:07 AM	Instrument/Filename:	msdc.i / c100413sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	89

DJL
11/5/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1310066A-02A
Date/Time Collected: 10/2/13 09:11 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 08:39 PM
Dilution Factor: 1.86
Instrument/Filename: msdc://c100414

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.73	0.91	1.1
1,4-Dioxane	123-91-1	0.13	0.54	0.67	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.77	2.7	2.4 J
2-Hexanone	591-78-6	0.25	1.1	3.8	Not Detected
2-Propanol	67-63-0	0.21	0.64	2.3	3.8
4-Methyl-2-pentanone	108-10-1	0.092	0.61	0.76	0.35 J
Acetone	67-64-1	0.60	0.62	2.2	27
Bromomethane	74-83-9	0.76	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.81	2.9	Not Detected
Carbon Tetrachloride	56-23-5	0.29	0.94	1.2	0.44 J
Chlorobenzene	108-90-7	0.18	0.68	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.4	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	0.92 J
Cumene	98-82-8	0.12	0.73	0.91	Not Detected
Cyclohexane	110-82-7	0.090	0.51	0.64	0.75
Freon 11	75-69-4	0.087	0.84	1.0	1.9
Freon 113	76-13-1	0.25	1.1	1.4	0.43 J
Freon 12	75-71-8	0.092	0.74	0.92	2.7
Hexane	110-54-3	0.082	0.52	0.66	1.2
Methylene Chloride	75-09-2	0.13	0.52	0.91	0.66 J
Propylbenzene	103-65-1	0.19	0.73	0.91	Not Detected
Styrene	100-42-5	0.16	0.63	0.79	0.33 J

1.3 DW

DTK
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 10/4/13 08:39 PM
Lab ID: 1310066A-02A	Dilution Factor: 1.86
Date/Time Collected: 10/2/13 09:11 AM	Instrument/Filename: msdc.i / c100414
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.53	0.77	2.7	0.96 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	97

D57L
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11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-C	Date/Time Analyzed:	10/4/13 08:39 PM
Lab ID:	1310066A-02B	Dilution Factor:	1.86
Date/Time Collected:	10/2/13 09:11 AM	Instrument/Filename:	msdc://c100414sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.044 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.34
Benzene	71-43-2	0.048	0.048	0.30	0.74
Chloroform	67-66-3	0.016	NA	0.18	0.46
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	0.86
m,p-Xylene	108-38-3	0.016	0.032	0.32	3.0
Methyl tert-butyl ether	1634-04-4	0.019	0.027	0.67	Not Detected
o-Xylene	95-47-6	0.015	0.032	0.16	1.0
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.080 J
Toluene	108-88-3	0.0060	0.028	0.14	9.6
trans-1,2-Dichloroethene	156-60-5	0.018	0.029	0.74	0.047 J
Trichloroethene	79-01-6	0.0081	0.040	0.20	0.047 J
Vinyl Chloride	75-01-4	0.0064	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	107

DTL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C	Date/Time Analyzed: 10/4/13 08:39 PM	
Lab ID: 1310066A-02B	Dilution Factor: 1.86	
Date/Time Collected: 10/2/13 09:11 AM	Instrument/Filename: msdc.i / c100414sim	
Media: 6 Liter Summa Canister (SIM Certified)		
Surrogates	Limits	%Recovery
Toluene-d8	2037-26-5 70-130	90

DJL
11/15/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1310066A-03A
Date/Time Collected: 10/2/13 11:13 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 09:29 PM
Dilution Factor: 2.06
Instrument/File Name: msdc.i / c100415

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.81	1.0	7.8
1,4-Dioxane	123-91-1	0.15	0.59	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.85	3.0	2.2 J
2-Hexanone	591-78-6	0.28	1.2	4.2	Not Detected
2-Propanol	67-63-0	0.24	0.71	2.5	17
4-Methyl-2-pentanone	108-10-1	0.10	0.68	0.84	Not Detected
Acetone	67-64-1	0.66	0.68	2.4	37
Bromomethane	74-83-9	0.84	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.90	3.2	0.19 J
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	0.58 J
Chlorobenzene	108-90-7	0.20	0.76	0.95	Not Detected
Chloroethane	75-00-3	0.30	0.76	2.7	Not Detected
Chloromethane	74-87-3	0.046	0.34	2.1	0.98 J
Cumene	98-82-8	0.13	0.81	1.0	0.30 J
Cyclohexane	110-82-7	0.099	0.57	0.71	0.38 J
Freon 11	75-69-4	0.096	0.92	1.2	1.3
Freon 113	76-13-1	0.28	1.3	1.6	0.54 J
Freon 12	75-71-8	0.10	0.82	1.0	2.7
Hexane	110-54-3	0.090	0.58	0.73	0.77
Methylene Chloride	75-09-2	0.14	0.57	1.4	3.6
Propylbenzene	103-65-1	0.21	0.81	1.0	1.2
Styrene	100-42-5	0.18	0.70	0.88	0.47 J

057L
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1310066A-03A
Date/Time Collected: 10/2/13 11:13 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 09:29 PM
Dilution Factor: 2.06
Instrument/Filename: msdc:\c100415

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.59	0.85	3.0	1.4 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

DJL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 10/4/13 09:29 PM
Lab ID: 1310066A-03B	Dilution Factor: 2.06
Date/Time Collected: 10/2/13 11:13 AM	Instrument/File Name: msdc:\c100415sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.045	0.22	0.040 J
1,1-Dichloroethane	75-34-3	0.0036	0.033	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.035	0.035	0.17	2.0
Benzene	71-43-2	0.053	0.053	0.33	1.1
Chloroform	67-66-3	0.018	NA	0.20	0.66
cis-1,2-Dichloroethene	156-59-2	0.014	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	3.5
m,p-Xylene	108-38-3	0.018	0.036	0.36	16
Methyl tert-butyl ether	1634-04-4	0.021	0.030	0.74	Not Detected
o-Xylene	95-47-6	0.016	0.036	0.18	5.6
Tetrachloroethene	127-18-4	0.017	0.056	0.28	0.989 4
Toluene	108-88-3	0.0067	0.031	0.16	14
trans-1,2-Dichloroethene	156-60-5	0.020	0.033	0.82	0.036 J
Trichloroethene	79-01-6	0.0090	0.044	0.22	0.019 4
Vinyl Chloride	75-01-4	0.0071	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	111

DJK
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████A	Date/Time Analyzed:	10/4/13 09:29 PM
Lab ID:	1310066A-03B	Dilution Factor:	2.06
Date/Time Collected:	10/2/13 11:13 AM	Instrument/Filename:	msdc:1/c100415sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	90

DNL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1310066A-04A
Date/Time Collected: 10/2/13 11:15 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 10:18 PM
Dilution Factor: 1.86
Instrument/Filename: msdc.i/c100416

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.73	0.91	8.1
1,4-Dioxane	123-91-1	0.13	0.54	0.67	0.15 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.77	2.7	2.5 J
2-Hexanone	591-78-6	0.25	1.1	3.8	Not Detected
2-Propanol	67-63-0	0.21	0.64	2.3	17
4-Methyl-2-pentanone	108-10-1	0.092	0.61	0.76	0.92
Acetone	67-64-1	0.60	0.62	2.2	37
Bromomethane	74-83-9	0.76	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.81	2.9	0.23 J
Carbon Tetrachloride	56-23-5	0.29	0.94	1.2	0.40 J
Chlorobenzene	108-90-7	0.18	0.68	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.4	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	0.95 J
Cumene	98-82-8	0.12	0.73	0.91	Not Detected
Cyclohexane	110-82-7	0.090	0.51	0.64	0.45 J
Freon 11	75-69-4	0.087	0.84	1.0	1.2
Freon 113	76-13-1	0.25	1.1	1.4	0.35 J
Freon 12	75-71-8	0.092	0.74	0.92	2.5
Hexane	110-54-3	0.082	0.52	0.66	0.90
Methylene Chloride	75-09-2	0.13	0.52	1.3	3.7
Propylbenzene	103-65-1	0.19	0.73	0.91	1.1
Styrene	100-42-5	0.16	0.63	0.79	0.39 J

0576
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1310066A-04A
Date/Time Collected: 10/2/13 11:15 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 10:18 PM
Dilution Factor: 1.86
Instrument/Filename: msdc.i/c100416

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.53	0.77	2.7	1.5 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	95

DJL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
 Lab ID: 1310066A-04B
 Date/Time Collected: 10/2/13 11:15 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 10:18 PM
 Dilution Factor: 1.86
 Instrument/Filename: msdc.i / c100416sim

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.034 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	1.5
Benzene	71-43-2	0.048	0.048	0.30	1.0
Chloroform	67-66-3	0.016	NA	0.18	0.73
cis-1,2-Dichloroethane	156-59-2	0.013	0.029	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	3.4
m,p-Xylene	108-38-3	0.016	0.032	0.32	15
Methyl tert-butyl ether	1634-04-4	0.019	0.027	0.67	Not Detected
o-Xylene	95-47-6	0.015	0.032	0.16	5.2
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.996 J
Toluene	108-88-3	0.0060	0.028	0.14	15
trans-1,2-Dichloroethene	156-60-5	0.018	0.029	0.74	0.035 J
Trichloroethene	79-01-6	0.0081	0.040	0.20	0.026 J
Vinyl Chloride	75-01-4	0.0064	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	106

DJK
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B	Date/Time Analyzed: 10/4/13 10:18 PM
Lab ID: 1310066A-04B	Dilution Factor: 1.86
Date/Time Collected: 10/2/13 11:15 AM	Instrument/Filename: msdc:1/c100416sim
Media: 6 Liter Summa Canister (SIM Certified)	
Surrogates	CAS# Limits %Recovery
Toluene-d8	2037-26-5 70-130 90

DJK
11/5/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1310066A-05A
Date/Time Collected: 10/2/13 11:18 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 11:04 PM
Dilution Factor: 2.66
Instrument/Filename: msdc1/c100417

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.42	1.0	1.3	1.4
1,4-Dioxane	123-91-1	0.19	0.77	0.96	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.31	1.1	3.9	2.5 J
2-Hexanone	591-78-6	0.36	1.5	5.4	Not Detected
2-Propanol	67-63-0	0.31	0.92	3.3	14
4-Methyl-2-pentanone	108-10-1	0.13	0.87	1.1	0.78 J
Acetone	67-64-1	0.86	0.88	3.2	15
Bromomethane	74-83-9	1.1	1.4	5.2	Not Detected
Carbon Disulfide	75-15-0	0.21	1.2	4.1	0.41 J
Carbon Tetrachloride	56-23-5	0.42	1.3	1.7	0.50 J
Chlorobenzene	108-90-7	0.26	0.98	1.2	Not Detected
Chloroethane	75-00-3	0.39	0.98	3.5	Not Detected
Chloromethane	74-87-3	0.060	0.44	2.7	0.77 J
Cumene	98-82-8	0.17	1.0	1.3	Not Detected
Cyclohexane	110-82-7	0.13	0.73	0.92	1.9
Freon 11	75-69-4	0.12	1.2	1.5	1.2 J
Freon 113	76-13-1	0.36	1.6	2.0	Not Detected
Freon 12	75-71-8	0.13	1.0	1.3	2.4
Hexane	110-54-3	0.12	0.75	0.94	0.68 J
Methylene Chloride	75-09-2	0.18	0.74	1.3	1.7 J
Propylbenzene	103-65-1	0.27	1.0	1.3	Not Detected
Styrene	100-42-5	0.23	0.91	1.1	0.43 J

1.8 u

DSL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1310066A-05A
Date/Time Collected: 10/2/13 11:18 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/4/13 11:04 PM
Dilution Factor: 2.66
Instrument/Filename: msdc.i/c100417

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.76	1.1	3.9	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	98

DTL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-C	Date/Time Analyzed:	10/4/13 11:04 PM
Lab ID:	1310066A-05B	Dilution Factor:	2.66
Date/Time Collected:	10/2/13 11:18 AM	Instrument/Filename:	msdc.i / c100417sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.026	0.058	0.29	Not Detected
1,1-Dichloroethane	75-34-3	0.0046	0.043	0.22	Not Detected
1,2-Dichloroethane	107-06-2	0.045	0.045	0.22	0.45
Benzene	71-43-2	0.068	0.068	0.42	0.50
Chloroform	67-66-3	0.023	NA	0.26	0.68
cis-1,2-Dichloroethene	156-59-2	0.019	0.042	0.21	Not Detected
Ethyl Benzene	100-41-4	0.018	0.046	0.23	1.5
m,p-Xylene	108-38-3	0.023	0.046	0.46	5.0
Methyl tert-butyl ether	1634-04-4	0.028	0.038	0.96	Not Detected
o-Xylene	95-47-6	0.021	0.046	0.23	1.8
Tetrachloroethene	127-18-4	0.022	0.072	0.36	0.55
Toluene	108-88-3	0.0086	0.040	0.20	22
trans-1,2-Dichloroethene	156-60-5	0.025	0.042	1.0	0.038 J
Trichloroethene	79-01-6	0.012	0.057	0.28	0.061 J
Vinyl Chloride	75-01-4	0.0092	0.027	0.068	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	103

DTR
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C	Date/Time Analyzed: 10/4/13 11:04 PM	
Lab ID: 1310066A-05B	Dilution Factor: 2.66	
Date/Time Collected: 10/2/13 11:18 AM	Instrument/Filename: msdc.i / c100417sim	
Media: 6 Liter Summa Canister (SIM Certified)		
Surrogates	Limits	%Recovery
Toluene-d8	2037-26-5 70-130	89

DSL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D
 Lab ID: 1310066A-06A
 Date/Time Collected: 10/2/13 11:18 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/5/13 06:25 AM
 Dilution Factor: 1.73
 Instrument/File Name: msdc.i/c100418

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.28	0.68	0.85	1.1
1,4-Dioxane	123-91-1	0.12	0.50	0.62	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.71	2.6	0.57 J
2-Hexanone	591-78-6	0.23	0.99	3.5	Not Detected
2-Propanol	67-63-0	0.20	0.60	2.1	1.6 J
4-Methyl-2-pentanone	108-10-1	0.086	0.57	0.71	Not Detected
Acetone	67-64-1	0.56	0.58	2.0	6.7
Bromomethane	74-83-9	0.70	0.94	3.4	Not Detected
Carbon Disulfide	75-15-0	0.13	0.75	2.7	Not Detected
Carbon Tetrachloride	56-23-5	0.27	0.87	1.1	0.62 J
Chlorobenzene	108-90-7	0.17	0.64	0.80	Not Detected
Chloroethane	75-00-3	0.25	0.64	2.3	Not Detected
Chloromethane	74-87-3	0.039	0.28	1.8	0.98 J
Cumene	98-82-8	0.11	0.68	0.85	Not Detected
Cyclohexane	110-82-7	0.083	0.48	0.60	0.17 J
Freon 11	75-69-4	0.081	0.78	0.97	1.2
Freon 113	76-13-1	0.23	1.1	1.3	0.51 J
Freon 12	75-71-8	0.085	0.68	0.86	2.8
Hexane	110-54-3	0.076	0.49	0.61	0.41 J
Methylene Chloride	75-09-2	0.12	0.48	0.85	0.86 J
Propylbenzene	103-65-1	0.18	0.68	0.85	Not Detected
Styrene	100-42-5	0.15	0.59	0.74	Not Detected

DJL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 10/5/13 06:25 AM
Lab ID: 1310066A-06A	Dilution Factor: 1.73
Date/Time Collected: 10/2/13 11:18 AM	Instrument/Filename: msdc.i / c100418
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.50	0.71	2.6	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	92

DSK
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-D	Date/Time Analyzed:	10/5/13 06:25 AM
Lab ID:	1310066A-06B	Dilution Factor:	1.73
Date/Time Collected:	10/2/13 11:18 AM	Instrument/File name:	msdc.i / c100418sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,1,1-Trichloroethane	71-55-6	0.017	0.038	0.19	0.024 J
1,1-Dichloroethane	75-34-3	0.0030	0.028	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.029	0.029	0.14	0.21
Benzene	71-43-2	0.044	0.044	0.28	0.44
Chloroform	67-66-3	0.015	NA	0.17	0.18
cis-1,2-Dichloroethane	156-59-2	0.012	0.027	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.030	0.15	0.48
m,p-Xylene	108-38-3	0.015	0.030	0.30	1.8
Methyl tert-butyl ether	1634-04-4	0.018	0.025	0.62	Not Detected
o-Xylene	95-47-6	0.014	0.030	0.15	0.62
Tetrachloroethene	127-18-4	0.014	0.047	0.23	0.12 J
Toluene	108-88-3	0.0056	0.026	0.13	2.6
trans-1,2-Dichloroethene	156-60-5	0.016	0.027	0.68	0.031 J
Trichloroethene	79-01-6	0.0075	0.037	0.18	0.017 J
Vinyl Chloride	75-01-4	0.0060	0.018	0.044	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	102

DML
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-D	Date/Time Analyzed:	10/5/13 06:25 AM
Lab ID:	1310066A-06B	Dilution Factor:	1.73
Date/Time Collected:	10/2/13 11:18 AM	Instrument/Filename:	msdc.i / c100418sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	88

10512
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-E	Date/Time Analyzed:	10/5/13 07:26 AM
Lab ID:	1310066A-07A	Dilution Factor:	1.72
Date/Time Collected:	10/2/13 11:23 AM	Instrument/Filename:	msdc:1/c100419
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.27	0.68	0.84	Not Detected
1,4-Dioxane	123-91-1	0.12	0.50	0.62	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.71	2.5	0.42 J
2-Hexanone	591-78-6	0.23	0.99	3.5	Not Detected
2-Propanol	67-63-0	0.20	0.59	2.1	Not Detected
4-Methyl-2-pentanone	108-10-1	0.085	0.56	0.70	Not Detected
Acetone	67-64-1	0.55	0.57	2.0	5.6
Bromomethane	74-83-9	0.70	0.94	3.3	Not Detected
Carbon Disulfide	75-15-0	0.13	0.75	2.7	Not Detected
Carbon Tetrachloride	56-23-5	0.27	0.86	1.1	0.54 J
Chlorobenzene	108-90-7	0.17	0.63	0.79	Not Detected
Chloroethane	75-00-3	0.25	0.64	2.3	Not Detected
Chloromethane	74-87-3	0.039	0.28	1.8	0.96 J
Cumene	98-82-8	0.11	0.68	0.84	Not Detected
Cyclohexane	110-82-7	0.083	0.47	0.59	Not Detected
Freon 11	75-69-4	0.081	0.77	0.97	1.5
Freon 113	76-13-1	0.23	1.0	1.3	0.65 J
Freon 12	75-71-8	0.085	0.68	0.85	2.8
Hexane	110-54-3	0.076	0.48	0.61	0.30 J
Methylene Chloride	75-09-2	0.12	0.48	0.84	0.65 J
Propylbenzene	103-65-1	0.18	0.68	0.84	Not Detected
Styrene	100-42-5	0.15	0.59	0.73	Not Detected

1.2 u

DDZL
11/5/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E
Lab ID: 1310066A-07A
Date/Time Collected: 10/2/13 11:23 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/5/13 07:26 AM
Dilution Factor: 1.72
Instrument/Filename: msdc:1/c100419

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.49	0.71	2.5	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	94

D57L
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]	Date/Time Analyzed: 10/5/13 07:26 AM
Lab ID: 1310066A-07B	Dilution Factor: 1.72
Date/Time Collected: 10/2/13 11:23 AM	Instrument/Filename: msdc.i/c100419sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.038	0.19	0.021 J
1,1-Dichloroethane	75-34-3	0.0030	0.028	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.029	0.029	0.14	0.056 J
Benzene	71-43-2	0.044	0.044	0.27	0.22 J
Chloroform	67-66-3	0.015	NA	0.17	0.12 J
cis-1,2-Dichloroethene	156-59-2	0.012	0.027	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.030	0.15	0.063 J
m,p-Xylene	108-38-3	0.015	0.030	0.30	0.20 J
Methyl tert-butyl ether	1634-04-4	0.018	0.025	0.62	Not Detected
o-Xylene	95-47-6	0.014	0.030	0.15	0.072 J
Tetrachloroethene	127-18-4	0.014	0.047	0.23	0.067 J
Toluene	108-88-3	0.0056	0.026	0.13	0.43
trans-1,2-Dichloroethene	156-60-5	0.016	0.027	0.68	0.033 J
Trichloroethene	79-01-6	0.0075	0.037	0.18	0.013 J
Vinyl Chloride	75-01-4	0.0059	0.018	0.044	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	102

DJL
11/15/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]	Date/Time Analyzed: 10/5/13 07:26 AM		
Lab ID: 1310066A-07B	Dilution Factor: 1.72		
Date/Time Collected: 10/2/13 11:23 AM	Instrument/Filename: msdc.i/c100419sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	Limits	%Recovery	
Toluene-d8	2037-26-5	70-130	89

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11/15/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Ref: including separation on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, and other regulations, regulations, and ordinances of any kind. Air Toxics Ltd. will respond to the collection, handling or shipping of these samples. Refusing to sign this document also indicates agreement to hold harmless and defend in defense any claim, demand, or action, or any kind, related to the collection, handling or shipping of samples. U.O. 1, Folio 1830, 467, 4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager: Mark Haysen
 Collected by: Mark Haysen
 Company: TecheTech
 Address: 251 Bridger Dr. Ste 1000
 Phone: 407-581-8080
 Fax: _____
 Final mark person @ techtch
 State: AT Zip: 5045

Project Info:
 PO #: _____
 Project #: 114-710303 Tall Pile
 Project Name: Brazoria Landfill
 Turn Around Time: Normal Rush
 Date: _____
 Pressurized by: _____
 Canister Pressure: Vacuum
 Initial: _____ Final: _____
 Receiver: _____
 Date: _____

Lab ID	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure: Vacuum	Initial	Final	Receiver	Date
NA	B	4230	10/2/13	907	See attached	-246	-48			
NA	C	14003		911		-262	-62			
NA	A	12118		1113		-252	-61			
NA	B	12078		1115		-249	-48			
NA	C	35981		1118		-236	-117			
NA	D	81006		1118		-248	-21			
NA	E	34301		1123		-252	-42			

Released by: (signature) Mark Haysen Date: 10/6/13
 Received by: (signature) TecheTech Date: 10/9/13
 Released by: (signature) Kathryn Date: 10/21/13
 Received by: (signature) _____ Date: _____
 Helinquished by: (signature) _____ Date: _____
 Shipper Name: TecheTech Air Bill # _____
 Condition: Good
 Custody Seal Intact: Yes No None
 Work Order #: 131006

Notes:
 Also returning flow regulators # 40173 and 40181. Also defective regulators # 100351 and # 33991 (Karl work credited to # 100351). 2 boxes shipped. Please send more COI.

1310066

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethene	75-00-3	10000
Freon 11	75-69-4	730
Freon 113	76-13-1	31300
Acetone	67-54-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl ketone)	78-93-3	5200
Tetrahydrofuran	109-99-9	2090
Chloroform	67-66-3	0.13
Cyclohexene	110-82-7	6260
Carbon Tetrachloride	56-73-5	0.406
1,4 Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-65-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	155-59-2	35
1,1,1-Trichloroethane	71-55-6	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-6	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-5	104
trans-1,2-Dichloroethene	156-50-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note

5/2013 EPA RSL

USEPA Accidental Air Screening Levels,
 May 2013. Concentrations in micro-
 grams per cubic meter

October 22, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 22, 2013

Sample Delivery Group (SDG) No.	1310157A
Samples	██████-A, ██████-B, and ██████-C

Tetra Tech, Inc. conducted data validation of the analytical results for three air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 4, 2013. The samples were analyzed under SDG No. 1310157A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis



October 22, 2013

- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310157A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analyte acetone and methylene chloride below reporting limits (RL). The method blank associated with SIM analyses contained benzene, ethyl benzene, o-xylene, toluene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminants acetone and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits. No data were qualified.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences (RPD) for the LCSs and LCSDs were all within the associated QC limits.

SAMPLE DILUTION

Dilution (3.58x) was performed on sample [REDACTED]-B due to the presence of high level non-target species.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

October 22, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory reported estimated values for target compound hits that are below the RL but greater than the DL. All canisters used for this project have been certified to the RL for all target analytes. Concentrations below the level at which the canisters were certified may be false positives. All sample results less than the RL but greater than the DL, were qualified as estimated (“J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310157A

(Twelve Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310157A

(Two Sheets)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 10/11/13 04:50 PM
Lab ID: 1310157A-01A	Dilution Factor: 1.88
Date/Time Collected: 10/4/13 08:19 AM	Instrument/File Name: msdc://c1011110
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.30	0.74	0.92	0.94
1,4-Dioxane	123-91-1	0.14	0.54	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.78	2.8	2.9
2-Hexanone	591-78-6	0.25	1.1	3.8	0.26 J
2-Propanol	67-63-0	0.22	0.65	2.3	32
4-Methyl-2-pentanone	108-10-1	0.093	0.62	0.77	0.83
Acetone	67-64-1	0.60	0.62	2.2	40
Bromomethane	74-83-9	0.77	1.0	3.6	Not Detected
Carbon Disulfide	75-15-0	0.15	0.82	2.9	0.26 J
Carbon Tetrachloride	56-23-5	0.30	0.95	1.2	0.70 J
Chlorobenzene	108-90-7	0.18	0.69	0.86	Not Detected
Chloroethane	75-00-3	0.27	0.69	2.5	Not Detected
Chloromethane	74-87-3	0.042	0.31	1.9	1.1 J
Cumene	98-82-8	0.12	0.74	0.92	Not Detected
Cyclohexane	110-82-7	0.091	0.52	0.65	0.16 J
Freon 11	75-69-4	0.088	0.84	1.0	12
Freon 113	76-13-1	0.25	1.2	1.4	0.56 J
Freon 12	75-71-8	0.092	0.74	0.93	34
Hexane	110-54-3	0.083	0.53	0.66	0.84
Methylene Chloride	75-09-2	0.13	0.52	1.3	0.94
Propylbenzene	103-65-1	0.19	0.74	0.92	Not Detected
Styrene	100-42-5	0.16	0.64	0.80	0.26 J

DU

DJL
10-22-13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	10/11/13 04:50 PM
Lab ID:	1310157A-01A	Dilution Factor:	1.88
Date/Time Collected:	10/4/13 08:19 AM	Instrument/Filename:	msdc.i/c1011110
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.54	0.78	2.8	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	89

DJK
10/22/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 10/11/13 04:50 PM
Lab ID: 1310157A-01B	Dilution Factor: 1.88
Date/Time Collected: 10/4/13 08:19 AM	Instrument/File Name: msdc:\c101110sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.041	0.20	0.067 J
1,1-Dichloroethane	75-34-3	0.0033	0.030	0.15	0.0055 J
1,2-Dichloroethane	107-06-2	0.032	0.032	0.15	0.59
Benzene	71-43-2	0.048	0.048	0.30	0.68
Chloroform	67-66-3	0.016	NA	0.18	0.86
cis-1,2-Dichloroethene	156-59-2	0.013	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.033	0.16	1.4
m,p-Xylene	108-38-3	0.016	0.033	0.33	4.6
Methyl tert-butyl ether	1634-04-4	0.020	0.027	0.68	Not Detected
o-Xylene	95-47-6	0.015	0.033	0.16	1.3
Tetrachloroethene	127-18-4	0.015	0.051	0.26	0.048 J
Toluene	108-88-3	0.0061	0.028	0.14	26
trans-1,2-Dichloroethene	156-60-5	0.018	0.030	0.74	Not Detected
Trichloroethene	79-01-6	0.0082	0.040	0.20	0.23
Vinyl Chloride	75-01-4	0.0065	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	91

DJK
10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	10/11/13 04:50 PM
Lab ID:	1310157A-01B	Dilution Factor:	1.88
Date/Time Collected:	10/4/13 08:19 AM	Instrument/Filename:	msdc.i / c101110sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	89

DJK
10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	10/11/13 05:51 PM
Lab ID:	1310157A-02A	Dilution Factor:	3.58
Date/Time Collected:	10/4/13 08:20 AM	Instrument/File name:	msdc.i / c1011111
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.57	1.4	1.8	1.5 J
1,4-Dioxane	123-91-1	0.26	1.0	1.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.42	1.5	5.3	2.0 J
2-Hexanone	591-78-6	0.48	2.0	7.3	Not Detected
2-Propanol	67-63-0	0.41	1.2	4.4	41
4-Methyl-2-pentanone	108-10-1	0.18	1.2	1.5	0.90 J
Acetone	67-64-1	1.2	1.2	4.2	40
Bromomethane	74-83-9	1.5	1.9	7.0	Not Detected
Carbon Disulfide	75-15-0	0.28	1.6	5.6	Not Detected
Carbon Tetrachloride	56-23-5	0.56	1.8	2.2	0.58 J
Chlorobenzene	108-90-7	0.35	1.3	1.6	Not Detected
Chloroethane	75-00-3	0.52	1.3	4.7	Not Detected
Chloromethane	74-87-3	0.081	0.59	3.7	1.1 J
Cumene	98-82-8	0.23	1.4	1.8	Not Detected
Cyclohexane	110-82-7	0.17	0.98	1.2	0.68 J
Freon 11	75-69-4	0.17	1.6	2.0	17
Freon 113	76-13-1	0.48	2.2	2.7	0.57 J
Freon 12	75-71-8	0.18	1.4	1.8	50
Hexane	110-54-3	0.16	1.0	1.3	0.93 J
Methylene Chloride	75-09-2	0.24	0.99	2.5	44
Propylbenzene	103-65-1	0.36	1.4	1.8	Not Detected
Styrene	100-42-5	0.31	1.2	1.5	0.55 J

2.5 u

44

DJK
10/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] B	Date/Time Analyzed:	10/11/13 05:51 PM
Lab ID:	1310157A-02A	Dilution Factor:	3.58
Date/Time Collected:	10/4/13 08:20 AM	Instrument/Filename:	msdc.i / c1011111
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	1.0	1.5	5.3	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

D57L
10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-B	Date/Time Analyzed:	10/11/13 05:51 PM
Lab ID:	1310157A-02B	Dilution Factor:	3.58
Date/Time Collected:	10/4/13 08:20 AM	Instrument/File name:	msdc:\c101111sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.035	0.078	0.39	0.064 J
1,1-Dichloroethane	75-34-3	0.0062	0.058	0.29	0.018 J
1,2-Dichloroethane	107-06-2	0.061	0.061	0.29	0.62
Benzene	71-43-2	0.092	0.092	0.57	0.71
Chloroform	67-66-3	0.031	NA	0.35	0.93
cis-1,2-Dichloroethene	156-59-2	0.025	0.057	0.28	Not Detected
Ethyl Benzene	100-41-4	0.025	0.062	0.31	1.7
m,p-Xylene	108-38-3	0.030	0.062	0.62	5.9
Methyl tert-butyl ether	1634-04-4	0.037	0.052	1.3	Not Detected
o-Xylene	95-47-6	0.028	0.062	0.31	1.7
Tetrachloroethene	127-18-4	0.029	0.097	0.48	0.19 J
Toluene	108-88-3	0.012	0.054	0.27	30
trans-1,2-Dichloroethene	156-60-5	0.034	0.057	1.4	Not Detected
Trichloroethene	79-01-6	0.016	0.077	0.38	0.33 J
Vinyl Chloride	75-01-4	0.012	0.036	0.92	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	96

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DJK

10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	10/11/13 05:51 PM
Lab ID:	1310157A-02B	Dilution Factor:	3.58
Date/Time Collected:	10/4/13 08:20 AM	Instrument/Filename:	msdc.i / c101111sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DJL
10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 10/11/13 06:39 PM
Lab ID: 1310157A-03A	Dilution Factor: 1.95
Date/Time Collected: 10/4/13 08:27 AM	Instrument/Filename: msdc1/c1011112
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.77	0.96	Not Detected
1,4-Dioxane	123-91-1	0.14	0.56	0.70	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.80	2.9	0.36 J
2-Hexanone	591-78-6	0.26	1.1	4.0	Not Detected
2-Propanol	67-63-0	0.22	0.67	2.4	0.31 J
4-Methyl-2-pentanone	108-10-1	0.096	0.64	0.80	Not Detected
Acetone	67-64-1	0.63	0.65	2.3	3.0 5+
Bromomethane	74-83-9	0.80	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.85	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.31	0.98	1.2	0.48 J
Chlorobenzene	108-90-7	0.19	0.72	0.90	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	0.87 J
Cumene	98-82-8	0.13	0.77	0.96	Not Detected
Cyclohexane	110-82-7	0.094	0.54	0.67	Not Detected
Freon 11	75-69-4	0.091	0.88	1.1	1.2
Freon 113	76-13-1	0.26	1.2	1.5	0.56 J
Freon 12	75-71-8	0.096	0.77	0.96	2.4
Hexane	110-54-3	0.086	0.55	0.69	0.34 J
Methylene Chloride	75-09-2	0.13	0.54	0.96	0.59 J
Propylbenzene	103-65-1	0.20	0.77	0.96	Not Detected
Styrene	100-42-5	0.17	0.66	0.83	Not Detected

1.4 **U**

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10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	10/11/13 06:39 PM
Lab ID:	1310157A-03A	Dilution Factor:	1.95
Date/Time Collected:	10/4/13 08:27 AM	Instrument/Filename:	msdc.i/c1011112
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt Limit (ug/m ³)	Amount (ug/m ³)
Tetrahydrofuran	109-99-9	0.56	0.80	2.9	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	102

1057L
10/22/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
 Lab ID: 1310157A-03B
 Date/Time Collected: 10/4/13 08:27 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/11/13 06:39 PM
 Dilution Factor: 1.95
 Instrument/Filename: msdc.i/c101112sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.042	0.21	0.022 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.038 J
Benzene	71-43-2	0.050	0.050	0.31	0.32
Chloroform	67-66-3	0.017	NA	0.19	0.15 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.013	0.034	0.17	0.080 J
m,p-Xylene	108-38-3	0.016	0.034	0.34	0.24 J
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.70	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	0.098 J
Tetrachloroethene	127-18-4	0.016	0.053	0.26	0.024 J
Toluene	108-88-3	0.0063	0.029	0.15	0.64
trans-1,2-Dichloroethene	156-60-5	0.018	0.031	0.77	0.034 J
Trichloroethene	79-01-6	0.0085	0.042	0.21	0.013 J
Vinyl Chloride	75-01-4	0.0067	0.020	0.050	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	96

DJL
10/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	10/11/13 06:39 PM
Lab ID:	1310157A-03B	Dilution Factor:	1.95
Date/Time Collected:	10/4/13 08:27 AM	Instrument/Filename:	msdc.i / c101112sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

DJL
10/22/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Referencing signatures on this document discloses that samples are being shipped. It is representative with all applicable local, state, federal, national and international laws, regulations and ordinances of any state. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Requiring signature also and cause agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, damage, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. No. 146 (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM CA 95630-5719
 (916) 985-1000 FAX (916) 965-1020

Page 1 of 1

Project Manager: Mark Pearson
 Collected by: Mark Pearson
 Company: TECHREP
 Address: 881 Bridget Dr. Ste 400, Bismarck, ND 58101
 Phone: 701-752-8280 Fax: _____
 Email: mark.pearson@techrep.com
 Project Name: BOZEMAN, CA 4/11

Project Info:
 P.O. #: _____
 Parcel #: 114710303
 Task ID #: Task 1740

Turn Around Time: _____
 Normal
 Push
 Expedite: _____
 Analytes Requested: _____
 Initial: _____ Final: _____
 Pressure: _____
 Vacuum: _____

Lab ID	Field Sample ID (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Container Pressure/Vacuum
31A	-A	34396	10/4/03	813	See attached	-35.9-57
31A	-B	51753		820		-25.2-46
31A	-C	34493		827		-26.24-7.5

Relinquished by: (signature) Mark Pearson Date/Time: 10/4/13 01700
 Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: 10/4/13 01700
 Received by: (signature) Mark Pearson Date/Time: 10/7/13 1500
 Notes: 11 boxes w/ today of 3 canisters and 3 flow controllers

Lab Use Only: Shipper Name: Frederick Air Bill #: _____ Temp: _____ Condition: OK
 Custody Seals Intact? Yes No: _____
 Work Order #: 1210397

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

1310157

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethane	75-00-3	10000
Freon 11	75-69-7	730
Freon 113	76-13-1	31300
Acetone	67-64-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5200
Tetrahydrofuran	100-99-9	2090
Chloroform	67-66-3	0.11
Cyclohexane	110-82-7	6260
Carbon Tetrachloride	56-23-5	0.406
1,4-Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-55-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	156-35-2	35
1,1,1-Trichloroethane	71-55-5	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-5	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-6	104
trans-1,2-Dichloroethene	156-60-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note:

5/2013 EPA RSL

USEPA Residential Air Screening Levels,
May 2013 Concentrations in micro-
grams per cubic meter

→ Also - APH for all samples

January 6, 2014

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: January 6, 2014

Sample Delivery Group (SDG) No.	1310184A
Samples	██████-SS1
Field Duplicates	██████-SSI and ██████-SS2

Tetra Tech, Inc. conducted data validation of the analytical results for two air samples including one field duplicate that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 7, 2013. The samples were analyzed under SDG No. 1310184A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



January 6, 2014

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310184A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analytes 2-propanol, acetone, and hexane below reporting limits (RL). The method blank associated with SIM analyses contained benzene, ethyl benzene, m,p-xylene, and toluene below RLs. Detected results for these target analytes below the RL were raised to the RL and flagged "U." Detected results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant acetone) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits. No data were qualified.

FIELD DUPLICATES

RPDs were calculated for field duplicate (████-SS1 and █████-SS2) sample results for all results greater than the RL. The RPDs in the table below exceeded the QC criterion (≤ 30). Data are not typically qualified on the basis of field duplicate results.

January 6, 2014

Analyte	RPD
1,2,4-Trimethylbenzene	161
2-Butanone	57
Cyclohexane	161
Ethylbenzene	195
m,p-Xylene	187
o-Xylene	193
Toluene	193

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

The full-scan and SIM analyses LCS and LCSD percent recoveries and relative percent differences (RPD) were within the associated QC limits.

SAMPLE DILUTION

Neither of the samples in this SDG required dilution due to the presence of high concentration of target analytes.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At Tetra Tech's request, the laboratory reported estimated values for target analyte hits below RLs but greater than MDLs. Since the canisters used for this project are certified to the RL only, concentrations below the RL are qualified as estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310184A

(Eight Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310184A

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████ SS1
 Lab ID: 1310184A-01A
 Date/Time Collected: 10/7/13 12:46 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 03:19 PM
 Dilution Factor: 2.20
 Instrument/Filename: msdv.i / V101409

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.21	0.43	1.1	1.2
1,4-Dioxane	123-91-1	0.21	0.32	0.79	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.41	2.6	3.2	6.1
2-Hexanone	591-78-6	0.30	3.6	4.5	0.47 J
2-Propanol	67-63-0	0.28	2.2	2.7	20
4-Methyl-2-pentanone	108-10-1	0.15	0.36	0.90	0.54 J
Acetone	67-64-1	0.37	2.1	2.6	46
Bromomethane	74-83-9	0.90	3.4	4.3	Not Detected
Carbon Disulfide	75-15-0	0.22	2.7	3.4	Not Detected
Carbon Tetrachloride	56-23-5	0.18	0.55	1.4	0.40 J
Chlorobenzene	108-90-7	0.10	0.40	1.0	Not Detected
Chloroethane	75-00-3	0.37	2.3	2.9	Not Detected
Chloromethane	74-87-3	0.10	0.18	2.3	0.41 J
Cumene	98-82-8	0.15	0.43	1.1	0.79 J
Cyclohexane	110-82-7	0.12	0.30	0.76	1.3
Freon 11	75-69-4	0.26	0.49	1.2	1.1 J
Freon 113	76-13-1	0.45	0.67	1.7	Not Detected
Freon 12	75-71-8	0.16	0.44	1.1	2.2
Hexane	110-54-3	0.13	0.31	0.78	0.47 J
Methylene Chloride	75-09-2	0.17	0.30	1.5	0.33 J
Propylbenzene	103-65-1	0.18	0.43	1.1	0.46 J
Styrene	100-42-5	0.14	0.37	0.94	0.41 J

DJK
1-6-13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1	Date/Time Analyzed: 10/14/13 03:19 PM
Lab ID: 1310184A-01A	Dilution Factor: 2.20
Date/Time Collected: 10/7/13 12:46 PM	Instrument/Filename: msdv.i / v101409
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.24	0.26	3.2	5.8

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	98

DJK
1/6/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ████████ SS1
 Lab ID: 1310184A-01B
 Date/Time Collected: 10/7/13 12:46 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 03:19 PM
 Dilution Factor: 2.20
 Instrument/Filename: msdv.i / v101409sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.013	0.048	0.24	0.038 J
1,1-Dichloroethane	75-34-3	0.0052	0.036	0.18	Not Detected
1,2-Dichloroethane	107-06-2	0.017	0.036	0.18	0.058 J
Benzene	71-43-2	0.021	0.070	0.35	0.22 J
Chloroform	67-66-3	0.0070	NA	0.21	1.3
cis-1,2-Dichloroethene	156-59-2	0.0086	0.035	0.17	Not Detected
Ethyl Benzene	100-41-4	0.0051	0.038	0.19	0.45
m,p-Xylene	108-38-3	0.012	0.038	0.38	1.3
Methyl tert-butyl ether	1634-04-4	0.0078	0.032	0.79	0.085 J
o-Xylene	95-47-6	0.014	0.038	0.19	0.57
Tetrachloroethene	127-18-4	0.012	0.060	0.30	0.63
Toluene	108-88-3	0.015	0.033	0.16	1.5
trans-1,2-Dichloroethene	156-60-5	0.018	0.035	0.87	Not Detected
Trichloroethene	79-01-6	0.065	0.065	0.24	Not Detected
Vinyl Chloride	75-01-4	0.013	0.022	0.056	0.027 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100

DTK
1/6/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1310184A-01B
Date/Time Collected: 10/7/13 12:46 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 03:19 PM
Dilution Factor: 2.20
Instrument/Filename: msdv.i/v101409sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

D57C
1/6/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
 Lab ID: 1310184A-02A
 Date/Time Collected: 10/7/13 12:46 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 03:53 PM
 Dilution Factor: 1.94
 Instrument/Filename: msd\j\101410

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.95	11
1,4-Dioxane	123-91-1	0.18	0.28	0.70	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.3	2.9	11
2-Hexanone	591-78-6	0.26	3.2	4.0	Not Detected
2-Propanol	67-63-0	0.25	1.9	2.4	21
4-Methyl-2-pentanone	108-10-1	0.14	0.32	0.79	3.4
Acetone	67-64-1	0.32	1.8	2.3	54
Bromomethane	74-83-9	0.80	3.0	3.8	Not Detected
Carbon Disulfide	75-15-0	0.20	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.49	1.2	0.54 J
Chlorobenzene	108-90-7	0.089	0.36	0.89	Not Detected
Chloroethane	75-00-3	0.33	2.0	2.6	Not Detected
Chloromethane	74-87-3	0.089	0.16	2.0	0.40 J
Cumene	98-82-8	0.14	0.38	0.95	8.8
Cyclohexane	110-82-7	0.10	0.27	0.67	12
Freon 11	75-69-4	0.23	0.44	1.1	1.2
Freon 113	76-13-1	0.40	0.59	1.5	0.49 J
Freon 12	75-71-8	0.14	0.38	0.96	2.2
Hexane	110-54-3	0.12	0.27	0.68	33
Methylene Chloride	75-09-2	0.15	0.27	1.3	Not Detected
Propylbenzene	103-65-1	0.16	0.38	0.95	8.9
Styrene	100-42-5	0.13	0.33	0.83	Not Detected

0576
1/6/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	10/14/13 03:53 PM
Lab ID:	1310184A-02A	Dilution Factor:	1.94
Date/Time Collected:	10/7/13 12:46 PM	Instrument/Filename:	msdv.i/v101410
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.23	2.9	5.8

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

DJL
1/6/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	10/14/13 03:53 PM
Lab ID:	1310184A-02B	Dilution Factor:	1.94
Date/Time Collected:	10/7/13 12:46 PM	Instrument/Filename:	msdv.i / v101410sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.042	0.21	0.070 J
1,1-Dichloroethane	75-34-3	0.0046	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.031	0.16	0.34
Benzene	71-43-2	0.019	0.062	0.31	14
Chloroform	67-66-3	0.0062	NA	0.19	1.6
cis-1,2-Dichloroethene	156-59-2	0.0076	0.031	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0045	0.034	0.17	36
m,p-Xylene	108-38-3	0.011	0.034	0.34	39
Methyl tert-butyl ether	1634-04-4	0.0068	0.028	0.70	0.10 J
o-Xylene	95-47-6	0.013	0.034	0.17	33
Tetrachloroethene	127-18-4	0.010	0.053	0.26	0.61
Toluene	108-88-3	0.013	0.029	0.15	85
trans-1,2-Dichloroethene	156-60-5	0.016	0.031	0.77	Not Detected
Trichloroethene	79-01-6	0.057	0.057	0.21	Not Detected
Vinyl Chloride	75-01-4	0.012	0.020	0.050	0.030 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	105

DJK
1/6/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
Lab ID: 1310184A-02B
Date/Time Collected: 10/7/13 12:46 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/14/13 03:53 PM
Dilution Factor: 1.94
Instrument/Filename: msdv.i/v101410sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DKK
1/6/13

October 23, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: October 23, 2013

Sample Delivery Group (SDG) No.	1310193A
Samples	█-A, █-B, █-C, █-D, and █-E

Tetra Tech, Inc. conducted data validation of the analytical results for five air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 8, 2013. The samples were analyzed under SDG No. 1310193A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis



October 23, 2013

- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310193A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times. No qualifications were necessary.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analyses contained concentrations of target analyte 2-propanol, acetone and hexane below reporting limits (RL). The method blank associated with SIM analyses contained benzene, ethyl benzene, m,p-xylene, and toluene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant acetone) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits. No data were qualified.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences (RPD) for the LCSs and LCSDs were all within the associated QC limits.

SAMPLE DILUTION

None of the samples in this SDG required dilution due to the presence of high level non-target species.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

October 23, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

At the request of Tetra Tech, the laboratory reported estimated values for target compound hits that are below the RL but greater than the DL. All canisters used for this project have been certified to the RL for all target analytes. Concentrations below the level at which the canisters were certified may be false positives. All sample results less than the RL but greater than the DL, were qualified as estimated (“J”).

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

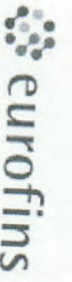
FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310193A

(Twenty Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310193A

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1310193A-01A
Date/Time Collected: 10/8/13 09:29 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 04:29 PM
Dilution Factor: 1.82
Instrument/Filename: msdv.i/v101411

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.18	0.36	0.89	0.81 J
1,4-Dioxane	123-91-1	0.17	0.26	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.34	2.1	2.7	1.5 J
2-Hexanone	591-78-6	0.25	3.0	3.7	0.26 J
2-Propanol	67-63-0	0.23	1.8	2.2	3.4 J
4-Methyl-2-pentanone	108-10-1	0.13	0.30	0.74	Not Detected
Acetone	67-64-1	0.30	1.7	2.2	18
Bromomethane	74-83-9	0.75	2.8	3.5	Not Detected
Carbon Disulfide	75-15-0	0.18	2.3	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.14	0.46	1.1	0.57 J
Chlorobenzene	108-90-7	0.084	0.34	0.84	Not Detected
Chloroethane	75-00-3	0.31	1.9	2.4	Not Detected
Chloromethane	74-87-3	0.084	0.15	1.9	1.2 J
Cumene	98-82-8	0.13	0.36	0.89	Not Detected
Cyclohexane	110-82-7	0.099	0.25	0.63	0.14 J
Freon 11	75-69-4	0.22	0.41	1.0	1.0
Freon 113	76-13-1	0.37	0.56	1.4	0.51 J
Freon 12	75-71-8	0.13	0.36	0.90	2.1
Hexane	110-54-3	0.11	0.26	0.64	0.56 J
Methylene Chloride	75-09-2	0.14	0.25	1.3	1.4
Propylbenzene	103-65-1	0.15	0.36	0.89	Not Detected
Styrene	100-42-5	0.12	0.31	0.78	0.24 J

DJK
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1310193A-01A
Date/Time Collected: 10/8/13 09:29 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/14/13 04:29 PM
Dilution Factor: 1.82
Instrument/Filename: msdv.i/v101411

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.20	0.21	2.7	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	97

DJK
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1310193A-01B
 Date/Time Collected: 10/8/13 09:29 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 04:29 PM
 Dilution Factor: 1.82
 Instrument/Filename: msdv.i/v101411sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.040	0.20	0.13 J
1,1-Dichloroethane	75-34-3	0.0043	0.029	0.15	0.014 J
1,2-Dichloroethane	107-06-2	0.014	0.029	0.15	0.70
Benzene	71-43-2	0.018	0.058	0.29	0.36
Chloroform	67-66-3	0.0058	NA	0.18	0.58
cis-1,2-Dichloroethene	156-59-2	0.0071	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.0042	0.032	0.16	0.20
m,p-Xylene	108-38-3	0.010	0.032	0.32	0.63
Methyl tert-butyl ether	1634-04-4	0.0064	0.026	0.66	0.022 J
o-Xylene	95-47-6	0.012	0.032	0.16	0.22
Tetrachloroethene	127-18-4	0.0098	0.049	0.25	0.069 J
Toluene	108-88-3	0.012	0.027	0.14	1.5
trans-1,2-Dichloroethene	156-60-5	0.015	0.029	0.72	5.1
Trichloroethene	79-01-6	0.054	0.054	0.20	0.054 J
Vinyl Chloride	75-01-4	0.011	0.019	0.046	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	99

DJK
10/23/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ A	Date/Time Analyzed:	10/14/13 04:29 PM
Lab ID:	1310193A-01B	Dilution Factor:	1.82
Date/Time Collected:	10/8/13 09:29 AM	Instrument/Filename:	msd\i\v\101411sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

D57L
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1310193A-02A
 Date/Time Collected: 10/8/13 09:29 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 06:18 PM
 Dilution Factor: 2.00
 Instrument/File Name: msd.v.i/v101413

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.39	0.98	0.55 J
1,4-Dioxane	123-91-1	0.19	0.29	0.72	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	2.9	1.3 J
2-Hexanone	591-78-6	0.27	3.3	4.1	Not Detected
2-Propanol	67-63-0	0.26	2.0	2.4	3.5 J+
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.82	Not Detected
Acetone	67-64-1	0.33	1.9	2.4	32
Bromomethane	74-83-9	0.82	3.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.1	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.50	1.2	0.26 J
Chlorobenzene	108-90-7	0.092	0.37	0.92	Not Detected
Chloroethane	75-00-3	0.34	2.1	2.6	Not Detected
Chloromethane	74-87-3	0.092	0.16	2.1	1.0 J
Cumene	98-82-8	0.14	0.39	0.98	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.69	0.15 J
Freon 11	75-69-4	0.24	0.45	1.1	1.1 J
Freon 113	76-13-1	0.41	0.61	1.5	Not Detected
Freon 12	75-71-8	0.14	0.40	0.99	2.0
Hexane	110-54-3	0.12	0.28	0.70	0.46 J
Methylene Chloride	75-09-2	0.15	0.28	1.4	1.0 J
Propylbenzene	103-65-1	0.17	0.39	0.98	Not Detected
Styrene	100-42-5	0.13	0.34	0.85	Not Detected

DJL
10/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
 Lab ID: 1310193A-02A
 Date/Time Collected: 10/8/13 09:29 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 06:18 PM
 Dilution Factor: 2.00
 Instrument/Filename: msd\1\101413

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	2.9	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	97

DJL
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 13T0193A-02B
Date/Time Collected: 10/8/13 09:29 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 06:18 PM
Dilution Factor: 2.00
Instrument/Filename: msdvi/v101413sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.037 J
1,1-Dichloroethane	75-34-3	0.0048	0.032	0.16	0.0084 J
1,2-Dichloroethane	107-06-2	0.015	0.032	0.16	1.1
Benzene	71-43-2	0.019	0.064	0.32	0.40
Chloroform	67-66-3	0.0063	NA	0.20	0.38
cis-1,2-Dichloroethane	156-59-2	0.0078	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0046	0.035	0.17	0.18
m,p-Xylene	108-38-3	0.011	0.035	0.35	0.53
Methyl tert-butyl ether	1634-04-4	0.0071	0.029	0.72	0.012 J
o-Xylene	95-47-6	0.013	0.035	0.17	0.18
Tetrachloroethene	127-18-4	0.011	0.054	0.27	0.060 J
Toluene	108-88-3	0.013	0.030	0.15	1.7
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.79	0.89
Trichloroethene	79-01-6	0.059	0.059	0.21	0.34
Vinyl Chloride	75-01-4	0.012	0.020	0.051	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	99

DJL
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	10/14/13 06:18 PM
Lab ID:	1310193A-02B	Dilution Factor:	2.00
Date/Time Collected:	10/8/13 09:29 AM	Instrument/Filename:	msdv1/v101413sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

DJL
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1310193A-03A
Date/Time Collected: 10/8/13 09:30 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 07:12 PM
Dilution Factor: 2.07
Instrument/Filename: msdv.i / v101414

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt Limit (ug/m ³)	Amount (ug/m ³)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.41	1.0	0.45 J
1,4-Dioxane	123-91-1	0.20	0.30	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.39	2.4	3.0	1.5 J
2-Hexanone	591-78-6	0.28	3.4	4.2	Not Detected
2-Propanol	67-63-0	0.27	2.0	2.5	3.8
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.85	Not Detected
Acetone	67-64-1	0.34	2.0	2.4	3.3
Bromomethane	74-83-9	0.85	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.52	1.3	0.42 J
Chlorobenzene	108-90-7	0.095	0.38	0.95	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.095	0.17	2.1	1.1 J
Cumene	98-82-8	0.14	0.41	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.71	0.19 J
Freon 11	75-69-4	0.25	0.46	1.2	1.0 J
Freon 113	76-13-1	0.42	0.63	1.6	0.51 J
Freon 12	75-71-8	0.15	0.41	1.0	2.1
Hexane	110-54-3	0.12	0.29	0.73	0.56 J
Methylene Chloride	75-09-2	0.16	0.29	1.4	0.96 J
Propylbenzene	103-65-1	0.17	0.41	1.0	Not Detected
Styrene	100-42-5	0.14	0.35	0.88	0.18 J

DJL

10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1310193A-03A
Date/Time Collected: 10/8/13 09:30 AM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/14/13 07:12 PM
Dilution Factor: 2.07
Instrument/Filename: msdvi/v101414

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.24	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	95

DJK
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 10/14/13 07:12 PM
Lab ID: 1310193A-03B	Dilution Factor: 2.07
Date/Time Collected: 10/8/13 09:30 AM	Instrument/Filename: msdv.i/v101414sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.22	0.034 J
1,1-Dichloroethane	75-34-3	0.0049	0.034	0.17	0.0079 J
1,2-Dichloroethane	107-06-2	0.016	0.034	0.17	1.2
Benzene	71-43-2	0.020	0.066	0.33	0.42
Chloroform	67-66-3	0.0066	NA	0.20	0.42
cis-1,2-Dichloroethene	156-59-2	0.0081	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0048	0.036	0.18	0.18
m,p-Xylene	108-38-3	0.011	0.036	0.36	0.50
Methyl tert-butyl ether	1634-04-4	0.0073	0.030	0.75	0.024 J
o-Xylene	95-47-6	0.014	0.036	0.18	0.24
Tetrachloroethene	127-18-4	0.011	0.056	0.28	0.059 J
Toluene	108-88-3	0.014	0.031	0.16	1.4
trans-1,2-Dichloroethene	156-60-5	0.017	0.033	0.82	0.83
Trichloroethene	79-01-6	0.061	0.061	0.22	0.33
Vinyl Chloride	75-01-4	0.012	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	95

DJL
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	10/14/13 07:12 PM
Lab ID:	1310193A-03B	Dilution Factor:	2.07
Date/Time Collected:	10/8/13 09:30 AM	Instrument/Filename:	msd\i/v101414sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: XXXXXXXXXXD
 Lab ID: 1310193A-04A
 Date/Time Collected: 10/8/13 09:30 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 08:02 PM
 Dilution Factor: 1.90
 Instrument/File name: msdvi.i/v101415

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.18	0.37	0.93	0.59 J
1,4-Dioxane	123-91-1	0.18	0.27	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.2	2.8	0.66 J
2-Hexanone	591-78-6	0.26	3.1	3.9	Not Detected
2-Propanol	67-63-0	0.24	1.9	2.3	1.1 J
4-Methyl-2-pentanone	108-10-1	0.13	0.31	0.78	Not Detected
Acetone	67-64-1	0.32	1.8	2.2	8.3
Bromomethane	74-83-9	0.78	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	0.66 J
Chlorobenzene	108-90-7	0.087	0.35	0.87	Not Detected
Chloroethane	75-00-3	0.32	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.087	0.16	2.0	1.0 J
Cumene	98-82-8	0.13	0.37	0.93	Not Detected
Cyclohexane	110-82-7	0.10	0.26	0.65	0.11 J
Freon 11	75-69-4	0.23	0.43	1.1	1.0 J
Freon 113	76-13-1	0.39	0.58	1.4	0.40 J
Freon 12	75-71-8	0.14	0.38	0.94	2.0
Hexane	110-54-3	0.11	0.27	0.67	0.44 J
Methylene Chloride	75-09-2	0.14	0.26	1.3	1.2 J
Propylbenzene	103-65-1	0.16	0.37	0.93	Not Detected
Styrene	100-42-5	0.12	0.32	0.81	Not Detected

DSX
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
 Lab ID: 1310193A-04A
 Date/Time Collected: 10/8/13 09:30 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 08:02 PM
 Dilution Factor: 1.90
 Instrument/Filename: msdv.i/v101415

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.22	2.8	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	96

DJL
10/23/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 Bozeman Landfill

Client ID: [REDACTED]	Date/Time Analyzed: 10/14/13 08:02 PM
Lab ID: 1310193A-04B	Dilution Factor: 1.90
Date/Time Collected: 10/8/13 09:30 AM	Instrument/Filename: msdv.j / v101415sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.041	0.21	0.033 J
1,1-Dichloroethane	75-34-3	0.0045	0.031	0.15	0.011 J
1,2-Dichloroethane	107-06-2	0.014	0.031	0.15	0.12 J
Benzene	71-43-2	0.018	0.061	0.30	0.16 J
Chloroform	67-66-3	0.0060	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.0074	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0044	0.033	0.16	0.46
m,p-Xylene	108-38-3	0.010	0.033	0.33	0.18 J
Methyl tert-butyl ether	1634-04-4	0.0067	0.027	0.68	0.15 J
o-Xylene	95-47-6	0.012	0.033	0.16	0.077 J
Tetrachloroethene	127-18-4	0.010	0.052	0.26	0.14
Toluene	108-88-3	0.013	0.029	0.14	0.84
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.75	0.41 J
Trichloroethene	79-01-6	0.056	0.056	0.20	Not Detected
Vinyl Chloride	75-01-4	0.011	0.019	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	97

 DTK
 10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 10/14/13 08:02 PM		
Lab ID: 1310193A-04B	Dilution Factor: 1.90		
Date/Time Collected: 10/8/13 09:30 AM	Instrument/Filename: msd\i / v\101415sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	Limits	%Recovery	
Toluene-d8	2037-26-5	70-130	99

DJR
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E
 Lab ID: 1310193A-05A
 Date/Time Collected: 10/8/13 09:31 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 09:02 PM
 Dilution Factor: 1.67
 Instrument/File Name: msdvi/v101416

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.33	0.82	0.24 J
1,4-Dioxane	123-91-1	0.16	0.24	0.60	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.31	2.0	2.5	0.55 J
2-Hexanone	591-78-6	0.22	2.7	3.4	Not Detected
2-Propanol	67-63-0	0.21	1.6	2.0	0.26 J
4-Methyl-2-pentanone	108-10-1	0.12	0.27	0.68	Not Detected
Acetone	67-64-1	0.28	1.6	2.0	5.0
Bromomethane	74-83-9	0.68	2.6	3.2	Not Detected
Carbon Disulfide	75-15-0	0.17	2.1	2.6	Not Detected
Carbon Tetrachloride	56-23-5	0.13	0.42	1.0	0.51 J
Chlorobenzene	108-90-7	0.077	0.31	0.77	Not Detected
Chloroethane	75-00-3	0.28	1.8	2.2	Not Detected
Chloromethane	74-87-3	0.077	0.14	1.7	0.98 J
Cumene	98-82-8	0.12	0.33	0.82	Not Detected
Cyclohexane	110-82-7	0.091	0.23	0.57	Not Detected
Freon 11	75-69-4	0.20	0.38	0.94	1.0
Freon 113	76-13-1	0.34	0.51	1.3	0.48 J
Freon 12	75-71-8	0.12	0.33	0.82	2.1
Hexane	110-54-3	0.10	0.24	0.59	0.38 J
Methylene Chloride	75-09-2	0.13	0.23	1.2	0.33 J
Propylbenzene	103-65-1	0.14	0.33	0.82	Not Detected
Styrene	100-42-5	0.11	0.28	0.71	Not Detected

DJK
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E	Date/Time Analyzed: 10/14/13 09:02 PM
Lab ID: 1310193A-05A	Dilution Factor: 1.67
Date/Time Collected: 10/8/13 09:31 AM	Instrument/Filename: msdv.i/v101416
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.18	0.20	2.5	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	97

DJK
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E
 Lab ID: 1310193A-05B
 Date/Time Collected: 10/8/13 09:31 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/14/13 09:02 PM
 Dilution Factor: 1.67
 Instrument/Filename: msdv.i/v101416sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0098	0.036	0.18	0.024 J
1,1-Dichloroethane	75-34-3	0.0040	0.027	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.013	0.027	0.14	0.062 J
Benzene	71-43-2	0.016	0.053	0.27	0.27
Chloroform	67-66-3	0.0053	NA	0.16	0.085 J
cis-1,2-Dichloroethene	156-59-2	0.0066	0.026	0.13	Not Detected
Ethyl Benzene	100-41-4	0.0038	0.029	0.14	Not Detected
m,p-Xylene	108-38-3	0.0091	0.029	0.29	0.30
Methyl tert-butyl ether	1634-04-4	0.0059	0.024	0.60	0.019 J
o-Xylene	95-47-6	0.011	0.029	0.14	0.10 J
Tetrachloroethene	127-18-4	0.0089	0.045	0.23	0.030 J
Toluene	108-88-3	0.011	0.025	0.12	0.61
trans-1,2-Dichloroethene	156-60-5	0.014	0.026	0.66	Not Detected
Trichloroethene	79-01-6	0.049	0.049	0.18	Not Detected
Vinyl Chloride	75-01-4	0.0099	0.017	0.043	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96

DML
10/23/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E	Date/Time Analyzed: 10/14/13 09:02 PM		
Lab ID: 13T0193A-05B	Dilution Factor: 1.67		
Date/Time Collected: 10/8/13 09:31 AM	Instrument/Filename: msdv.i/v101416sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

157K

10/23/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Each qualifying signature on this document indicates that sample is being shipped in compliance with all applicable local, state, federal, and international laws, regulations and ordinances of any and all Air Toxics Limited assures to liability with respect to the collection, handling or shipping of these samples. Requiring signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand or action of any kind, related to the collection, handling, or shipping of samples. C.O.T. #111111 (800) 467-4522

1800 BLUE PRAIRIE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020
 Page 1 of 1

Project Manager: Mark Pearson
 Collected by: Mark Pearson
 Company: Edaphic
 Address: 2511 Bridge Dr, Ste 6, Colusa, CA 95619
 Phone: 582 20822
 Fax: _____
 Email: mark.pearson@edaphic.com
 Project Name: 322 Pumphouse Landfill

Project Info:
 P.O. # _____
 Project # 114-710303
 Project Name: 322 Pumphouse Landfill
 Turn Around Time: Normal Rush
 Pressurized by: _____
 Date: _____
 No. of Cans: _____

Lab ID	Field Sample ID (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure (vacuum)
01A	A		10/18/13	9:29	See attached	-25.3 ± 0.5
02A	B			9:29		-24.9 ± 0.5
03A	C			9:30		-24.4 ± 0.5
04A	D			9:30		-22.5 ± 0.4
05A	E			9:31		-22.6 ± 0.6

Relinquished by: (signature) [Signature] Date/Time: 10/18-1000
 Received by: (signature) [Signature] Date/Time: 10/19/13
 Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____
 Notes: Also returning flow controller #45171
PKTS - land gas

Relinquished by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____
 Shipper Name: ICBS Air Bill # _____
 Temp (C): NA Condition: good
 Cylinders Sealed Intact: Yes No
 Work Order #: 1111193

November 20, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: November 20, 2013

Sample Delivery Group (SDG) No.	1310547A
Samples	████-SS3, █████-F, █████-G, █████-H, █████-SS3, █████-D, █████-E, █████-F, and █████-G

Tetra Tech, Inc. conducted data validation of the analytical results for nine air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 21 and 22, 2013. The samples were analyzed under SDG No. 1310547A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



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- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310547A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation or holding times. The chain-of-custody (COC) information for sample [REDACTED]-F did not match the information on the canister with regard to canister identification. Tetra Tech was notified of the discrepancy and the information on the canister was used to process and report the sample. No data were qualified.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with full scan analysis contained target analyte methylene chloride below the reporting limit (RL). The method blank associated with the SIM analyses contained target analytes toluene and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits.

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

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RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310547A

(Thirty-six Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310547A

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/25/13 03:20 PM
Lab ID:	1310547A-01A	Dilution Factor:	2.02
Date/Time Collecte	10/21/13 03:46 PM	Instrument/Filename:	msdc.i / c102508
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.32	0.79	0.99	1.6
1,4-Dioxane	123-91-1	0.14	0.58	0.73	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.83	3.0	0.53 J
2-Hexanone	591-78-6	0.27	1.2	4.1	Not Detected
2-Propanol	67-63-0	0.23	0.70	2.5	0.75 J
4-Methyl-2-pentanone	108-10-1	0.10	0.66	0.83	0.52 J
Acetone	67-64-1	0.65	0.67	2.4	2.1 J
Bromomethane	74-83-9	0.82	1.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.16	0.88	3.1	Not Detected
Carbon Tetrachloride	56-23-5	0.32	1.0	1.3	0.37 J
Chlorobenzene	108-90-7	0.20	0.74	0.93	Not Detected
Chloroethane	75-00-3	0.29	0.75	2.7	Not Detected
Chloromethane	74-87-3	0.046	0.33	2.1	0.12 J
Cumene	98-82-8	0.13	0.79	0.99	0.79 J
Cyclohexane	110-82-7	0.097	0.56	0.70	Not Detected
Freon 11	75-69-4	0.095	0.91	1.1	1.5
Freon 113	76-13-1	0.27	1.2	1.5	0.46 J
Freon 12	75-71-8	0.099	0.80	1.0	2.7
Hexane	110-54-3	0.089	0.57	0.71	0.26 J
Methylene Chloride	75-09-2	0.14	0.56	1.4	2.1
Propylbenzene	103-65-1	0.20	0.79	0.99	0.45 J
Styrene	100-42-5	0.17	0.69	0.86	0.20 J

5+

DJK
11/20/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████ SSS3	Date/Time Analyzed: 10/25/13 03:20 PM
Lab ID: 1310547A-01A	Dilution Factor: 2.02
Date/Time Collected: 10/21/13 03:46 PM	Instrument/Filename: msdc.i / c102508
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.58	0.83	3.0	0.75 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	103

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/25/13 03:20 PM
Lab ID:	1310547A-01B	Dilution Factor:	2.02
Date/Time Collecte	10/21/13 03:46 PM	Instrument/Filename:	msdc.i/c102508sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.044	0.22	0.060 J
1,1-Dichloroethane	75-34-3	0.0035	0.033	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.034	0.034	0.16	Not Detected
Benzene	71-43-2	0.052	0.052	0.32	0.14 J
Chloroform	67-66-3	0.018	NA	0.20	0.081 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.035	0.18	0.28
m,p-Xylene	108-38-3	0.017	0.035	0.35	0.94
Methyl tert-butyl ether	1634-04-4	0.021	0.029	0.73	Not Detected
o-Xylene	95-47-6	0.016	0.035	0.18	0.41
Tetrachloroethene	127-18-4	0.016	0.055	0.27	0.40
Toluene	108-88-3	0.0065	0.030	0.15	0.69
trans-1,2-Dichloroethene	156-60-5	0.019	0.032	0.80	0.034 J
Trichloroethene	79-01-6	0.0088	0.043	0.22	0.021 J
Vinyl Chloride	75-01-4	0.0070	0.021	0.052	0.025 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	101

DJK
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/25/13 03:20 PM
Lab ID:	1310547A-01B	Dilution Factor:	2.02
Date/Time Collecte	10/21/13 03:46 PM	Instrument/Filename:	msdc.l / c102508sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

DWL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-F	Date/Time Analyzed:	10/25/13 04:28 PM
Lab ID:	1310547A-02A	Dilution Factor:	2.10
Date/Time Collecte	10/22/13 03:10 PM	Instrument/File name:	msdc.i / c102509
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.82	1.0	0.98 J
1,4-Dioxane	123-91-1	0.15	0.60	0.76	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.87	3.1	0.97 J
2-Hexanone	591-78-6	0.28	1.2	4.3	Not Detected
2-Propanol	67-63-0	0.24	0.72	2.6	50
4-Methyl-2-pentanone	108-10-1	0.10	0.69	0.86	0.20 J
Acetone	67-64-1	0.68	0.70	2.5	38
Bromomethane	74-83-9	0.86	1.1	4.1	Not Detected
Carbon Disulfide	75-15-0	0.16	0.92	3.3	Not Detected
Carbon Tetrachloride	56-23-5	0.33	1.0	1.3	0.49 J
Chlorobenzene	108-90-7	0.20	0.77	0.97	Not Detected
Chloroethane	75-00-3	0.30	0.78	2.8	Not Detected
Chloromethane	74-87-3	0.047	0.35	2.2	1.1 J
Cumene	98-82-8	0.14	0.82	1.0	Not Detected
Cyclohexane	110-82-7	0.10	0.58	0.72	0.14 J
Freon 11	75-69-4	0.098	0.94	1.2	1.3
Freon 113	76-13-1	0.28	1.3	1.6	0.44 J
Freon 12	75-71-8	0.10	0.83	1.0	2.6
Hexane	110-54-3	0.092	0.59	0.74	0.45 J
Methylene Chloride	75-09-2	0.14	0.58	1.4	-0.97 J
Propylbenzene	103-65-1	0.21	0.82	1.0	Not Detected
Styrene	100-42-5	0.18	0.72	0.89	Not Detected

DJK
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F
Lab ID: 1310547A-02A
Date/Time Collected: 10/22/13 03:10 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/25/13 04:28 PM
Dilution Factor: 2.10
Instrument/Filename: msdc.i / c102509

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.60	0.87	3.1	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	96

DWL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ F	Date/Time Analyzed:	10/25/13 04:28 PM
Lab ID:	1310547A-02B	Dilution Factor:	2.10
Date/Time Collecte	10/22/13 03:10 PM	Instrument/Filename:	msdc.i / c:102509sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.021	0.046	0.23	0.059 J
1,1-Dichloroethane	75-34-3	0.0036	0.034	0.17	0.0073 J
1,2-Dichloroethane	107-06-2	0.036	0.036	0.17	1.1
Benzene	71-43-2	0.054	0.054	0.34	0.54
Chloroform	67-66-3	0.018	NA	0.20	0.47
cis-1,2-Dichloroethene	156-59-2	0.015	0.033	0.17	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	0.19
m,p-Xylene	108-38-3	0.018	0.036	0.36	0.59
Methyl tert-butyl ether	1634-04-4	0.022	0.030	0.76	Not Detected
o-Xylene	95-47-6	0.016	0.036	0.18	0.20
Tetrachloroethene	127-18-4	0.017	0.057	0.28	0.074 J
Toluene	108-88-3	0.0068	0.032	0.16	2.2
trans-1,2-Dichloroethene	156-60-5	0.020	0.033	0.83	0.57 J
Trichloroethene	79-01-6	0.0091	0.045	0.22	0.40
Vinyl Chloride	75-01-4	0.0072	0.021	0.054	0.0077 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	96

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F
Lab ID: 1310547A-02B
Date/Time Collected: 10/22/13 03:10 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/25/13 04:28 PM
Dilution Factor: 2.10
Instrument/File Name: msdc.l / c102509sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ G	Date/Time Analyzed:	10/25/13 05:30 PM
Lab ID:	1310547A-03A	Dilution Factor:	2.07
Date/Time Collecte	10/22/13 03:11 PM	Instrument/Filename:	msdc.i / c102510
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.81	1.0	0.60 J
1,4-Dioxane	123-91-1	0.15	0.60	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.85	3.0	1.3 J
2-Hexanone	591-78-6	0.28	1.2	4.2	Not Detected
2-Propanol	67-63-0	0.24	0.71	2.5	48
4-Methyl-2-pentanone	108-10-1	0.10	0.68	0.85	0.16 J
Acetone	67-64-1	0.66	0.69	2.4	29
Bromomethane	74-83-9	0.84	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.90	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.33	1.0	1.3	0.56 J
Chlorobenzene	108-90-7	0.20	0.76	0.95	Not Detected
Chloroethane	75-00-3	0.30	0.76	2.7	Not Detected
Chloromethane	74-87-3	0.047	0.34	2.1	1.3 J
Cumene	98-82-8	0.13	0.81	1.0	Not Detected
Cyclohexane	110-82-7	0.10	0.57	0.71	0.16 J
Freon 11	75-69-4	0.097	0.93	1.2	1.3
Freon 113	76-13-1	0.28	1.3	1.6	0.40 J
Freon 12	75-71-8	0.10	0.82	1.0	2.4
Hexane	110-54-3	0.091	0.58	0.73	0.54 J
Methylene Chloride	75-09-2	0.14	0.58	1.4	0.88 J
Propylbenzene	103-65-1	0.21	0.81	1.0	Not Detected
Styrene	100-42-5	0.18	0.70	0.88	0.21 J

DSL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] G	Date/Time Analyzed:	10/25/13 05:30 PM
Lab ID:	1310547A-03A	Dilution Factor:	2.07
Date/Time Collecte	10/22/13 03:11 PM	Instrument/Filename:	msdc.l / c102510
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.59	0.85	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99

DJK
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] G	Date/Time Analyzed: 10/25/13 05:30 PM
Lab ID: 1310547A-03B	Dilution Factor: 2.07
Date/Time Collecte: 10/22/13 03:11 PM	Instrument/Filename: msdc:\c1025f10sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.045	0.22	0.10 J
1,1-Dichloroethane	75-34-3	0.0036	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.035	0.035	0.17	0.68
Benzene	71-43-2	0.053	0.053	0.33	0.51
Chloroform	67-66-3	0.018	NA	0.20	0.41
cis-1,2-Dichloroethene	156-59-2	0.015	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	0.22
m,p-Xylene	108-38-3	0.018	0.036	0.36	0.64
Methyl tert-butyl ether	1634-04-4	0.022	0.030	0.75	Not Detected
o-Xylene	95-47-6	0.016	0.036	0.18	0.21
Tetrachloroethene	127-18-4	0.017	0.056	0.28	0.10 J
Toluene	108-88-3	0.0067	0.031	0.16	2.5
trans-1,2-Dichloroethene	156-60-5	0.020	0.033	0.82	1.0
Trichloroethene	79-01-6	0.0090	0.044	0.22	0.12 J
Vinyl Chloride	75-01-4	0.0071	0.021	0.053	0.0076 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	96

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] G	Date/Time Analyzed: 10/25/13 05:30 PM
Lab ID: 1310547A-03B	Dilution Factor: 2.07
Date/Time Collecte : 10/22/13 03:11 PM	Instrument/Filename: msdc.i / c102510sim
Media: 6 Liter Summa Canister (SIM Certified)	

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DSL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] H	Date/Time Analyzed:	10/25/13 06:32 PM
Lab ID:	1310547A-04A	Dilution Factor:	1.74
Date/Time Collecte	10/22/13 03:14 PM	Instrument/File name:	msdc.i / c102511
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.28	0.68	0.86	0.48 J
1,4-Dioxane	123-91-1	0.12	0.50	0.63	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.72	2.6	1.1 J
2-Hexanone	591-78-6	0.23	1.0	3.6	Not Detected
2-Propanol	67-63-0	0.20	0.60	2.1	10
4-Methyl-2-pentanone	108-10-1	0.086	0.57	0.71	0.20 J
Acetone	67-64-1	0.56	0.58	2.1	13
Bromomethane	74-83-9	0.71	0.95	3.4	Not Detected
Carbon Disulfide	75-15-0	0.14	0.76	2.7	Not Detected
Carbon Tetrachloride	56-23-5	0.27	0.88	1.1	0.49 J
Chlorobenzene	108-90-7	0.17	0.64	0.80	Not Detected
Chloroethane	75-00-3	0.25	0.64	2.3	Not Detected
Chloromethane	74-87-3	0.039	0.29	1.8	0.98 J
Cumene	98-82-8	0.11	0.68	0.86	Not Detected
Cyclohexane	110-82-7	0.084	0.48	0.60	0.53 J
Freon 11	75-69-4	0.082	0.78	0.98	1.3
Freon 113	76-13-1	0.23	1.1	1.3	0.42 J
Freon 12	75-71-8	0.086	0.69	0.86	2.8
Hexane	110-54-3	0.076	0.49	0.61	0.38 J
Methylene Chloride	75-09-2	0.12	0.48	0.86	0.67 J
Propylbenzene	103-65-1	0.18	0.68	0.86	Not Detected
Styrene	100-42-5	0.15	0.59	0.74	Not Detected

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D57L
11/29/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-H	Date/Time Analyzed:	10/25/13 06:32 PM
Lab ID:	1310547A-04A	Dilution Factor:	1.74
Date/Time Collecte	10/22/13 03:14 PM	Instrument/Filename:	msdc.i/c102511
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.50	0.72	2.6	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	99

DSZ
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-H	Date/Time Analyzed:	10/25/13 06:32 PM
Lab ID:	1310547A-04B	Dilution Factor:	1.74
Date/Time Collecte	10/22/13 03:14 PM	Instrument/Filename:	msdc.l / c102511sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.038	0.19	0.035 J
1,1-Dichloroethane	75-34-3	0.0030	0.028	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.030	0.030	0.14	0.24
Benzene	71-43-2	0.045	0.045	0.28	0.41
Chloroform	67-66-3	0.015	NA	0.17	0.33
cis-1,2-Dichloroethane	156-59-2	0.012	0.028	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.030	0.15	0.28
m,p-Xylene	108-38-3	0.015	0.030	0.30	0.77
Methyl tert-butyl ether	1634-04-4	0.018	0.025	0.63	Not Detected
o-Xylene	95-47-6	0.014	0.030	0.15	0.28
Tetrachloroethene	127-18-4	0.014	0.047	0.24	0.13 J
Toluene	108-88-3	0.0056	0.026	0.13	3.2
trans-1,2-Dichloroethene	156-60-5	0.016	0.028	0.69	0.23 J
Trichloroethene	79-01-6	0.0076	0.037	0.19	0.058 J
Vinyl Chloride	75-01-4	0.0060	0.018	0.044	0.014 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	98

DJL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-H	Date/Time Analyzed:	10/25/13 06:32 PM
Lab ID:	1310547A-04B	Dilution Factor:	1.74
Date/Time Collecte	10/22/13 03:14 PM	Instrument/Filename:	msdc.l / c102511sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJR
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/25/13 07:22 PM
Lab ID:	1310547A-05A	Dilution Factor:	1.62
Date/Time Collected:	10/21/13 01:38 PM	Instrument/Filename:	msdc.i / c102512
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.26	0.64	0.80	5.8
1,4-Dioxane	123-91-1	0.12	0.47	0.58	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.19	0.67	2.4	6.7
2-Hexanone	591-78-6	0.22	0.93	3.3	Not Detected
2-Propanol	67-63-0	0.19	0.56	2.0	8.4
4-Methyl-2-pentanone	108-10-1	0.080	0.53	0.66	2.5
Acetone	67-64-1	0.52	0.54	1.9	28
Bromomethane	74-83-9	0.66	0.88	3.1	Not Detected
Carbon Disulfide	75-15-0	0.12	0.71	2.5	0.31 J
Carbon Tetrachloride	56-23-5	0.26	0.82	1.0	0.65 J
Chlorobenzene	108-90-7	0.16	0.60	0.74	0.16 J
Chloroethane	75-00-3	0.24	0.60	2.1	Not Detected
Chloromethane	74-87-3	0.037	0.27	1.7	0.81 J
Cumene	98-82-8	0.10	0.64	0.80	1.0
Cyclohexane	110-82-7	0.078	0.45	0.56	4.4
Freon 11	75-69-4	0.076	0.73	0.91	1.3
Freon 113	76-13-1	0.22	0.99	1.2	0.53 J
Freon 12	75-71-8	0.080	0.64	0.80	2.6
Hexane	110-54-3	0.071	0.46	0.57	7.6
Methylene Chloride	75-09-2	0.11	0.45	0.45	1.0
Propylbenzene	103-65-1	0.16	0.64	0.80	1.6
Styrene	100-42-5	0.14	0.55	0.69	1.2

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS3
Lab ID: 1310547A-05A
Date/Time Collecte: 10/21/13 01:38 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/25/13 07:22 PM
Dilution Factor: 1.62
Instrument/Filename: msdc.l / c:102512

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.46	0.67	2.4	2.8

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

DSTL
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/25/13 07:22 PM
Lab ID:	1310547A-05B	Dilution Factor:	1.62
Date/Time Collecte	10/21/13 01:38 PM	Instrument/Filename:	msdc.i / c102512sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.016	0.035	0.18	0.026 J
1,1-Dichloroethane	75-34-3	0.0028	0.026	0.13	0.0094 J
1,2-Dichloroethane	107-06-2	0.028	0.028	0.13	0.20
Benzene	71-43-2	0.042	0.042	0.26	5.1
Chloroform	67-66-3	0.014	NA	0.16	2.1
cis-1,2-Dichloroethene	156-59-2	0.011	0.026	0.13	Not Detected
Ethyl Benzene	100-41-4	0.011	0.028	0.14	9.8
m,p-Xylene	108-38-3	0.014	0.028	0.28	40
Methyl tert-butyl ether	1634-04-4	0.017	0.023	0.58	0.024 J
o-Xylene	95-47-6	0.013	0.028	0.14	11
Tetrachloroethene	127-18-4	0.013	0.044	0.22	0.22
Toluene	108-88-3	0.0052	0.024	0.12	62
trans-1,2-Dichloroethene	156-60-5	0.015	0.026	0.64	0.14 J
Trichloroethene	79-01-6	0.0070	0.035	0.17	0.038 J
Vinyl Chloride	75-01-4	0.0056	0.016	0.041	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	100

DJK
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Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SSS3
Lab ID: 1310547A-05B
Date/Time Collecte 10/21/13 01:38 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/25/13 07:22 PM
Dilution Factor: 1.62
Instrument/Filename: msdc.i / c102512sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

DSTL
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID
 Lab ID: 1310547A-06A
 Date/Time Collecte: 10/22/13 01:15 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/25/13 08:15 PM
 Dilution Factor: 1.96
 Instrument/File Name: msdc.i / c102513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.77	0.96	2.6
1,4-Dioxane	123-91-1	0.14	0.56	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.81	2.9	2.9
2-Hexanone	591-78-6	0.26	1.1	4.0	Not Detected
2-Propanol	67-63-0	0.22	0.67	2.4	4.1
4-Methyl-2-pentanone	108-10-1	0.097	0.64	0.80	0.50 J
Acetone	67-64-1	0.63	0.65	2.3	36
Bromomethane	74-83-9	0.80	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.85	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.31	0.99	1.2	0.51 J
Chlorobenzene	108-90-7	0.19	0.72	0.90	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	1.1 J
Cumene	98-82-8	0.13	0.77	0.96	Not Detected
Cyclohexane	110-82-7	0.094	0.54	0.67	3.1
Freon 11	75-69-4	0.092	0.88	1.1	1.7
Freon 113	76-13-1	0.26	1.2	1.5	0.49 J
Freon 12	75-71-8	0.096	0.78	0.97	2.5
Hexane	110-54-3	0.086	0.55	0.69	4.9
Methylene Chloride	75-09-2	0.13	0.54	0.66 J	0.66 J
Propylbenzene	103-65-1	0.20	0.77	0.96	0.40 J
Styrene	100-42-5	0.17	0.67	0.83	0.59 J

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID
Lab ID: 1310547A-06A
Date/Time Collected: 10/22/13 01:15 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/25/13 08:15 PM
Dilution Factor: 1.96
Instrument/Filename: msdc.i / c102513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.81	2.9	0.67 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	99

DJL
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID	Date/Time Analyzed: 10/25/13 08:15 PM
Lab ID: 1310547A-06B	Dilution Factor: 1.96
Date/Time Collected: 10/22/13 01:15 PM	Instrument/File Name: msdc:\c1025\13sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.043	0.21	0.040 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	0.0088 J
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	0.51
Benzene	71-43-2	0.050	0.050	0.31	2.2
Chloroform	67-66-3	0.017	NA	0.19	1.7
cis-1,2-Dichloroethane	156-59-2	0.014	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.034	0.17	2.6
m,p-Xylene	108-38-3	0.017	0.034	0.34	9.9
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.71	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	3.0
Tetrachloroethane	127-18-4	0.016	0.053	0.26	0.050 J
Toluene	108-88-3	0.0064	0.030	0.15	26
trans-1,2-Dichloroethane	156-60-5	0.019	0.031	0.78	0.028 J
Trichloroethane	79-01-6	0.0085	0.042	0.21	0.027 J
Vinyl Chloride	75-01-4	0.0068	0.020	0.050	0.025 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	99

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11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] ID
Lab ID: 1310547A-06B
Date/Time Collecte 10/22/13 01:15 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/25/13 08:15 PM
Dilution Factor: 1.96
Instrument/Filename: msdc.i / c102513sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DJL
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████E	Date/Time Analyzed:	10/25/13 09:09 PM
Lab ID:	1310547A-07A	Dilution Factor:	1.83
Date/Time Collected:	10/22/13 01:19 PM	Instrument/Filename:	msdc.i/c102514
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.72	0.90	2.7
1,4-Dioxane	123-91-1	0.13	0.53	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.21	0.76	2.7	3.1
2-Hexanone	591-78-6	0.25	1.0	3.7	0.33 J
2-Propanol	67-63-0	0.21	0.63	2.2	4.5
4-Methyl-2-pentanone	108-10-1	0.090	0.60	0.75	0.47 J
Acetone	67-64-1	0.59	0.61	2.2	39
Bromomethane	74-83-9	0.75	0.99	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.80	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.29	0.92	1.2	0.66 J
Chlorobenzene	108-90-7	0.18	0.67	0.84	Not Detected
Chloroethane	75-00-3	0.26	0.68	2.4	Not Detected
Chloromethane	74-87-3	0.041	0.30	1.9	1.2 J
Cumene	98-82-8	0.12	0.72	0.90	Not Detected
Cyclohexane	110-82-7	0.088	0.50	0.63	3.2
Freon 11	75-69-4	0.086	0.82	1.0	1.8
Freon 113	76-13-1	0.24	1.1	1.4	0.39 J
Freon 12	75-71-8	0.090	0.72	0.90	2.4
Hexane	110-54-3	0.080	0.52	0.64	5.2
Methylene Chloride	75-09-2	0.12	0.51	0.90	0.64 J
Propylbenzene	103-65-1	0.19	0.72	0.90	0.38 J
Styrene	100-42-5	0.16	0.62	0.78	0.57 J

1.3

DSTL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E	Date/Time Analyzed: 10/25/13 09:09 PM
Lab ID: 1310547A-07A	Dilution Factor: 1.83
Date/Time Collecte: 10/22/13 01:19 PM	Instrument/Filename: msdc.i / c102514
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.52	0.76	2.7	0.74 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	96

DTR
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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-E	Date/Time Analyzed:	10/25/13 09:09 PM
Lab ID:	1310547A-07B	Dilution Factor:	1.83
Date/Time Collecte	10/22/13 01:19 PM	Instrument/Filename:	msdc.i / c102514sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.040	0.20	0.040 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	0.0082 J
1,2-Dichloroethane	107-06-2	0.031	0.031	0.15	0.55
Benzene	71-43-2	0.047	0.047	0.29	2.2
Chloroform	67-66-3	0.016	NA	0.18	1.7
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	2.5
m,p-Xylene	108-38-3	0.016	0.032	0.32	9.8
Methyl tert-butyl ether	1634-04-4	0.019	0.026	0.66	Not Detected
o-Xylene	95-47-6	0.014	0.032	0.16	3.0
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.047 J
Toluene	108-88-3	0.0059	0.028	0.14	26
trans-1,2-Dichloroethene	156-60-5	0.017	0.029	0.72	0.026 J
Trichloroethene	79-01-6	0.0080	0.039	0.20	0.024 J
Vinyl Chloride	75-01-4	0.0063	0.019	0.047	0.033 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	100

DTL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] E	Lab ID: 1310547A-07B	Date/Time Analyzed: 10/25/13 09:09 PM
Date/Time Collecte	10/22/13 01:19 PM	Dilution Factor: 1.83
Media: 6 Liter Summa Canister (SIM Certified)		Instrument/Filename: msdc.i / c102514sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████ F	Date/Time Analyzed:	10/25/13 10:31 PM
Lab ID:	1310547A-08A	Dilution Factor:	2.08
Date/Time Collected:	10/22/13 01:21 PM	Instrument/Filename:	msdc:\c1025f15
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.33	0.82	1.0	2.0
1,4-Dioxane	123-91-1	0.15	0.60	0.75	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	0.86	3.1	2.0 J
2-Hexanone	591-78-6	0.28	1.2	4.3	Not Detected
2-Propanol	67-63-0	0.24	0.72	2.6	1.6 J
4-Methyl-2-pentanone	108-10-1	0.10	0.68	0.85	0.30 J
Acetone	67-64-1	0.67	0.69	2.5	21
Bromomethane	74-83-9	0.85	1.1	4.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.91	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.33	1.0	1.3	0.41 J
Chlorobenzene	108-90-7	0.20	0.77	0.96	Not Detected
Chloroethane	75-00-3	0.30	0.77	2.7	Not Detected
Chloromethane	74-87-3	0.047	0.34	2.1	0.82 J
Cumene	98-82-8	0.14	0.82	1.0	Not Detected
Cyclohexane	110-82-7	0.10	0.57	0.72	1.9
Freon 11	75-69-4	0.097	0.93	1.2	1.8
Freon 113	76-13-1	0.28	1.3	1.6	0.62 J
Freon 12	75-71-8	0.10	0.82	1.0	2.4
Hexane	110-54-3	0.091	0.59	0.73	3.0
Methylene Chloride	75-09-2	0.14	0.58	1.4	0.65 J
Propylbenzene	103-65-1	0.21	0.82	1.0	0.30 J
Styrene	100-42-5	0.18	0.71	0.88	0.29 J

1.4 u

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11/29/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F	Date/Time Analyzed: 10/25/13 10:31 PM
Lab ID: 1310547A-08A	Dilution Factor: 2.08
Date/Time Collecte: 10/22/13 01:21 PM	Instrument/Filename: msdc.i / c102515
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.60	0.86	3.1	0.64 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	99

DJL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] F	Date/Time Analyzed:	10/25/13 10:31 PM
Lab ID:	1310547A-08B	Dilution Factor:	2.08
Date/Time Collecte	10/22/13 01:21 PM	Instrument/File name:	msdc:/c102515sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.045	0.23	0.042 J
1,1-Dichloroethane	75-34-3	0.0036	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.035	0.035	0.17	0.31
Benzene	71-43-2	0.053	0.053	0.33	1.4
Chloroform	67-66-3	0.018	NA	0.20	0.79
cis-1,2-Dichloroethane	156-59-2	0.015	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.036	0.18	1.6
m,p-Xylene	108-38-3	0.018	0.036	0.36	6.0
Methyl tert-butyl ether	1634-04-4	0.022	0.030	0.75	Not Detected
o-Xylene	95-47-6	0.016	0.036	0.18	1.9
Tetrachloroethane	127-18-4	0.017	0.056	0.28	0.036 J
Toluene	108-88-3	0.0067	0.031	0.16	14
trans-1,2-Dichloroethane	156-60-5	0.020	0.033	0.82	Not Detected
Trichloroethane	79-01-6	0.0090	0.045	0.22	0.016 J
Vinyl Chloride	75-01-4	0.0072	0.021	0.053	0.013 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	98

DJL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	F	Date/Time Analyzed:	10/25/13 10:31 PM
Lab ID:	1310547A-08B	Dilution Factor:	2.08
Date/Time Collecte	10/22/13 01:21 PM	Instrument/Filename:	msdc.i / c102515sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
11/29/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	-G	Date/Time Analyzed:	10/26/13 08:34 AM
Lab ID:	1310547A-09A	Dilution Factor:	2.25
Date/Time Collecte	10/22/13 01:25 PM	Instrument/File name:	msdc.i / c102516
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.36	0.88	1.1	Not Detected
1,4-Dioxane	123-91-1	0.16	0.65	0.81	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.26	0.93	3.3	0.37 J
2-Hexanone	591-78-6	0.30	1.3	4.6	Not Detected
2-Propanol	67-63-0	0.26	0.77	2.8	Not Detected
4-Methyl-2-pentanone	108-10-1	0.11	0.74	0.92	Not Detected
Acetone	67-64-1	0.72	0.75	2.7	4.0
Bromomethane	74-83-9	0.92	1.2	4.4	Not Detected
Carbon Disulfide	75-15-0	0.17	0.98	3.5	Not Detected
Carbon Tetrachloride	56-23-5	0.36	1.1	1.4	0.40 J
Chlorobenzene	108-90-7	0.22	0.83	1.0	Not Detected
Chloroethane	75-00-3	0.33	0.83	3.0	Not Detected
Chloromethane	74-87-3	0.051	0.37	2.3	1.0 J
Cumene	98-82-8	0.15	0.88	1.1	Not Detected
Cyclohexane	110-82-7	0.11	0.62	0.77	Not Detected
Freon 11	75-69-4	0.10	1.0	1.3	1.4
Freon 113	76-13-1	0.30	1.4	1.7	0.57 J
Freon 12	75-71-8	0.11	0.89	1.1	2.7
Hexane	110-54-3	0.099	0.63	0.79	0.32 J
Methylene Chloride	75-09-2	0.15	0.62	1.6	-0.48 J
Propylbenzene	103-65-1	0.23	0.88	1.1	Not Detected
Styrene	100-42-5	0.19	0.77	0.96	Not Detected

DJL
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] G	Date/Time Analyzed: 10/26/13 08:34 AM
Lab ID: 1310547A-09A	Dilution Factor: 2.25
Date/Time Collected: 10/22/13 01:25 PM	Instrument/Filename: msdc.i / c102516
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.64	0.93	3.3	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	98

DJK
11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] G	Date/Time Analyzed: 10/26/13 08:34 AM
Lab ID: 1310547A-09B	Dilution Factor: 2.25
Date/Time Collecte: 10/22/13 01:25 PM	Instrument/File name: msdc.i / c102516sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.049	0.24	0.024 J
1,1-Dichloroethane	75-34-3	0.0039	0.036	0.18	0.0081 J
1,2-Dichloroethane	107-06-2	0.038	0.038	0.18	0.070 J
Benzene	71-43-2	0.058	0.058	0.36	0.39
Chloroform	67-66-3	0.020	NA	0.22	0.15 J
cis-1,2-Dichloroethane	156-59-2	0.016	0.036	0.18	Not Detected
Ethyl Benzene	100-41-4	0.016	0.039	0.20	0.12 J
m,p-Xylene	108-38-3	0.019	0.039	0.39	0.40
Methyl tert-butyl ether	1634-04-4	0.023	0.032	0.81	Not Detected
o-Xylene	95-47-6	0.018	0.039	0.20	0.14 J
Tetrachloroethane	127-18-4	0.018	0.061	0.30	0.043 J
Toluene	108-88-3	0.0073	0.034	0.17	0.82
trans-1,2-Dichloroethane	156-60-5	0.021	0.036	0.89	0.027 J
Trichloroethane	79-01-6	0.0098	0.048	0.89	0.021 J
Vinyl Chloride	75-01-4	0.0078	0.023	0.058	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	98

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11/20/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] G
Lab ID: 1310547A-09B
Date/Time Collecte 10/22/13 01:25 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/26/13 08:34 AM
Dilution Factor: 2.25
Instrument/Filename: msdc.i / c102516sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
11/20/13



Air Toxics

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

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Page 1 of 1

Project Manager

Mark F. Pearson

Collected by: (Print and Sign)

Nicholas Souer

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Tetra Tech

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406-582-8780

Fax

Project Info:

P.O. #

114-710303A

Project #

Foxboro Landfill

Project Name

Turn Around Time:

Normal

Rush

5-day

Lab Use Only

Pressurized by:

Date:

Pressurization Gas:

N2 He

Table with columns: Lab I.D., Field Sample I.D. (Location), Can #, Date of Collection, Time of Collection, Analyses Requested, Canister Pressure/Vacuum (Initial, Final, Receipt, Final (psi)), Relinquished by (signature), Date/Time, Received by (signature), Date/Time, Notes, Shipper Name, Air Bill #, Temp (C), Condition, Custody Seals Intact?, Work Order #.

November 22, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: November 22, 2013

Sample Delivery Group (SDG) No.	1310562A
Samples	██████-D and ██████-SS1
Field Duplicate	██████-SS2

Tetra Tech, Inc. conducted data validation of the analytical results for three air samples (including one field duplicate) that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 24, 2013. The samples were analyzed under SDG No. 1310562A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

November 22, 2013

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310562A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in the SDG. The method blank associated with full scan analysis contained target analyte acetone below the reporting limit (RL). The method blank associated with the SIM analyses contained target analytes 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, m,p-xylene, o-xylene, tetrachloroethene, toluene, and trans-1,2-dichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

RPDs for field duplicates [REDACTED]-SS1 and [REDACTED]-SS2 were within the QC limit of ≤ 30 with three exceptions: cumene (76), 1,2,4-trimethylbenzene (60), and toluene (117). Laboratory data are not typically qualified solely because of field duplicate results.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits.

November 22, 2013

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310562A

(Twelve Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310562A

(One Sheet)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
 Lab ID: 1310562A-01A
 Date/Time Collected: 10/24/13 03:19 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/28/13 01:19 PM
 Dilution Factor: 2.07
 Instrument/File Name: msdv.i / v102808

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.41	1.0	13
1,4-Dioxane	123-91-1	0.20	0.30	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.39	2.4	3.0	5.0
2-Hexanone	591-78-6	0.28	3.4	4.2	0.33 J
2-Propanol	67-63-0	0.27	2.0	2.5	27
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.85	0.36 J
Acetone	67-64-1	0.34	2.0	2.4	46
Bromomethane	74-83-9	0.85	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	0.22 J
Carbon Tetrachloride	56-23-5	0.16	0.52	1.3	0.43 J
Chlorobenzene	108-90-7	0.095	0.38	0.95	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.095	0.17	2.1	Not Detected
Cumene	98-82-8	0.14	0.41	1.0	2.8
Cyclohexane	110-82-7	0.11	0.28	0.71	Not Detected
Freon 11	75-69-4	0.25	0.46	1.2	1.0 J
Freon 113	76-13-1	0.42	0.63	1.6	0.54 J
Freon 12	75-71-8	0.15	0.41	1.0	1.9
Hexane	110-54-3	0.12	0.29	0.73	0.26 J
Methylene Chloride	75-09-2	0.16	0.29	1.4	1.2 J
Propylbenzene	103-65-1	0.17	0.41	1.0	2.8
Styrene	100-42-5	0.14	0.35	0.88	0.86 J

DJL
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	D	Date/Time Analyzed:	10/28/13 01:19 PM
Lab ID:	1310562A-01A	Dilution Factor:	2.07
Date/Time Collecte	10/24/13 03:19 PM	Instrument/Filename:	msdv.i / v102808
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
Tetrahydrofuran	109-99-9	0.23	0.24	3.0	18

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	96

DTL
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 Bozeman Landfill

Client ID:	██████-D	Date/Time Analyzed:	10/28/13 01:19 PM
Lab ID:	1310562A-01B	Dilution Factor:	2.07
Date/Time Collecte	10/24/13 12:00 AM	Instrument/File Name:	msdv.j / v102808sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.22	0.026 J
1,1-Dichloroethane	75-34-3	0.0049	0.034	0.17	0.0088 J
1,2-Dichloroethane	107-06-2	0.016	0.034	0.17	2.5
Benzene	71-43-2	0.020	0.066	0.33	0.37
Chloroform	67-66-3	0.0066	NA	0.20	0.25
cis-1,2-Dichloroethene	156-59-2	0.0081	0.033	0.16	0.026 J
Ethyl Benzene	100-41-4	0.0048	0.036	0.18	0.68
m,p-Xylene	108-38-3	0.011	0.036	0.36	2.5
Methyl tert-butyl ether	1634-04-4	0.0073	0.030	0.75	0.019 J
o-Xylene	95-47-6	0.014	0.036	0.18	1.4
Tetrachloroethene	127-18-4	0.011	0.056	0.28	0.50
Toluene	108-88-3	0.014	0.031	0.16	4.3
trans-1,2-Dichloroethene	156-60-5	0.017	0.033	0.82	0.049 J
Trichloroethene	79-01-6	0.061	0.061	0.22	0.068 J
Vinyl Chloride	75-01-4	0.012	0.021	0.053	0.017 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	101



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-D	Date/Time Analyzed:	10/28/13 01:19 PM
Lab ID:	1310562A-01B	Dilution Factor:	2.07
Date/Time Collected:	10/24/13 12:00 AM	Instrument/Filename:	msdv.i / v102808sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DTL
11/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	10/28/13 02:30 PM
Lab ID:	1310562A-02A	Dilution Factor:	1.93
Date/Time Collecte	10/24/13 03:08 PM	Instrument/File name:	msdv.i / v102810
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.95	7.4
1,4-Dioxane	123-91-1	0.18	0.28	0.70	0.22 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.3	2.8	4.7
2-Hexanone	591-78-6	0.26	3.2	4.0	0.42 J
2-Propanol	67-63-0	0.25	1.9	2.4	27
4-Methyl-2-pentanone	108-10-1	0.14	0.32	0.79	0.50 J
Acetone	67-64-1	0.32	1.8	2.3	34
Bromomethane	74-83-9	0.79	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	0.29 J
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	0.67 J
Chlorobenzene	108-90-7	0.089	0.36	0.89	Not Detected
Chloroethane	75-00-3	0.33	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.089	0.16	2.0	Not Detected
Cumene	98-82-8	0.13	0.38	0.95	9.2
Cyclohexane	110-82-7	0.10	0.26	0.66	0.13 J
Freon 11	75-69-4	0.23	0.43	1.1	1.1
Freon 113	76-13-1	0.40	0.59	1.5	0.65 J
Freon 12	75-71-8	0.14	0.38	0.95	2.1
Hexane	110-54-3	0.12	0.27	0.68	0.35 J
Methylene Chloride	75-09-2	0.15	0.27	1.3	0.57 J
Propylbenzene	103-65-1	0.16	0.38	0.95	1.8
Styrene	100-42-5	0.13	0.33	0.82	0.88

DJK
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1	Date/Time Analyzed: 10/28/13 02:30 PM
Lab ID: 1310562A-02A	Dilution Factor: 1.93
Date/Time Collecte: 10/24/13 03:08 PM	Instrument/Filename: msdv.i / v102810
Media: 6 Lier Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.23	2.8	5.5

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	95

D57L
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	10/28/13 02:30 PM
Lab ID:	1310562A-02B	Dilution Factor:	1.93
Date/Time Collecte	10/24/13 12:00 AM	Instrument/File name:	msdv.i/v102810sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.042	0.21	0.028 J
1,1-Dichloroethane	75-34-3	0.0046	0.031	0.16	0.021 J
1,2-Dichloroethane	107-06-2	0.015	0.031	0.16	0.21
Benzene	71-43-2	0.018	0.062	0.31	0.88
Chloroform	67-66-3	0.0061	NA	0.19	0.20
cis-1,2-Dichloroethene	156-59-2	0.0076	0.031	0.15	0.025 J
Ethyl Benzene	100-41-4	0.0044	0.034	0.17	0.66
m,p-Xylene	108-38-3	0.010	0.034	0.34	2.4
Methyl tert-butyl ether	1634-04-4	0.0068	0.028	0.70	0.013 J
o-Xylene	95-47-6	0.013	0.034	0.17	1.1
Tetrachloroethene	127-18-4	0.010	0.052	0.26	1.6
Toluene	108-88-3	0.013	0.029	0.14	4.4
trans-1,2-Dichloroethene	156-60-5	0.016	0.031	0.76	0.044 J
Trichloroethene	79-01-6	0.057	0.057	0.21	0.13 J
Vinyl Chloride	75-01-4	0.011	0.020	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104

0576
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	10/28/13 02:30 PM
Lab ID:	1310562A-02B	Dilution Factor:	1.93
Date/Time Collecte	10/24/13 12:00 AM	Instrument/Filename:	msdv.1 / v102810sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

D57L
11/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2	Date/Time Analyzed: 10/28/13 01:55 PM
Lab ID: 1310562A-03A	Dilution Factor: 2.09
Date/Time Collected: 10/24/13 03:29 PM	Instrument/Filename: msdv.i / v102809
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.41	1.0	2.3
1,4-Dioxane	123-91-1	0.20	0.30	0.75	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.39	2.5	3.1	3.2
2-Hexanone	591-78-6	0.28	3.4	4.3	Not Detected
2-Propanol	67-63-0	0.27	2.0	2.6	1.2 J
4-Methyl-2-pentanone	108-10-1	0.15	0.34	0.86	0.67 J
Acetone	67-64-1	0.35	2.0	2.5	24
Bromomethane	74-83-9	0.86	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.17	0.53	1.3	0.42 J
Chlorobenzene	108-90-7	0.096	0.38	0.96	0.12 J
Chloroethane	75-00-3	0.36	2.2	2.8	Not Detected
Chloromethane	74-87-3	0.096	0.17	2.2	Not Detected
Cumene	98-82-8	0.15	0.41	1.0	1.6
Cyclohexane	110-82-7	0.11	0.29	0.72	0.19 J
Freon 11	75-69-4	0.25	0.47	1.2	1.1 J
Freon 113	76-13-1	0.43	0.64	1.6	0.48 J
Freon 12	75-71-8	0.15	0.41	1.0	2.1
Hexane	110-54-3	0.12	0.29	0.74	0.22 J
Methylene Chloride	75-09-2	0.16	0.29	1.4	0.27 J
Propylbenzene	103-65-1	0.18	0.41	1.0	0.60 J
Styrene	100-42-5	0.14	0.36	0.89	0.52 J

DTK
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	10/28/13 01:55 PM
Lab ID:	1310562A-03A	Dilution Factor:	2.09
Date/Time Collecte	10/24/13 03:29 PM	Instrument/Filename:	msdv.i / v102809
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.25	3.1	2.7 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	95

D-577L
11/22/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	10/28/13 01:55 PM
Lab ID:	1310562A-03B	Dilution Factor:	2.09
Date/Time Collecte	10/24/13 12:00 AM	Instrument/File Name:	msdv.i / v102809sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.046	0.23	0.028 J
1,1-Dichloroethane	75-34-3	0.0050	0.034	0.17	0.010 J
1,2-Dichloroethane	107-06-2	0.016	0.034	0.17	0.070 J
Benzene	71-43-2	0.020	0.067	0.33	0.16 J
Chloroform	67-66-3	0.0066	NA	0.20	0.064 J
cis-1,2-Dichloroethene	156-59-2	0.0082	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0048	0.036	0.18	0.54
m,p-Xylene	108-38-3	0.011	0.036	0.36	1.9
Methyl tert-butyl ether	1634-04-4	0.0074	0.030	0.75	0.017 J
o-Xylene	95-47-6	0.014	0.036	0.18	0.77
Tetrachloroethene	127-18-4	0.011	0.057	0.28	1.8
Toluene	108-88-3	0.014	0.031	0.16	23
trans-1,2-Dichloroethene	156-60-5	0.017	0.033	0.83	0.026 J
Trichloroethene	79-01-6	0.062	0.062	0.22	0.092 J
Vinyl Chloride	75-01-4	0.012	0.021	0.053	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	103

DMR
 11/22/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	10/28/13 01:55 PM
Lab ID:	1310562A-03B	Dilution Factor:	2.09
Date/Time Collected:	10/24/13 12:00 AM	Instrument/Filename:	msdv.i/v102809sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	96

DML
11/22/13

November 27, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: November 27, 2013

Sample Delivery Group (SDG) No.	1310599A
Samples	██████-A, ██████-C, ██████-E, ██████-F, and ██████-G

Tetra Tech, Inc. conducted data validation of the analytical results for five air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 25, 2013. The samples were analyzed under SDG No. 1310599A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)
- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

November 27, 2013

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310599A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in the SDG. The method blank associated with full scan analysis contained target analytes acetone and hexane below reporting limits (RL). The method blank associated with the SIM analyses contained target analytes 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, ethyl benzene, m,p-xylene, o-xylene, tetrachloroethene, toluene, and trans-1,2-dichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

FIELD DUPLICATES

No field duplicates were included in this SDG.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

Percent recoveries and relative percent differences (RPD) for the LCSs and LCSDs were within associated QC limits with the exception of the percent recoveries of carbon tetrachloride from the full scan LCS (68) and LCSD (69). Carbon tetrachloride detections were qualified as estimated ("J") and nondetected results should be rejected ("R"). However, there were no nondetected results, so no data were rejected.

November 27, 2013

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310599A

(Twenty Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310599A

(One Sheet)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID:	A	Date/Time Analyzed:	10/29/13 05:00 PM
Lab ID:	1310599A-01A	Dilution Factor:	1.92
Date/Time Collecte:	10/25/13 12:00 AM	Instrument/Filename:	msdvi/v102913
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.38	0.94	20
1,4-Dioxane	123-91-1	0.18	0.28	0.69	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.36	2.3	2.8	4.1
2-Hexanone	591-78-6	0.26	3.1	3.9	Not Detected
2-Propanol	67-63-0	0.25	1.9	2.4	21
4-Methyl-2-pentanone	108-10-1	0.13	0.31	0.79	Not Detected
Acetone	67-64-1	0.32	1.8	2.3	34
Bromomethane	74-83-9	0.79	3.0	3.7	Not Detected
Carbon Disulfide	75-15-0	0.19	2.4	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.15	0.48	1.2	0.51 J
Chlorobenzene	108-90-7	0.088	0.35	0.88	Not Detected
Chloroethane	75-00-3	0.33	2.0	2.5	Not Detected
Chloromethane	74-87-3	0.088	0.16	2.0	1.4 J
Cumene	98-82-8	0.13	0.38	0.94	1.0
Cyclohexane	110-82-7	0.10	0.26	0.66	Not Detected
Freon 11	75-69-4	0.23	0.43	1.1	1.0 J
Freon 113	76-13-1	0.39	0.59	1.5	0.45 J
Freon 12	75-71-8	0.14	0.38	0.95	2.0
Hexane	110-54-3	0.11	0.27	0.68	0.33 J
Methylene Chloride	75-09-2	0.14	0.27	1.3	0.34 J
Propylbenzene	103-65-1	0.16	0.38	0.94	4.2
Styrene	100-42-5	0.12	0.33	0.82	0.89

DJL
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED]-A
 Lab ID: 1310599A-01A
 Date/Time Collecte: 10/25/13 12:00 AM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 10/29/13 05:00 PM
 Dilution Factor: 1.92
 Instrument/Filename: msdvi/v102913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.21	0.23	2.8	4.0

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	96

DJL
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID:	██████████ A	Date/Time Analyzed:	10/29/13 05:00 PM
Lab ID:	1310599A-01B	Dilution Factor:	1.92
Date/Time Collecte	10/25/13 12:00 AM	Instrument/File name:	msdv.l / V102913sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.011	0.042	0.21	0.019 J
1,1-Dichloroethane	75-34-3	0.0046	0.031	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.031	0.16	0.24
Benzene	71-43-2	0.018	0.061	0.31	0.27 J
Chloroform	67-66-3	0.0061	NA	0.19	0.43
cis-1,2-Dichloroethane	156-59-2	0.0075	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.0044	0.033	0.17	0.73
m,p-Xylene	108-38-3	0.010	0.033	0.33	2.6
Methyl tert-butyl ether	1634-04-4	0.0068	0.028	0.69	0.017 J
o-Xylene	95-47-6	0.012	0.033	0.17	1.6
Tetrachloroethene	127-18-4	0.010	0.052	0.26	0.650 J
Toluene	108-88-3	0.013	0.029	0.14	4.6
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.76	0.651 J
Trichloroethene	79-01-6	0.057	0.057	0.21	Not Detected
Vinyl Chloride	75-01-4	0.011	0.020	0.049	Not Detected

J = Estimated Value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	103

DTL
11/23/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED] A	Date/Time Analyzed: 10/29/13 05:00 PM
Lab ID: 1310599A-01B	Dilution Factor: 1.92
Date/Time Collecte: 10/25/13 12:00 AM	Instrument/Filename: msdv.i / v102913sim
Media: 6 Liter Summa Canister (SIM Certified)	

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DRL
11/27/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED] C
 Lab ID: 1310599A-02A
 Date/Time Collected: 10/25/13 12:00 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/29/13 04:04 PM
 Dilution Factor: 2.05
 Instrument/File Name: msdv.i / v102912

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	1.0	1.3
1,4-Dioxane	123-91-1	0.19	0.30	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	2.3 J
2-Hexanone	591-78-6	0.28	3.4	4.2	Not Detected
2-Propanol	67-63-0	0.26	2.0	2.5	31
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.84	Not Detected
Acetone	67-64-1	0.34	1.9	2.4	35
Bromomethane	74-83-9	0.84	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.52	1.3	0.64 J
Chlorobenzene	108-90-7	0.094	0.38	0.94	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.094	0.17	2.1	1.4 J
Cumene	98-82-8	0.14	0.40	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	Not Detected
Freon 11	75-69-4	0.24	0.46	1.2	1.0 J
Freon 113	76-13-1	0.42	0.63	1.6	0.45 J
Freon 12	75-71-8	0.15	0.40	1.0	2.0
Hexane	110-54-3	0.12	0.29	0.72 W	0.45 J
Methylene Chloride	75-09-2	0.16	0.28	1.4	0.29 J
Propylbenzene	103-65-1	0.17	0.40	1.0	0.25 J
Styrene	100-42-5	0.13	0.35	0.87	0.43 J

DJTL
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED] C
 Lab ID: 1310599A-02A
 Date/Time Collected: 10/25/13 12:00 AM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 10/29/13 04:04 PM
 Dilution Factor: 2.05
 Instrument/File Name: msd.v1 / V102912

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.24	3.0	4.2

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

DSTK
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED] C
 Lab ID: 1310599A-02B
 Date/Time Collecte: 10/25/13 12:00 AM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 10/29/13 04:04 PM
 Dilution Factor: 2.05
 Instrument/File Name: msdv.l / v102912sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.22	0.018 J
1,1-Dichloroethane	75-34-3	0.0049	0.033	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.016	0.033	0.16	0.27
Benzene	71-43-2	0.020	0.065	0.33	0.27 J
Chloroform	67-66-3	0.0065	NA	0.20	0.42
cis-1,2-Dichloroethane	156-59-2	0.0080	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0047	0.036	0.18	0.34
m,p-Xylene	108-38-3	0.011	0.036	0.36	0.89
Methyl tert-butyl ether	1634-04-4	0.0072	0.030	0.74	0.0074 J
o-Xylene	95-47-6	0.013	0.036	0.18	0.33
Tetrachloroethane	127-18-4	0.011	0.056	0.28	0.039 J
Toluene	108-88-3	0.014	0.031	0.15	3.7
trans-1,2-Dichloroethane	156-60-5	0.017	0.032	0.81	0.065 J
Trichloroethane	79-01-6	0.060	0.060	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.052	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	480-00-4	70-130	101

DKL
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID: [REDACTED] C
 Lab ID: 1310599A-02B
 Date/Time Collected: 10/25/13 12:00 AM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/29/13 04:04 PM
 Dilution Factor: 2.05
 Instrument/Filename: msdv.i / v102912sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DOTL
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	E	Date/Time Analyzed:	10/29/13 05:53 PM
Lab ID:	1310599A-03A	Dilution Factor:	2.00
Date/Time Collecte	10/25/13 12:00 AM	Instrument/Filename:	msdvi/v102914
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.19	0.39	0.98	1.1
1,4-Dioxane	123-91-1	0.19	0.29	0.72	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	2.9	2.7 J
2-Hexanone	591-78-6	0.27	3.3	4.1	0.29 J
2-Propanol	67-63-0	0.26	2.0	2.4	29
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.82	Not Detected
Acetone	67-64-1	0.33	1.9	2.4	40
Bromomethane	74-83-9	0.82	3.1	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.1	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.50	1.2	0.44 J
Chlorobenzene	108-90-7	0.092	0.37	0.92	Not Detected
Chloroethane	75-00-3	0.34	2.1	2.6	Not Detected
Chloromethane	74-87-3	0.092	0.16	2.1	1.2 J
Cumene	98-82-8	0.14	0.39	0.98	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.69	0.15 J
Freon 11	75-69-4	0.24	0.45	1.1	0.99 J
Freon 113	76-13-1	0.41	0.61	1.5	0.48 J
Freon 12	75-71-8	0.14	0.40	0.99	2.0
Hexane	110-54-3	0.12	0.28	0.70	0.29 J
Methylene Chloride	75-09-2	0.15	0.28	1.4	0.28 J
Propylbenzene	103-65-1	0.17	0.39	0.98	0.29 J
Styrene	100-42-5	0.13	0.34	0.85	0.56 J

0.70 M

DJK
11/23/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	E	Date/Time Analyzed:	10/29/13 05:53 PM
Lab ID:	1310599A-03A	Dilution Factor:	2.00
Date/Time Collecte	10/25/13 12:00 AM	Instrument/Filename:	msdv.j / v102914
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	2.9	3.7

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	94

DJL
 11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	██████ E	Date/Time Analyzed:	10/29/13 05:53 PM
Lab ID:	1310599A-03B	Dilution Factor:	2.00
Date/Time Collecte	10/25/13 12:00 AM	Instrument/File Name:	msdv.i / v102914sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.030 J
1,1-Dichloroethane	75-34-3	0.0048	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.032	0.16	0.23
Benzene	71-43-2	0.019	0.064	0.32 U	-0.27 J
Chloroform	67-66-3	0.0063	NA	0.20	0.45
cis-1,2-Dichloroethene	156-59-2	0.0078	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0046	0.035	0.17	0.38
m,p-Xylene	108-38-3	0.011	0.035	0.35	0.99
Methyl tert-butyl ether	1634-04-4	0.0071	0.029	0.72	Not Detected
o-Xylene	95-47-6	0.013	0.035	0.17	0.47
Tetrachloroethene	127-18-4	0.011	0.054	0.27 U	0.043 J
Toluene	108-88-3	0.013	0.030	0.15	5.0
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.79 U	0.060 J
Trichloroethene	79-01-6	0.059	0.059	0.21	Not Detected
Vinyl Chloride	75-01-4	0.012	0.020	0.051	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	103

 DJL
 11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED] E	Date/Time Analyzed: 10/29/13 05:53 PM		
Lab ID: 1310599A-03B	Dilution Factor: 2.00		
Date/Time Collecte: 10/25/13 12:00 AM	Instrument/Filename: msdv.i / V102914sim		
Media: 6 Liter Summa Canister (SIM Certified)			
Surrogates	Limits	%Recovery	
Toluene-d8	2037-26-5	70-130	96

DMK
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	██████████ F	Date/Time Analyzed:	10/29/13 06:29 PM
Lab ID:	1310599A-04A	Dilution Factor:	2.03
Date/Time Collecte	10/25/13 12:00 AM	Instrument/File Name:	msdv1 / V102915
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	1.0	2.0
1,4-Dioxane	123-91-1	0.19	0.29	0.73	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	2.9 J
2-Hexanone	591-78-6	0.27	3.3	4.2	Not Detected
2-Propanol	67-63-0	0.26	2.0	2.5	31
4-Methyl-2-pentanone	108-10-1	0.14	0.33	0.83	Not Detected
Acetone	67-64-1	0.34	1.9	2.4	56
Bromomethane	74-83-9	0.83	3.2	3.9	Not Detected
Carbon Disulfide	75-15-0	0.20	2.5	3.2	0.22 J
Carbon Tetrachloride	56-23-5	0.16	0.51	1.3	0.32 J
Chlorobenzene	108-90-7	0.093	0.37	0.93	Not Detected
Chloroethane	75-00-3	0.35	2.1	2.7	Not Detected
Chloromethane	74-87-3	0.093	0.17	2.1	2.6
Cumene	98-82-8	0.14	0.40	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	0.16 J
Freon 11	75-69-4	0.24	0.46	1.1	1.0 J
Freon 113	76-13-1	0.42	0.62	1.6	0.56 J
Freon 12	75-71-8	0.15	0.40	1.0	2.0
Hexane	110-54-3	0.12	0.29	0.72 M	0.28 J
Methylene Chloride	75-09-2	0.15	0.28	1.4	0.41 J
Propylbenzene	103-65-1	0.17	0.40	1.0	0.40 J
Styrene	100-42-5	0.13	0.34	0.86	0.67 J

 DJL
 11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	██████████-F	Date/Time Analyzed:	10/29/13 06:29 PM
Lab ID:	1310599A-04A	Dilution Factor:	2.03
Date/Time Collecte	10/25/13 12:00 AM	Instrument/Filename:	msdv.i / v102915
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	0.24	3.0	4.9

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	96

DJL
 11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	██████████ F	Date/Time Analyzed:	10/29/13 06:29 PM
Lab ID:	1310599A-04B	Dilution Factor:	2.03
Date/Time Collecte	10/25/13 12:00 AM	Instrument/File name:	msdv.i / v102915sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.044	0.22	0.020 J
1,1-Dichloroethane	75-34-3	0.0048	0.033	0.16	0.0088 J
1,2-Dichloroethane	107-06-2	0.016	0.033	0.16	0.33
Benzene	71-43-2	0.020	0.065	0.32 u	0.29 J
Chloroform	67-66-3	0.0064	NA	0.20	0.33
cis-1,2-Dichloroethene	156-59-2	0.0080	0.032	0.16	0.025 J
Ethyl Benzene	100-41-4	0.0047	0.035	0.18	0.45
m,p-Xylene	108-38-3	0.011	0.035	0.35	1.2
Methyl tert-butyl ether	1634-04-4	0.0072	0.029	0.73	0.018 J
o-Xylene	95-47-6	0.013	0.035	0.18	0.50
Tetrachloroethene	127-18-4	0.011	0.055	0.28 u	0.060 J
Toluene	108-88-3	0.014	0.030	0.15	5.0
trans-1,2-Dichloroethene	156-60-5	0.016	0.032	0.80 u	0.043 J
Trichloroethene	79-01-6	0.060	0.060	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.052	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	102

DJK
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID: [REDACTED]-F
Lab ID: 1310599A-04B
Date/Time Collecte: 10/25/13 12:00 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 10/29/13 06:29 PM
Dilution Factor: 2.03
Instrument/Filename: msdv.i / v102915sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DKR
11/27/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID:	[REDACTED] G	Date/Time Analyzed:	10/29/13 07:12 PM
Lab ID:	1310599A-05A	Dilution Factor:	2.05
Date/Time Collecte	10/25/13 12:00 AM	Instrument/File name:	msd\j\102916
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.20	0.40	1.0	Not Detected
1,4-Dioxane	123-91-1	0.19	0.30	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.38	2.4	3.0	0.47 J
2-Hexanone	591-78-6	0.28	3.4	4.2	Not Detected
2-Propanol	67-63-0	0.26	2.0	2.5	0.39 J
4-Methyl-2-pentanone	108-10-1	0.14	0.34	0.84	Not Detected
Acetone	67-64-1	0.34	1.9	2.4	4.3
Bromomethane	74-83-9	0.84	3.2	4.0	Not Detected
Carbon Disulfide	75-15-0	0.21	2.6	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.16	0.52	1.3	0.60 J
Chlorobenzene	108-90-7	0.094	0.38	0.94	Not Detected
Chloroethane	75-00-3	0.35	2.2	2.7	Not Detected
Chloromethane	74-87-3	0.094	0.17	2.1	0.88 J
Cumene	98-82-8	0.14	0.40	1.0	Not Detected
Cyclohexane	110-82-7	0.11	0.28	0.70	Not Detected
Freon 11	75-69-4	0.24	0.46	1.2	1.1 J
Freon 113	76-13-1	0.42	0.63	1.6	0.48 J
Freon 12	75-71-8	0.15	0.40	1.0	2.0
Hexane	110-54-3	0.12	0.29	0.72	0.36 J
Methylene Chloride	75-09-2	0.16	0.28	1.4	0.25 J
Propylbenzene	103-65-1	0.17	0.40	1.0	Not Detected
Styrene	100-42-5	0.13	0.35	0.87	Not Detected

DDTL
11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	[REDACTED] G	Date/Time Analyzed:	10/29/13 07:12 PM
Lab ID:	1310599A-05A	Dilution Factor:	2.05
Date/Time Collecte	10/25/13 12:00 AM	Instrument/Filename:	msdv.i / v102916
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.23	0.24	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	95

DSL
 11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 114-710303A Task 300

Client ID:	G	Date/Time Analyzed:	10/29/13 07:12 PM
Lab ID:	1310599A-05B	Dilution Factor:	2.05
Date/Time Collecte	10/25/13 12:00 AM	Instrument/File name:	msdv.i / v102916sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.045	0.22	0.025 J
1,1-Dichloroethane	75-34-3	0.0049	0.033	0.16	0.0086 J
1,2-Dichloroethane	107-06-2	0.016	0.033	0.16	0.039 J
Benzene	71-43-2	0.020	0.065	0.33	0.19 J
Chloroform	67-66-3	0.0065	NA	0.20	0.036 J
cis-1,2-Dichloroethene	156-59-2	0.0080	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.0047	0.036	0.18	0.085 J
m,p-Xylene	108-38-3	0.011	0.036	0.36	0.24 J
Methyl tert-butyl ether	1634-04-4	0.0072	0.030	0.74	0.010 J
o-Xylene	95-47-6	0.013	0.036	0.18	0.088 J
Tetrachloroethene	127-18-4	0.011	0.056	0.28	0.028 J
Toluene	108-88-3	0.014	0.031	0.15	0.42
trans-1,2-Dichloroethene	156-60-5	0.017	0.032	0.81	0.061 J
Trichloroethene	79-01-6	0.060	0.060	0.22	Not Detected
Vinyl Chloride	75-01-4	0.012	0.021	0.052	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	101

 DJK
 11/27/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
114-710303A Task 300

Client ID:	[REDACTED]	Date/Time Analyzed:	10/29/13 07:12 PM
Lab ID:	1310599A-05B	Dilution Factor:	2.05
Date/Time Collecte	10/25/13 12:00 AM	Instrument/Filename:	msdv.i / v102916sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

D57L
11/29/13



Air Toxics

Sample Transportation Notice

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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager

Mark Pearson
Mark Pearson
Mindy Johnson

Collected by: (Print and Sign)

Mark Pearson
Mindy Johnson

Address 821 Bridger Dr, Ste 6 City BOZEMAN State MT Zip 59715

Phone 406-582-8980 Fax

Project Info:

P.O. #
Project # BOZEMAN CANTHILL
Project Name 114-710303A Tank 300

Turn Around Time:
 Normal
 Rush

Lab Use Only
Pressurized by:
Date:

Pressurization Gas:
N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt Final (psi)
01A	A	34233	10/25/13		TS-15 & APH	-25.0	-3.9	
02A	C	36035				-26.0	-6.5	
03K	E	34408				-26.6	-4.9	
04A	F	24489				-27.0	-7.5	
05A	G	33378				-25.6	-7.0	

Relinquished by: (signature) Date/Time

Mark Pearson 10/25/13

Received by: (signature) Date/Time

Fed EX - Belgrade 10/25/13

Relinquished by: (signature) Date/Time

Mindy Johnson 10/28/13 1020

Relinquished by: (signature) Date/Time

Received by: (signature) Date/Time

Mindy Johnson 10/28/13 1020

Notes:
2 boxes

Lab Use Only

Shipper Name: FedEx

Air Bill #: N/A

Temp (°C): 6002

Condition: Good

Custody Seals Intact? Yes No None

Work Order #: 1310599

November 21, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: November 21, 2013

Sample Delivery Group (SDG) No.	1310638A
Samples	████-SS3 and █████-SS3

Tetra Tech, Inc. conducted data validation of the analytical results for nine air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 29, 2013. The samples were analyzed under SDG No. 1310638A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



November 21, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310638A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with full scan analysis contained target analyte methylene chloride below the reporting limit (RL). The method blank associated with the SIM analyses contained target analytes toluene and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits.

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

November 21, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310638A

(Eight Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310638A

(Two Sheets)



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 05:12 PM
Lab ID:	1310638A-01A	Dilution Factor:	1.83
Date/Time Collecte	10/29/13 01:18 PM	Instrument/File name:	msdc.i / c103011
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.72	0.90	1.6
1,4-Dioxane	123-91-1	0.13	0.53	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.21	0.76	2.7	0.37 J
2-Hexanone	591-78-6	0.25	1.0	3.7	Not Detected
2-Propanol	67-63-0	0.21	0.63	2.2	0.21 J
4-Methyl-2-pentanone	108-10-1	0.090	0.60	0.75	0.29 J
Acetone	67-64-1	0.59	0.61	2.2	2.0 J
Bromomethane	74-83-9	0.75	0.99	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.80	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.29	0.92	1.2	0.48 J
Chlorobenzene	108-90-7	0.18	0.67	0.84	Not Detected
Chloroethane	75-00-3	0.26	0.68	2.4	Not Detected
Chloromethane	74-87-3	0.041	0.30	1.9	Not Detected
Cumene	98-82-8	0.12	0.72	0.90	0.72 J
Cyclohexane	110-82-7	0.088	0.50	0.63	0.22 J
Freon 11	75-69-4	0.086	0.82	1.0	1.4
Freon 113	76-13-1	0.24	1.1	1.4	0.49 J
Freon 12	75-71-8	0.090	0.72	0.90	3.0
Hexane	110-54-3	0.080	0.52	0.64	0.13 J
Methylene Chloride	75-09-2	0.12	0.51	0.90	0.54 J
Propylbenzene	103-65-1	0.19	0.72	0.90	0.34 J
Styrene	100-42-5	0.16	0.62	0.78	0.21 J

1.3 4

DJK
11/21/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 05:12 PM
Lab ID:	1310638A-01A	Dilution Factor:	1.83
Date/Time Collected:	10/29/13 01:18 PM	Instrument/Filename:	msdc.i / c103011
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.52	0.76	2.7	0.55 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	98

DTK
11/21/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 05:12 PM
Lab ID:	1310638A-01B	Dilution Factor:	1.83
Date/Time Collected:	10/29/13 01:18 PM	Instrument/Filename:	msdc.i / c103014sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.040	0.20	0.021 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.031	0.031	0.15	Not Detected
Benzene	71-43-2	0.047	0.047	0.29	0.32
Chloroform	67-66-3	0.016	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	Not Detected
m,p-Xylene	108-38-3	0.016	0.032	0.32	0.71
Methyl tert-butyl ether	1634-04-4	0.019	0.026	0.66	2.7
o-Xylene	95-47-6	0.014	0.032	0.16	Not Detected
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.96
Toluene	108-88-3	0.0059	0.028	0.14	0.86
trans-1,2-Dichloroethene	156-60-5	0.017	0.029	0.72	3.2
Trichloroethene	79-01-6	0.0080	0.039	0.20	Not Detected
Vinyl Chloride	75-01-4	0.0063	0.019	0.047	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	100

DJL
11/21/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 05:12 PM
Lab ID:	1310638A-01B	Dilution Factor:	1.83
Date/Time Collecte	10/29/13 01:18 PM	Instrument/Filename:	msdc.i / c103011sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
11/21/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 06:14 PM
Lab ID:	1310638A-02A	Dilution Factor:	1.96
Date/Time Collecte	10/29/13 03:49 PM	Instrument/File name:	msdc.i/c103012
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.77	0.96	0.83 J
1,4-Dioxane	123-91-1	0.14	0.56	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	0.81	2.9	1.1 J
2-Hexanone	591-78-6	0.26	1.1	4.0	Not Detected
2-Propanol	67-63-0	0.22	0.67	2.4	1.0 J
4-Methyl-2-pentanone	108-10-1	0.097	0.64	0.80	0.23 J
Acetone	67-64-1	0.63	0.65	2.3	5.6
Bromomethane	74-83-9	0.80	1.1	3.8	Not Detected
Carbon Disulfide	75-15-0	0.15	0.85	3.0	0.22 J
Carbon Tetrachloride	56-23-5	0.31	0.99	1.2	Not Detected
Chlorobenzene	108-90-7	0.19	0.72	0.90	Not Detected
Chloroethane	75-00-3	0.28	0.72	2.6	Not Detected
Chloromethane	74-87-3	0.044	0.32	2.0	0.34 J
Cumene	98-82-8	0.13	0.77	0.96	0.80 J
Cyclohexane	110-82-7	0.094	0.54	0.67	0.23 J
Freon 11	75-69-4	0.092	0.88	1.1	2.2
Freon 113	76-13-1	0.26	1.2	1.5	0.61 J
Freon 12	75-71-8	0.096	0.78	0.97	5.9
Hexane	110-54-3	0.086	0.55	0.69	0.11 J
Methylene Chloride	75-09-2	0.13	0.54	1.4	4.2 J
Propylbenzene	103-65-1	0.20	0.77	0.96	0.24 J
Styrene	100-42-5	0.17	0.67	0.83	Not Detected

DJL
11/21/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 06:14 PM
Lab ID:	1310638A-02A	Dilution Factor:	1.96
Date/Time Collected:	10/29/13 03:49 PM	Instrument/Filename:	msdc.i / c103012
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.56	0.81	2.9	0.63 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	98

DJR
11/21/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS3	Date/Time Analyzed:	10/30/13 06:14 PM
Lab ID:	1310638A-02B	Dilution Factor:	1.96
Date/Time Collecte:	10/29/13 03:49 PM	Instrument/Filename:	msdc.i / c103012sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.043	0.21	0.085 J
1,1-Dichloroethane	75-34-3	0.0034	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.033	0.033	0.16	Not Detected
Benzene	71-43-2	0.050	0.050	0.31	0.098 J
Chloroform	67-66-3	0.017	NA	0.19	0.13 J
cis-1,2-Dichloroethene	156-59-2	0.014	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.014	0.034	0.17	0.18
m,p-Xylene	108-38-3	0.017	0.034	0.34	0.54
Methyl tert-butyl ether	1634-04-4	0.020	0.028	0.71	Not Detected
o-Xylene	95-47-6	0.015	0.034	0.17	0.22
Tetrachloroethene	127-18-4	0.016	0.053	0.26	2.6
Toluene	108-88-3	0.0064	0.030	0.15	1.0
trans-1,2-Dichloroethene	156-60-5	0.019	0.031	0.78	Not Detected
Trichloroethene	79-01-6	0.0085	0.042	0.21	0.044 J
Vinyl Chloride	75-01-4	0.0068	0.020	0.050	0.011 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	100

DJL
11/21/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS3
Lab ID: 1310638A-02B
Date/Time Collecte 10/29/13 03:49 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 10/30/13 06:14 PM
Dilution Factor: 1.96
Instrument/Filename: msdc.i / c103012sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

D572
11/21/13



Air Toxics

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager: Mark Pearson

Collected by: (Print and Sign) Mark Pearson

Company DeWitt Email mark.pearson@de Witt.com

Address 851 Bridge Dr. Ste B Brewster State NY zip 13915

Phone 406-582-8780 Fax _____

Project Info:

P.O. # _____

Project # 114-710303A Task 100

Project Name Brewster Landfill

Turn Around Time:

Normal

Rush

AT specify

Lab Use Only

Pressurized by:

Date:

Pressurization Gas:

N₂ He

Lab I.D. Field Sample I.D. (Location)

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum
						Initial Final Receipt Final (psf)
O1A	-SS3	35975	10/29/13	1318	70-15 See Attached	-23.5 -4.5
O2A	-SS3	5583	10/29/13	1549	70-15 See Attached	-26.0 -6.5

Relinquished by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) _____ Date/Time _____

Received by: (signature) _____ Date/Time _____

Received by: (signature) _____ Date/Time _____

Notes:

2 boxes shipped

Shipper Name: Fedex Air Bill #: _____ Temp (°C): NA Condition: Good Custody Seals Intact? Yes No None Work Order #: 1310638

#17

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethane	75-00-3	10000
Freon 11	75-69-4	730
Freon 113	76-13-1	31300
Acetone	67-64-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5200
Tetrahydrofuran	109-99-9	2090
Chloroform	67-66-3	0.11
Cyclohexane	110-82-7	6260
Carbon Tetrachloride	56-23-5	0.406
1,4-Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-65-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	156-59-2	35
1,1,1-Trichloroethane	71-55-6	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-6	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-6	104
trans-1,2-Dichloroethene	156-60-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note:

5/2013 EPA RSL

USEPA Residential Air Screening Levels,
May 2013. Concentrations in micro-
grams per cubic meter

and APH

December 2, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: December 2, 2013

Sample Delivery Group (SDG) No.	1310696A
Samples	█-F, █-G, █-H, and █-I

Tetra Tech, Inc. conducted data validation of the analytical results for four air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on October 30, 2013. The samples were analyzed under SDG No. 1310696A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



December 2, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1310696A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analysis contained target analytes acetone and methylene chloride below the reporting limits (RL). The method blank associated with the SIM analyses contained target analytes benzene, m,p-xylene, toluene, trans-1,2-dichloroethene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits.

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

December 2, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1310696A

(Sixteen Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1310696A

(Two Sheets)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ F	Date/Time Analyzed:	11/11/13 04:34 PM
Lab ID:	1310696A-01A	Dilution Factor:	1.82
Date/Time Collecte	10/30/13 12:29 PM	Instrument/Filename:	msdc.i / c110111
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.72	0.89	8.3
1,4-Dioxane	123-91-1	0.13	0.52	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.21	0.75	2.7	3.4
2-Hexanone	591-78-6	0.24	1.0	3.7	0.25 J
2-Propanol	67-63-0	0.21	0.63	2.2	10
4-Methyl-2-pentanone	108-10-1	0.090	0.60	0.74	0.70 J
Acetone	67-64-1	0.58	0.60	2.2	48
Bromomethane	74-83-9	0.74	0.99	3.5	Not Detected
Carbon Disulfide	75-15-0	0.14	0.79	2.8	0.15 J
Carbon Tetrachloride	56-23-5	0.29	0.92	1.1	0.48 J
Chlorobenzene	108-90-7	0.18	0.67	0.84	Not Detected
Chloroethane	75-00-3	0.26	0.67	2.4	Not Detected
Chloromethane	74-87-3	0.041	0.30	1.9	0.96 J
Cumene	98-82-8	0.12	0.72	0.89	Not Detected
Cyclohexane	110-82-7	0.088	0.50	0.63	0.70
Freon 11	75-69-4	0.085	0.82	1.0	1.3
Freon 113	76-13-1	0.24	1.1	1.4	0.42 J
Freon 12	75-71-8	0.090	0.72	0.90	2.5
Hexane	110-54-3	0.080	0.51	0.64	1.6
Methylene Chloride	75-09-2	0.12	0.50	1.3	7.9
Propylbenzene	103-65-1	0.18	0.72	0.89	1.2
Styrene	100-42-5	0.16	0.62	0.78	0.48 J

OSTL
12/2/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
 Bozeman Landfill

Client ID:	██████-F	Date/Time Analyzed:	11/11/13 04:34 PM
Lab ID:	1310696A-01A	Dilution Factor:	1.82
Date/Time Collecte	10/30/13 12:29 PM	Instrument/Filename:	msdc.i / c110111
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.52	0.75	2.7	2.0 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	96

DJK
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-F	Date/Time Analyzed:	11/11/13 04:34 PM
Lab ID:	13106996A-01B	Dilution Factor:	1.82
Date/Time Collected:	10/30/13 12:29 PM	Instrument/File name:	msdc.i / c110111sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.040	0.20	0.032 J
1,1-Dichloroethane	75-34-3	0.0032	0.029	0.15	0.0067 J
1,2-Dichloroethane	107-06-2	0.031	0.031	0.15	1.6
Benzene	71-43-2	0.047	0.047	0.29	1.7
Chloroform	67-66-3	0.016	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.012	0.032	0.16	4.2
m,p-Xylene	108-38-3	0.015	0.032	0.32	19
Methyl tert-butyl ether	1634-04-4	0.019	0.026	0.66	Not Detected
o-Xylene	95-47-6	0.014	0.032	0.16	6.0
Tetrachloroethene	127-18-4	0.015	0.049	0.25	0.064 J
Toluene	108-88-3	0.0059	0.027	0.14	19
trans-1,2-Dichloroethene	156-60-5	0.017	0.029	0.72	Not Detected
Trichloroethene	79-01-6	0.0079	0.039	0.20	0.029 J
Vinyl Chloride	75-01-4	0.0063	0.019	0.046	0.011 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	100

DKL
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	█-F	Date/Time Analyzed:	11/11/13 04:34 PM
Lab ID:	13106996A-01B	Dilution Factor:	1.82
Date/Time Collecte	10/30/13 12:29 PM	Instrument/Filename:	msdc.i/c110111sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DJL
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-G
Lab ID: 1310696A-02A
Date/Time Collected: 10/30/13 12:33 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/11/13 05:09 PM
Dilution Factor: 1.83
Instrument/File Name: msdc.i/c110112

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.72	0.90	9.2
1,4-Dioxane	123-91-1	0.13	0.53	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.21	0.76	2.7	3.0
2-Hexanone	591-78-6	0.25	1.0	3.7	Not Detected
2-Propanol	67-63-0	0.21	0.63	2.2	9.6
4-Methyl-2-pentanone	108-10-1	0.090	0.60	0.75	0.59 J
Acetone	67-64-1	0.59	0.61	2.2	46
Bromomethane	74-83-9	0.75	0.99	3.6	Not Detected
Carbon Disulfide	75-15-0	0.14	0.80	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.29	0.92	1.2	0.56 J
Chlorobenzene	108-90-7	0.18	0.67	0.84	Not Detected
Chloroethane	75-00-3	0.26	0.68	2.4	Not Detected
Chloromethane	74-87-3	0.041	0.30	1.9	1.3 J
Cumene	98-82-8	0.12	0.72	0.90	Not Detected
Cyclohexane	110-82-7	0.088	0.50	0.63	0.76
Freon 11	75-69-4	0.086	0.82	1.0	1.3
Freon 113	76-13-1	0.24	1.1	1.4	0.36 J
Freon 12	75-71-8	0.090	0.72	0.90	2.3
Hexane	110-54-3	0.080	0.52	0.64	1.7
Methylene Chloride	75-09-2	0.12	0.51	1.3	8.2
Propylbenzene	103-65-1	0.19	0.72	0.90	1.3
Styrene	100-42-5	0.16	0.62	0.78	0.44 J

DJL
12/2/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-G	Date/Time Analyzed:	11/11/13 05:09 PM
Lab ID:	1310696A-02A	Dilution Factor:	1.83
Date/Time Collecte	10/30/13 12:33 PM	Instrument/Filename:	msdc.i/c110112
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.52	0.76	2.7	2.0 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

DJL

12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	█████-G	Date/Time Analyzed:	11/11/13 05:09 PM
Lab ID:	1310696A-02B	Dilution Factor:	1.83
Date/Time Collecte	10/30/13 12:33 PM	Instrument/Filename:	msdc.i / c110112sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.040	0.20	0.039 J
1,1-Dichloroethane	75-34-3	0.0032	0.030	0.15	0.0096 J
1,2-Dichloroethane	107-06-2	0.031	0.031	0.15	1.4
Benzene	71-43-2	0.047	0.047	0.29	1.6
Chloroform	67-66-3	0.016	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.013	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.013	0.032	0.16	4.1
m,p-Xylene	108-38-3	0.016	0.032	0.32	19
Methyl tert-butyl ether	1634-04-4	0.019	0.026	0.66	Not Detected
o-Xylene	95-47-6	0.014	0.032	0.16	5.9
Tetrachloroethene	127-18-4	0.015	0.050	0.25	0.072 J
Toluene	108-88-3	0.0059	0.028	0.14	18
trans-1,2-Dichloroethene	156-60-5	0.017	0.029	0.72	0.025 J
Trichloroethene	79-01-6	0.0080	0.039	0.20	0.051 J
Vinyl Chloride	75-01-4	0.0063	0.019	0.047	0.030 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102

MDL
12/2/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	-G	Date/Time Analyzed:	11/11/13 05:09 PM
Lab ID:	1310696A-02B	Dilution Factor:	1.83
Date/Time Collecte	10/30/13 12:33 PM	Instrument/Filename:	msdc.i / c110112sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DKL

12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] H
Lab ID: 1310696A-03A
Date/Time Collecte 10/30/13 12:30 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/11/13 05:45 PM
Dilution Factor: 2.28
Instrument/File name: msdc.i / c110113

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.36	0.90	1.1	1.7
1,4-Dioxane	123-91-1	0.16	0.66	0.82	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.27	0.94	3.4	2.2 J
2-Hexanone	591-78-6	0.31	1.3	4.7	Not Detected
2-Propanol	67-63-0	0.26	0.78	2.8	2.0 J
4-Methyl-2-pentanone	108-10-1	0.11	0.75	0.93	0.20 J
Acetone	67-64-1	0.73	0.76	2.7	16
Bromomethane	74-83-9	0.93	1.2	4.4	Not Detected
Carbon Disulfide	75-15-0	0.18	0.99	3.6	Not Detected
Carbon Tetrachloride	56-23-5	0.36	1.1	1.4	0.57 J
Chlorobenzene	108-90-7	0.22	0.84	1.0	Not Detected
Chloroethane	75-00-3	0.33	0.84	3.0	Not Detected
Chloromethane	74-87-3	0.052	0.38	2.4	0.76 J
Cumene	98-82-8	0.15	0.90	1.1	Not Detected
Cyclohexane	110-82-7	0.11	0.63	0.78	0.40 J
Freon 11	75-69-4	0.11	1.0	1.3	1.2 J
Freon 113	76-13-1	0.30	1.4	1.7	0.61 J
Freon 12	75-71-8	0.11	0.90	1.1	2.4
Hexane	110-54-3	0.10	0.64	0.80	0.77 J
Methylene Chloride	75-09-2	0.16	0.63	1.6	1.8 J+
Propylbenzene	103-65-1	0.23	0.90	1.1	Not Detected
Styrene	100-42-5	0.20	0.78	0.97	Not Detected

DJL
12/2/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-H	Date/Time Analyzed:	11/11/13 05:45 PM
Lab ID:	1310696A-03A	Dilution Factor:	2.28
Date/Time Collecte	10/30/13 12:30 PM	Instrument/Filename:	msdc.i / c1110113
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.65	0.94	3.4	0.75 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	95

PJK
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-H	Date/Time Analyzed:	11/11/13 05:45 PM
Lab ID:	1310696A-03B	Dilution Factor:	2.28
Date/Time Collecte	10/30/13 12:30 PM	Instrument/Filename:	msdc.i / c110113sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.050	0.25	0.028 J
1,1-Dichloroethane	75-34-3	0.0040	0.037	0.18	Not Detected
1,2-Dichloroethane	107-06-2	0.039	0.039	0.18	0.28
Benzene	71-43-2	0.058	0.058	0.36	0.73
Chloroform	67-66-3	0.020	NA	0.22	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.016	0.036	0.18	Not Detected
Ethyl Benzene	100-41-4	0.016	0.040	0.20	0.89
m,p-Xylene	108-38-3	0.019	0.040	0.40	3.6
Methyl tert-butyl ether	1634-04-4	0.024	0.033	0.82	Not Detected
o-Xylene	95-47-6	0.018	0.040	0.20	1.2
Tetrachloroethene	127-18-4	0.019	0.062	0.31	0.071 J
Toluene	108-88-3	0.0074	0.034	0.17	5.1
trans-1,2-Dichloroethene	156-60-5	0.022	0.036	0.90	Not Detected
Trichloroethene	79-01-6	0.0099	0.049	0.24	0.016 J
Vinyl Chloride	75-01-4	0.0079	0.023	0.058	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98

0.576
12/24/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-H	Date/Time Analyzed:	11/11/13 05:45 PM
Lab ID:	13106996A-03B	Dilution Factor:	2.28
Date/Time Collecte	10/30/13 12:30 PM	Instrument/Filename:	msdc.i / c110113sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

D57L
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-1	Date/Time Analyzed:	11/11/13 06:27 PM
Lab ID:	1310696A-04A	Dilution Factor:	1.69
Date/Time Collected:	10/30/13 12:38 PM	Instrument/File Name:	msdc.j / c110114
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.27	0.66	0.83	Not Detected
1,4-Dioxane	123-91-1	0.12	0.49	0.61	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.70	2.5	0.60 J
2-Hexanone	591-78-6	0.23	0.97	3.5	Not Detected
2-Propanol	67-63-0	0.19	0.58	2.1	0.21 J
4-Methyl-2-pentanone	108-10-1	0.084	0.55	0.69	Not Detected
Acetone	67-64-1	0.54	0.56	2.0	3.4 ST
Bromomethane	74-83-9	0.69	0.92	3.3	Not Detected
Carbon Disulfide	75-15-0	0.13	0.74	2.6	Not Detected
Carbon Tetrachloride	56-23-5	0.27	0.85	1.1	0.58 J
Chlorobenzene	108-90-7	0.16	0.62	0.78	Not Detected
Chloroethane	75-00-3	0.24	0.62	2.2	Not Detected
Chloromethane	74-87-3	0.038	0.28	1.7	0.81 J
Cumene	98-82-8	0.11	0.66	0.83	Not Detected
Cyclohexane	110-82-7	0.081	0.46	0.58	Not Detected
Freon 11	75-69-4	0.079	0.76	0.95	1.3
Freon 113	76-13-1	0.23	1.0	1.3	0.46 J
Freon 12	75-71-8	0.083	0.67	0.84	2.4
Hexane	110-54-3	0.074	0.48	0.60	0.30 J
Methylene Chloride	75-09-2	0.12	0.47	0.83	0.41 J
Propylbenzene	103-65-1	0.17	0.66	0.83	Not Detected
Styrene	100-42-5	0.14	0.58	0.72	Not Detected

DJK
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	1310696A-04A	Date/Time Analyzed:	11/11/13 06:27 PM
Lab ID:	10/30/13 12:38 PM	Dilution Factor:	1.69
Date/Time Collecte	6 Liter Summa Canister (SIM Certified)	Instrument/Filename:	msdc.i / c110114
Media:			

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.48	0.70	2.5	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

DNL
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	1310696A-04B	Date/Time Analyzed:	11/11/13 06:27 PM
Lab ID:	10/30/13 12:38 PM	Dilution Factor:	1.69
Date/Time Collecte	6 Liter Summa Canister (SIM Certified)	Instrument/Filename:	msdc.i / c110114sim
Media:			

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.037	0.18	0.023 J
1,1-Dichloroethane	75-34-3	0.0029	0.027	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.029	0.029	0.14	0.054 J
Benzene	71-43-2	0.043	0.043	0.27	0.39
Chloroform	67-66-3	0.015	NA	0.16	0.14 J
cis-1,2-Dichloroethene	156-59-2	0.012	0.027	0.13	Not Detected
Ethyl Benzene	100-41-4	0.012	0.029	0.15	Not Detected
m,p-Xylene	108-38-3	0.014	0.029	0.29	0.10 J
Methyl tert-butyl ether	1634-04-4	0.018	0.024	0.29	0.30
o-Xylene	95-47-6	0.013	0.029	0.61	Not Detected
Tetrachloroethene	127-18-4	0.014	0.046	0.15	0.12 J
Toluene	108-88-3	0.0055	0.025	0.23	0.032 J
trans-1,2-Dichloroethene	156-60-5	0.016	0.027	0.13	0.64
Trichloroethene	79-01-6	0.0074	0.036	0.67	Not Detected
Vinyl Chloride	75-01-4	0.0058	0.017	0.18	Not Detected
				0.043	0.0095 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	99

D77L
12/2/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]	Date/Time Analyzed:	11/11/13 06:27 PM
Lab ID:	13106996A-04B	Dilution Factor:	1.69
Date/Time Collecte	10/30/13 12:38 PM	Instrument/Filename:	msdc.i / c110114sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	97

DJK
12/2/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager Mark Pearson

Collected by: (Print and Sign) Mark Pearson

Company Robertson Enamark, Puccan, O'Farrell

Address 881 Bridge St City Bozeman State MT Zip 59715

Phone 532-8180 Fax

Project Info:

P.O. #

Project # 114-710303 A.100

Project Name Bozeman landfill

Turn Around Time:

Normal

Rush

2-3 days

Lab Use Only

Pressurized by:

Date:

Pressurization Gas:

N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (psi)
01A	-F	4223	10/30/13	1229	See attached	-26.5	-3.4		
02A	-G	33897		1233		-25.3	-4.0		
03A	-H	5624		1230		-25.0	-8.3		
04A	-I	33542		1238		-26.2	-3.2		

Relinquished by: (signature) Mark Pearson Date/Time 10/30/13 @ 1600

Received by: (signature) ATL Date/Time 10/31/13 0950

Notes: 1 box shipped
Flow controller # 40298 vacuum
gauge does not work

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) _____ Date/Time _____

Shipper Name _____ Air Bill # _____ Temp (°C) NA Condition Good Custody Seals Intact? Yes No None

Work Order # 1310696

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

1310696

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethane	75-00-3	10000
Freon 11	75-69-4	730
Freon 113	76-13-1	31300
Acetone	67-64-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5200
Tetrahydrofuran	109-99-9	2090
Chloroform	67-66-3	0.11
Cyclohexane	110-82-7	6260
Carbon Tetrachloride	56-23-5	0.406
1,4-Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-65-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	156-59-2	35
1,1,1-Trichloroethane	71-55-6	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-6	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-6	104
trans-1,2-Dichloroethene	156-60-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note:

5/2013 EPA RSL

USEPA Residential Air Screening Levels,
May 2013. Concentrations in micro-
grams per cubic meter

and APH

December 3, 2013

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: December 3, 2013

Sample Delivery Group (SDG) No.	1311046A
Samples	██████-D, ██████-E, and ██████-F

Tetra Tech, Inc. conducted data validation of the analytical results for three air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on November 1, 2013. The samples were analyzed under SDG No. 1311046A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



December 3, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1311046A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analysis contained target analyte carbon disulfide below the reporting limit (RL). The method blank associated with the SIM analyses contained target analytes benzene and trans-1,2-dichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits.

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

December 3, 2013

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

For all three samples in this SDG, an interfering peak eluted near the retention time of chloroform, and could not be separated from chloroform. Chloroform results are therefore flagged as estimated (“J”).

Per Tetra Tech’s request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated (“J”) and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1311046A

(Twelve Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1311046A

(One Sheet)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]	Date/Time Analyzed: 11/4/13 05:15 PM
Lab ID: 1311046A-01A	Dilution Factor: 1.79
Date/Time Collected: 11/1/13 02:20 PM	Instrument/File name: msd\11\110411
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.14	0.70	0.88	Not Detected
1,4-Dioxane	123-91-1	0.35	0.63	0.64	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.46	1.0	2.6	0.85 J
2-Hexanone	591-78-6	0.48	1.5	3.7	Not Detected
2-Propanol	67-63-0	0.44	0.88	2.2	9.8
4-Methyl-2-pentanone	108-10-1	0.18	0.59	0.73	0.38 J
Acetone	67-64-1	0.52	0.85	2.1	19
Bromomethane	74-83-9	0.98	1.4	3.5	Not Detected
Carbon Disulfide	75-15-0	0.73	1.1	2.8	4.2 J
Carbon Tetrachloride	56-23-5	0.14	0.90	1.1	0.20 J
Chlorobenzene	108-90-7	0.24	0.66	0.82	Not Detected
Chloroethane	75-00-3	0.45	0.94	2.4	Not Detected
Chloromethane	74-87-3	0.15	0.30	1.8	0.75 J
Cumene	98-82-8	0.10	0.70	0.88	Not Detected
Cyclohexane	110-82-7	0.19	0.49	0.62	0.34 J
Freon 11	75-69-4	0.15	0.80	1.0	1.0
Freon 113	76-13-1	0.40	1.1	1.4	Not Detected
Freon 12	75-71-8	0.22	0.71	0.88	2.3
Hexane	110-54-3	0.17	0.50	0.63	1.4
Methylene Chloride	75-09-2	0.31	0.58	1.2	Not Detected
Propylbenzene	103-65-1	0.15	0.70	0.88	Not Detected
Styrene	100-42-5	0.16	0.61	0.76	Not Detected

DJL
12/3/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
Lab ID: 1311046A-01A
Date/Time Collected: 11/11/13 02:20 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 11/14/13 05:15 PM
Dilution Factor: 1.79
Instrument/Filename: msde.i/e110411

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.33	1.0	2.6	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	104

DJL
12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D
 Lab ID: 1311046A-01B
 Date/Time Collected: 11/11/13 02:20 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/14/13 05:15 PM
 Dilution Factor: 1.79
 Instrument/Filename: msde.i/e110411sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.021	0.039	0.20	0.041 J
1,1-Dichloroethane	75-34-3	0.0096	0.029	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.0097	0.029	0.14	0.21
Benzene	71-43-2	0.018	0.023	0.28	0.82
Chloroform	67-66-3	0.018	NA	0.17	0.75 M J
cis-1,2-Dichloroethene	156-59-2	0.016	0.028	0.14	Not Detected
Ethyl Benzene	100-41-4	0.020	0.031	0.16	0.64
m,p-Xylene	108-38-3	0.022	0.031	0.31	1.9
Methyl tert-butyl ether	1634-04-4	0.015	0.026	0.64	Not Detected
o-Xylene	95-47-6	0.016	0.031	0.16	0.50
Tetrachloroethene	127-18-4	0.022	0.048	0.24	Not Detected
Toluene	108-88-3	0.012	0.027	0.13	12
trans-1,2-Dichloroethene	156-60-5	0.015	0.028	0.71	Not Detected
Trichloroethene	79-01-6	0.020	0.038	0.19	Not Detected
Vinyl Chloride	75-01-4	0.0094	0.018	0.046	Not Detected

J = Estimated value.
 M = Reported value may be biased due to apparent matrix interferences.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111

DOR
12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] D	Date/Time Analyzed: 11/4/13 05:15 PM
Lab ID: 1311046A-01B	Dilution Factor: 1.79
Date/Time Collected: 11/1/13 02:20 PM	Instrument/Filename: msde.i / e110411sim
Media: 6 Liter Summa Canister (SIM Certified)	

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	104

DATA
12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-E
Lab ID: 1311046A-02A
Date/Time Collected: 11/11/13 02:18 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 11/14/13 06:31 PM
Dilution Factor: 1.68
Instrument/File Name: msde.i/e110412

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.13	0.66	0.82	0.92
1,4-Dioxane	123-91-1	0.33	0.59	0.60	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.44	0.99	2.5	0.84 J
2-Hexanone	591-78-6	0.45	1.4	3.4	Not Detected
2-Propanol	67-63-0	0.42	0.82	2.1	12
4-Methyl-2-pentanone	108-10-1	0.17	0.55	0.69	0.41 J
Acetone	67-64-1	0.49	0.80	2.0	21
Bromomethane	74-83-9	0.92	1.3	3.3	Not Detected
Carbon Disulfide	75-15-0	0.69	1.0	2.6	Not Detected
Carbon Tetrachloride	56-23-5	0.13	0.84	1.0	0.27 J
Chlorobenzene	108-90-7	0.23	0.62	0.77	Not Detected
Chloroethane	75-00-3	0.42	0.89	2.2	Not Detected
Chloromethane	74-87-3	0.14	0.28	1.7	0.80 J
Cumene	98-82-8	0.094	0.66	0.82	Not Detected
Cyclohexane	110-82-7	0.18	0.46	0.58	0.41 J
Freon 11	75-69-4	0.14	0.76	0.94	1.1
Freon 113	76-13-1	0.38	1.0	1.3	Not Detected
Freon 12	75-71-8	0.21	0.66	0.83	2.3
Hexane	110-54-3	0.16	0.47	0.59	1.6
Methylene Chloride	75-09-2	0.29	0.54	1.2	Not Detected
Propylbenzene	103-65-1	0.14	0.66	0.82	0.19 J
Styrene	100-42-5	0.15	0.57	0.72	0.21 J

DJK
12/3/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-E
Lab ID: 1311046A-02A
Date/Time Collected: 11/11/13 02:18 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 11/14/13 06:31 PM
Dilution Factor: 1.68
Instrument/Filename: msde.i/e110412

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.31	0.99	2.5	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

DJL
12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-E	Date/Time Analyzed: 11/4/13 06:31 PM
Lab ID: 1311046A-02B	Dilution Factor: 1.68
Date/Time Collected: 11/1/13 02:18 PM	Instrument/File Name: msde.i / e110412sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.037	0.18	0.042 J
1,1-Dichloroethane	75-34-3	0.0090	0.027	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.0091	0.027	0.14	0.25
Benzene	71-43-2	0.016	0.021	0.27	0.84
Chloroform	67-66-3	0.017	NA	0.16	0.77 M- 5
cis-1,2-Dichloroethene	156-59-2	0.015	0.027	0.13	Not Detected
Ethyl Benzene	100-41-4	0.019	0.029	0.14	0.83
m,p-Xylene	108-38-3	0.021	0.029	0.29	3.0
Methyl tert-butyl ether	1634-04-4	0.014	0.024	0.60	Not Detected
o-Xylene	95-47-6	0.015	0.029	0.14	0.89
Tetrachloroethene	127-18-4	0.021	0.046	0.23	Not Detected
Toluene	108-88-3	0.011	0.025	0.13	12
trans-1,2-Dichloroethene	156-60-5	0.014	0.027	0.67	Not Detected
Trichloroethene	79-01-6	0.018	0.036	0.18	0.027 J
Vinyl Chloride	75-01-4	0.0088	0.017	0.043	Not Detected

J = Estimated value.
M = Reported value may be biased due to apparent matrix interferences.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111

DJL
2/1-12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-E
Lab ID: 1311046A-02B
Date/Time Collected: 11/11/13 02:18 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 11/14/13 06:31 PM
Dilution Factor: 1.68
Instrument/Filename: msde.i/e110412sim

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	104

DSL
12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-F
Lab ID: 1311046A-03A
Date/Time Collected: 11/11/13 02:28 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 11/14/13 07:20 PM
Dilution Factor: 2.01
Instrument/File name: msde.i/e110413

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.79	0.99	Not Detected
1,4-Dioxane	123-91-1	0.39	0.71	0.72	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.52	1.2	3.0	0.82 J
2-Hexanone	591-78-6	0.54	1.6	4.1	Not Detected
2-Propanol	67-63-0	0.50	0.99	2.5	Not Detected
4-Methyl-2-pentanone	108-10-1	0.21	0.66	0.82	Not Detected
Acetone	67-64-1	0.58	0.95	2.4	4.2
Bromomethane	74-83-9	1.1	1.6	3.9	Not Detected
Carbon Disulfide	75-15-0	0.82	1.2	3.1	Not Detected
Carbon Tetrachloride	56-23-5	0.16	1.0	1.3	0.31 J
Chlorobenzene	108-90-7	0.27	0.74	0.92	Not Detected
Chloroethane	75-00-3	0.51	1.1	2.6	Not Detected
Chloromethane	74-87-3	0.16	0.33	2.1	0.88 J
Cumene	98-82-8	0.11	0.79	0.99	Not Detected
Cyclohexane	110-82-7	0.21	0.55	0.69	Not Detected
Freon 11	75-69-4	0.17	0.90	1.1	0.98 J
Freon 113	76-13-1	0.45	1.2	1.5	Not Detected
Freon 12	75-71-8	0.25	0.80	0.99	2.0
Hexane	110-54-3	0.19	0.57	0.71	Not Detected
Methylene Chloride	75-09-2	0.34	0.65	1.4	Not Detected
Propylbenzene	103-65-1	0.17	0.79	0.99	Not Detected
Styrene	100-42-5	0.18	0.68	0.86	Not Detected

057L
12/3/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F
Lab ID: 1311046A-03A
Date/Time Collected: 11/11/13 02:28 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 11/14/13 07:20 PM
Dilution Factor: 2.01
Instrument/Filename: msde.i/e110413

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.37	1.2	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	104

DJK
12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-F
 Lab ID: 1311046A-03B
 Date/Time Collected: 11/11/13 02:28 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/14/13 07:20 PM
 Dilution Factor: 2.01
 Instrument/Filename: msde.i/e110413sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.024	0.044	0.22	Not Detected
1,1-Dichloroethane	75-34-3	0.011	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.011	0.032	0.16	0.042 J
Benzene	71-43-2	0.020	0.026	0.32	0.20 J
Chloroform	67-66-3	0.020	NA	0.20	0.11 JM
cis-1,2-Dichloroethene	156-59-2	0.018	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.022	0.035	0.17	0.056 J
m,p-Xylene	108-38-3	0.025	0.035	0.35	0.15 J
Methyl tert-butyl ether	1634-04-4	0.017	0.029	0.72	Not Detected
o-Xylene	95-47-6	0.018	0.035	0.17	0.053 J
Tetrachloroethene	127-18-4	0.025	0.054	0.27	0.025 J
Toluene	108-88-3	0.014	0.030	0.15	0.37
trans-1,2-Dichloroethene	156-60-5	0.017	0.032	0.80	Not Detected
Trichloroethene	79-01-6	0.022	0.043	0.22	Not Detected
Vinyl Chloride	75-01-4	0.010	0.020	0.051	Not Detected

J = Estimated value.
M = Reported value may be biased due to apparent matrix interferences.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111

DRL

12/3/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] F	Date/Time Analyzed: 11/4/13 07:20 PM
Lab ID: 1311046A-03B	Dilution Factor: 2.01
Date/Time Collected: 11/1/13 02:28 PM	Instrument/Filename: msde.i/e110413sim
Media: 6 Liter Summa Canister (SIM Certified)	

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	105

DJL
12/3/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Requiring signature on this document indicates that service is being supplied in conformance with all applicable local, State, Federal, national, and international laws, regulations, and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Requiring signature is also necessary to hold harmless, defend and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling or shipping of samples. D.O.T. Form 600, 487-4922

100 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 595-1000 FAX (916) 595-1020

Page 1 of 1

Project Info:

PO # _____
 Project # 114 7103034 Tech 100
 Project Name: Besseyman (Campbell)
 Normal Rush
 Rush Addy
 Turn Around Time: _____
 Prepared by: _____
 Date: _____
 Pressurization Gas: _____
 No. _____
 HP _____

Project Manager: Mark Barrera
 Collected by: Mark Barrera
 Company: TECHTECH Email: wholmes@techtech.com
 Address: 851 E. 1st St. Dr. 9th City Besseyman State HI Zip 96705
 Phone: 408-581-3780 Fax _____

Lab ID	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analytes Requested	Carister Pressure/Vacuum		
						Initial	Final	Pressure (psi)
004	[Redacted]	33705	11/11/13	1420	See attached	258	-35	
004	[Redacted]	10951	11/11/13	1418		262	-38	
004	[Redacted]	1579	11/11/13	1428		262	-38	

Received by: (signature) Mark Barrera Date/Time 11/11/2013 14:20
 Received by: (signature) Mark Barrera Date/Time 11/11/2013 14:20
 Notes: box shipped

Temp (C) NA Humidity 97% Customer Seals: Yes No None
 Work Order # 1311046

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: December 16, 2013

Sample Delivery Group (SDG) No.	1311171A
Samples	██████-SS1, ██████-SS2, ██████-A, ██████-B, ██████-C, ██████-A, ██████-B, and ██████-C

Tetra Tech, Inc. conducted data validation of the analytical results for eight air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on November 7 and 8, 2013. The samples were analyzed under SDG No. 1311171A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)

December 16, 2013

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1311171A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times with one exception. The laboratory reported that sample ██████-C was received with significant vacuum remaining in the canister, and that the residual canister vacuum resulted in elevated reporting limits (RL). No data were qualified.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the November 13, 2013 full scan analysis contained target analytes methylene chloride, propylbenzene, and styrene below RLs. The method blank associated with the November 14, 2013 full scan analysis contained target analytes 1,2,4-trimethylbenzene, acetone, carbon disulfide, chlorobenzene, cumene, methylene chloride, propylbenzene, and styrene below RLs. The method blank associated with the November 13, 2013 SIM analyses contained target analytes 1,2-dichloroethane, benzene, chloroform, cis-1,2-dichloroethene, ethyl benzene, m,p-xylene, o-xylene, tetrachloroethene, toluene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride below RLs. The method blank associated with the November 14, 2013 SIM analyses contained target analytes 1,2-dichloroethane, benzene, chloroform, cis-1,2-dichloroethene, ethyl benzene, m,p-xylene, o-xylene, tetrachloroethene, toluene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminants acetone and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

December 16, 2013

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits with the exception of bromomethane. Percent recoveries from both LCSs (133 and 136) and LCSDs (133 and 134) exceeded the QC limit of 130. All detected bromomethane results were qualified as estimated and possibly biased high (“J+”).

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech’s request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated (“J”) and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1311171A

(Thirty-two Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 131171A

(Two Sheets)



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS1
Lab ID: 1311171A-01A
Date/Time Collected: 11/7/13 11:39 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 07:03 PM
Dilution Factor: 1.89
Instrument/Filename: msda.i / at11309

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.26	0.37	0.93	3.8
1,4-Dioxane	123-91-1	0.46	0.46	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.25	1.1	2.8	2.4 J
2-Hexanone	591-78-6	0.31	1.5	3.9	0.36 J
2-Propanol	67-63-0	0.26	0.93	2.3	3.2
4-Methyl-2-pentanone	108-10-1	0.38	0.38	0.77	1.2
Acetone	67-64-1	0.46	0.90	2.2	10
Bromomethane	74-83-9	0.66	1.5	3.7	Not Detected
Carbon Disulfide	75-15-0	0.20	1.2	2.9	0.36 J
Carbon Tetrachloride	56-23-5	0.22	0.48	1.2	0.56 J
Chlorobenzene	108-90-7	0.063	0.35	0.87	0.16 J
Chloroethane	75-00-3	0.39	1.0	2.5	Not Detected
Chloromethane	74-87-3	0.35	0.78	2.0	0.40 J
Cumene	98-82-8	0.096	0.37	0.93	2.1
Cyclohexane	110-82-7	0.11	0.26	0.65	0.40 J
Freon 11	75-69-4	0.13	0.42	1.1	1.5
Freon 113	76-13-1	0.17	0.58	1.4	0.64 J
Freon 12	75-71-8	0.11	0.37	0.93	2.4
Hexane	110-54-3	0.087	0.27	0.67	0.30 J
Methylene Chloride	75-09-2	0.10	0.26	0.93	0.57 J
Propylbenzene	103-65-1	0.15	0.37	0.80	0.94 J
Styrene	100-42-5	0.19	0.32	0.80	0.72 J

Handwritten red circles around Rpt. Limit values: 1.3, 0.93, 0.80

Handwritten red circles around Amount values: 1.3, 0.93, 0.80

DJL

12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	11/13/13 07:03 PM
Lab ID:	1311171A-01A	Dilution Factor:	1.89
Date/Time Collecte	11/7/13 11:39 AM	Instrument/Filename:	msda.i / a111309
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.19	1.1	2.8	2.7 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

DJL
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	11/13/13 07:03 PM
Lab ID:	1311171A-01B	Dilution Factor:	1.89
Date/Time Collecte	11/7/13 11:39 AM	Instrument/Filename:	msda.i / a111309sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.052	0.21	0.046 J
1,1-Dichloroethane	75-34-3	0.0066	0.038	0.15	0.015 J
1,2-Dichloroethane	107-06-2	0.013	0.038	0.15	0.11 J
Benzene	71-43-2	0.028	0.030	0.30	0.31
Chloroform	67-66-3	0.010	NA	0.18	0.32
cis-1,2-Dichloroethane	156-59-2	0.0079	0.037	0.15	Not Detected
Ethyl Benzene	100-41-4	0.011	0.041	0.16	0.77
m,p-Xylene	108-38-3	0.017	0.041	0.33	2.8
Methyl tert-butyl ether	1634-04-4	0.016	0.034	0.68	0.038 J
o-Xylene	95-47-6	0.014	0.041	0.16	1.1
Tetrachloroethene	127-18-4	0.0078	0.064	0.26	4.2
Toluene	108-88-3	0.0092	0.036	0.14	2.6
trans-1,2-Dichloroethane	156-60-5	0.0082	0.037	0.75	Not Detected
Trichloroethene	79-01-6	0.0046	0.051	0.20	Not Detected
Vinyl Chloride	75-01-4	0.0081	0.024	0.048	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	99

DJL
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	11/13/13 07:03 PM
Lab ID:	1311171A-01B	Dilution Factor:	1.89
Date/Time Collecte	11/7/13 11:39 AM	Instrument/Filename:	msda.i / a111309sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	104

DJK
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	11/13/13 08:06 PM
Lab ID:	1311771A-02A	Dilution Factor:	1.92
Date/Time Collecte	11/7/13 04:46 PM	Instrument/Filename:	msda1/at11310
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.27	0.38	0.94	1.5
1,4-Dioxane	123-91-1	0.46	0.46	0.69	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.26	1.1	2.8	1.8 J
2-Hexanone	591-78-6	0.32	1.6	3.9	Not Detected
2-Propanol	67-63-0	0.27	0.94	2.4	0.93 J
4-Methyl-2-pentanone	108-10-1	0.39	0.39	0.79	0.39 J
Acetone	67-64-1	0.47	0.91	2.3	7.5
Bromomethane	74-83-9	0.67	1.5	3.7	Not Detected
Carbon Disulfide	75-15-0	0.20	1.2	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.23	0.48	1.2	0.58 J
Chlorobenzene	108-90-7	0.064	0.35	0.88	Not Detected
Chloroethane	75-00-3	0.40	1.0	2.5	Not Detected
Chloromethane	74-87-3	0.35	0.79	2.0	Not Detected
Cumene	98-82-8	0.097	0.38	0.94	1.2 J
Cyclohexane	110-82-7	0.11	0.26	0.66	0.54 J
Freon 11	75-69-4	0.14	0.43	1.1	0.13 J
Freon 113	76-13-1	0.18	0.59	1.5	2.1
Freon 12	75-71-8	0.11	0.38	0.95	1.0 J
Hexane	110-54-3	0.088	0.27	0.68	2.5
Methylene Chloride	75-09-2	0.10	0.27	0.94	0.33 J
Propylbenzene	103-65-1	0.15	0.38	1.3	0.76 J
Styrene	100-42-5	0.19	0.33	0.94	0.37 J
				0.82	0.22 J

Handwritten notes in pink circles:
 1.3
 0.94
 0.94
 0.82

DJL

12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
Lab ID: 1311171A-02A
Date/Time Collected: 11/7/13 04:46 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 08:06 PM
Dilution Factor: 1.92
Instrument/Filename: msda.i / a111310

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.19	1.1	2.8	0.99 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	98

DSK

12-16-13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
Lab ID: 1311171A-02B
Date/Time Collected: 11/17/13 04:46 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 08:06 PM
Dilution Factor: 1.92
Instrument/Filename: msda.i / at11310sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.052	0.21	0.024 J
1,1-Dichloroethane	75-34-3	0.0067	0.039	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.013	0.039	0.16	0.24
Benzene	71-43-2	0.028	0.031	0.31	0.37
Chloroform	67-66-3	0.010	NA	0.19	0.11 J
cis-1,2-Dichloroethane	156-59-2	0.0081	0.038	0.15	Not Detected
Ethyl Benzene	100-41-4	0.011	0.042	0.17	0.32
m,p-Xylene	108-38-3	0.017	0.042	0.33	1.2
Methyl tert-butyl ether	1634-04-4	0.016	0.035	0.69	Not Detected
o-Xylene	95-47-6	0.014	0.042	0.17	0.51
Tetrachloroethene	127-18-4	0.0079	0.065	0.26	2.0
Toluene	108-88-3	0.0094	0.036	0.14	1.3
trans-1,2-Dichloroethene	156-60-5	0.0084	0.038	0.76	0.15 J
Trichloroethene	79-01-6	0.0046	0.052	0.21	0.999 J
Vinyl Chloride	75-01-4	0.0082	0.024	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	98

DJL
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	11/13/13 08:06 PM
Lab ID:	1311171A-02B	Dilution Factor:	1.92
Date/Time Collecte	11/7/13 04:46 PM	Instrument/Filename:	msda.i / a111310sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DJL
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1311171A-03A
Date/Time Collected: 11/8/13 11:53 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 08:59 PM
Dilution Factor: 2.03
Instrument/File Name: msda.i / a111311

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.28	0.40	1.0	2.3
1,4-Dioxane	123-91-1	0.49	0.49	0.73	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.27	1.2	3.0	12
2-Hexanone	591-78-6	0.33	1.7	4.2	Not Detected
2-Propanol	67-63-0	0.28	1.0	2.5	140
4-Methyl-2-pentanone	108-10-1	0.41	0.41	0.83	0.61 J
Acetone	67-64-1	0.49	0.96	2.4	46
Bromomethane	74-83-9	0.70	1.6	3.9	Not Detected
Carbon Disulfide	75-15-0	0.22	1.3	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.24	0.51	1.3	0.71 J
Chlorobenzene	108-90-7	0.068	0.37	0.93	Not Detected
Chloroethane	75-00-3	0.42	1.1	2.7	Not Detected
Chloromethane	74-87-3	0.37	0.84	2.1	Not Detected
Cumene	98-82-8	0.10	0.40	1.0	1.4 J
Cyclohexane	110-82-7	0.12	0.28	0.70	0.31 J
Freon 11	75-69-4	0.14	0.46	1.1	0.52 J
Freon 113	76-13-1	0.19	0.62	1.6	1.7
Freon 12	75-71-8	0.12	0.40	1.0	0.60 J
Hexane	110-54-3	0.094	0.29	0.72	2.2
Methylene Chloride	75-09-2	0.11	0.28	1.4	1.5
Propylbenzene	103-65-1	0.16	0.40	1.4	1.8
Styrene	100-42-5	0.20	0.34	1.0	0.37 J

Handwritten notes: 1.0, 0.86, 0.86

Handwritten notes: 0.97, 12-16-13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	11/13/13 08:59 PM
Lab ID:	131171A-03A	Dilution Factor:	2.03
Date/Time Collecte	11/8/13 11:53 AM	Instrument/Filename:	msda.i/at111311
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.20	1.2	3.0	5.2

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

DJL
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1311171A-03B
Date/Time Collected: 11/8/13 11:53 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 08:59 PM
Dilution Factor: 2.03
Instrument/Filename: msda.i / a111311sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.021	0.055	0.22	0.026 J
1,1-Dichloroethane	75-34-3	0.0071	0.041	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.014	0.041	0.16	0.80
Benzene	71-43-2	0.030	0.032	0.32	0.84
Chloroform	67-66-3	0.011	NA	0.20	0.50
cis-1,2-Dichloroethane	156-59-2	0.0085	0.040	0.16	Not Detected
Ethyl Benzene	100-41-4	0.012	0.044	0.18	2.1
m,p-Xylene	108-38-3	0.018	0.044	0.35	5.2
Methyl tert-butyl ether	1634-04-4	0.017	0.037	0.73	Not Detected
o-Xylene	95-47-6	0.015	0.044	0.18	1.7
Tetrachloroethane	127-18-4	0.0084	0.069	0.28	0.42
Toluene	108-88-3	0.0099	0.038	0.15	26
trans-1,2-Dichloroethane	156-60-5	0.0088	0.040	0.80	-0.037 J
Trichloroethane	79-01-6	0.0049	0.054	0.22	-0.022 J
Vinyl Chloride	75-01-4	0.0087	0.026	0.052	-0.012 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	97

DTK
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-A	Date/Time Analyzed:	11/13/13 08:59 PM
Lab ID:	1311771A-03B	Dilution Factor:	2.03
Date/Time Collecte	11/8/13 11:53 AM	Instrument/Filename:	msda.i / ar11311sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DJK
12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1311171A-04A
Date/Time Collected: 11/8/13 11:46 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 09:48 PM
Dilution Factor: 1.83
Instrument/Filename: msdai/ar111312

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.26	0.36	0.90	1.6
1,4-Dioxane	123-91-1	0.44	0.44	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	1.1	2.7	9.3
2-Hexanone	591-78-6	0.30	1.5	3.7	Not Detected
2-Propanol	67-63-0	0.25	0.90	2.2	87
4-Methyl-2-pentanone	108-10-1	0.37	0.37	0.75	Not Detected
Acetone	67-64-1	0.44	0.87	2.2	36
Bromomethane	74-83-9	0.64	1.4	3.6	Not Detected
Carbon Disulfide	75-15-0	0.19	1.1	2.8	0.31 J
Carbon Tetrachloride	56-23-5	0.22	0.46	1.2	0.52 J
Chlorobenzene	108-90-7	0.061	0.34	0.84	Not Detected
Chloroethane	75-00-3	0.38	0.96	2.4	Not Detected
Chloromethane	74-87-3	0.34	0.76	1.9	Not Detected
Cumene	98-82-8	0.093	0.36	0.90	1.4 J
Cyclohexane	110-82-7	0.11	0.25	0.63	0.25 J
Freon 11	75-69-4	0.13	0.41	1.0	0.34 J
Freon 113	76-13-1	0.17	0.56	1.4	1.7
Freon 12	75-71-8	0.10	0.36	0.90	0.56 J
Hexane	110-54-3	0.084	0.26	0.64	2.3
Methylene Chloride	75-09-2	0.10	0.25	1.3	1.1
Propylbenzene	103-65-1	0.14	0.36	0.90	1.3
Styrene	100-42-5	0.18	0.31	0.78	0.71 J

Handwritten notes: 0.90, 0.78, 0.90, 0.78

Handwritten notes: 0.39 J, 0.71 J

Handwritten notes: DJK, 12-16-13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	11/13/13 09:48 PM
Lab ID:	131171A-04A	Dilution Factor:	1.83
Date/Time Collecte	11/8/13 11:46 AM	Instrument/Filename:	msda.i / at111312
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.18	1.1	2.7	3.7

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

DSL
12-15-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B	Date/Time Analyzed: 11/13/13 09:48 PM
Lab ID: 1311171A-04B	Dilution Factor: 1.83
Date/Time Collected: 11/8/13 11:46 AM	Instrument/Filename: msdai / at111312sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.050	0.20	0.036 J
1,1-Dichloroethane	75-34-3	0.0064	0.037	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.037	0.15	0.55
Benzene	71-43-2	0.027	0.029	0.29	0.71
Chloroform	67-66-3	0.0098	NA	0.18	0.38
cis-1,2-Dichloroethane	156-59-2	0.0077	0.036	0.14	Not Detected
Ethyl Benzene	100-41-4	0.010	0.040	0.16	1.4
m,p-Xylene	108-38-3	0.016	0.040	0.32	3.8
Methyl tert-butyl ether	1634-04-4	0.015	0.033	0.66	Not Detected
o-Xylene	95-47-6	0.013	0.040	0.16	1.2
Tetrachloroethene	127-18-4	0.0076	0.062	0.25 U	0.24 J
Toluene	108-88-3	0.0090	0.034	0.14	18
trans-1,2-Dichloroethene	156-60-5	0.0080	0.036	0.72 U	0.032 J
Trichloroethene	79-01-6	0.0044	0.049	0.20 U	0.017 J
Vinyl Chloride	75-01-4	0.0078	0.023	0.047	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	97

PJK

12-16-13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	11/13/13 09:48 PM
Lab ID:	1311171A-04B	Dilution Factor:	1.83
Date/Time Collecte	11/8/13 11:46 AM	Instrument/Filename:	msda.i / a111312sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	103

DSTL
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	11/13/13 10:25 PM
Lab ID:	131171A-05A	Dilution Factor:	3.58
Date/Time Collected:	11/8/13 11:57 AM	Instrument/Filename:	msda.i/a111313
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.50	0.70	1.8	Not Detected
1,4-Dioxane	123-91-1	0.86	0.86	1.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.48	2.1	5.3	0.64 J
2-Hexanone	591-78-6	0.59	2.9	7.3	Not Detected
2-Propanol	67-63-0	0.50	1.8	4.4	Not Detected
4-Methyl-2-pentanone	108-10-1	0.72	0.72	1.5	Not Detected
Acetone	67-64-1	0.87	1.7	4.2	6.4
Bromomethane	74-83-9	1.2	2.8	7.0	Not Detected
Carbon Disulfide	75-15-0	0.38	2.2	5.6	Not Detected
Carbon Tetrachloride	56-23-5	0.42	0.90	2.2	0.84 J
Chlorobenzene	108-90-7	0.12	0.66	1.6	Not Detected
Chloroethane	75-00-3	0.74	1.9	4.7	Not Detected
Chloromethane	74-87-3	0.66	1.5	3.7	1.2 J
Cumene	98-82-8	0.18	0.70	1.8	Not Detected
Cyclohexane	110-82-7	0.21	0.49	1.2	Not Detected
Freon 11	75-69-4	0.26	0.80	2.0	Not Detected
Freon 113	76-13-1	0.33	1.1	2.7	1.5 J
Freon 12	75-71-8	0.21	0.71	1.8	0.69 J
Hexane	110-54-3	0.16	0.50	1.3	2.4
Methylene Chloride	75-09-2	0.20	0.50	1.3	0.21 J
Propylbenzene	103-65-1	0.28	0.70	1.8	Not Detected
Styrene	100-42-5	0.36	0.61	1.5	Not Detected

2.5 J

0.34 J

DJL
12/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	11/13/13 10:25 PM
Lab ID:	1311771A-05A	Dilution Factor:	3.58
Date/Time Collecte	11/8/13 11:57 AM	Instrument/Filename:	msdai/a111313
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.35	2.1	5.3	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	94

137K
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1311171A-05B
Date/Time Collected: 11/8/13 11:57 AM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 10:25 PM
Dilution Factor: 3.58
Instrument/Filename: msdai/a11313sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.037	0.098	0.39	Not Detected
1,1-Dichloroethane	75-34-3	0.012	0.072	0.29	Not Detected
1,2-Dichloroethane	107-06-2	0.024	0.072	0.29	0.088-J
Benzene	71-43-2	0.053	0.057	0.57	0.29-J
Chloroform	67-66-3	0.019	NA	0.35	0.12-J
cis-1,2-Dichloroethene	156-59-2	0.015	0.071	0.28	Not Detected
Ethyl Benzene	100-41-4	0.020	0.078	0.31	0.054-J
m,p-Xylene	108-38-3	0.032	0.078	0.62	0.15-J
Methyl tert-butyl ether	1634-04-4	0.030	0.064	1.3	Not Detected
o-Xylene	95-47-6	0.026	0.078	0.31	0.064-J
Tetrachloroethene	127-18-4	0.015	0.12	0.48	0.19-J
Toluene	108-88-3	0.018	0.067	0.27	0.50
trans-1,2-Dichloroethene	156-60-5	0.016	0.071	1.4	0.060-J
Trichloroethene	79-01-6	0.0086	0.096	0.38	Not Detected
Vinyl Chloride	75-01-4	0.015	0.046	0.092	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	91

DJK
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	11/13/13 10:25 PM
Lab ID:	1311771A-05B	Dilution Factor:	3.58
Date/Time Collecte	11/8/13 11:57 AM	Instrument/Filename:	msda.i / a111313sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

D57L
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1311171A-06A
 Date/Time Collected: 11/8/13 04:04 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 11:02 PM
 Dilution Factor: 1.77
 Instrument/Filename: msda1/a111314

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.25	0.35	0.87	0.83 J
1,4-Dioxane	123-91-1	0.43	0.43	0.64	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	1.0	2.6	1.2 J
2-Hexanone	591-78-6	0.29	1.4	3.6	Not Detected
2-Propanol	67-63-0	0.24	0.87	2.2	0.47 J
4-Methyl-2-pentanone	108-10-1	0.36	0.36	0.72	Not Detected
Acetone	67-64-1	0.43	0.84	2.1	5.3
Bromomethane	74-83-9	0.61	1.4	3.4	Not Detected
Carbon Disulfide	75-15-0	0.19	1.1	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.21	0.44	1.1	0.44 J
Chlorobenzene	108-90-7	0.059	0.32	0.81	Not Detected
Chloroethane	75-00-3	0.37	0.93	2.3	Not Detected
Chloromethane	74-87-3	0.32	0.73	1.8	1.2 J
Cumene	98-82-8	0.090	0.35	0.87	Not Detected
Cyclohexane	110-82-7	0.10	0.24	0.61	Not Detected
Freon 11	75-69-4	0.13	0.40	0.99	Not Detected
Freon 113	76-13-1	0.16	0.54	1.4	1.6
Freon 12	75-71-8	0.10	0.35	0.88	0.62 J
Hexane	110-54-3	0.082	0.25	0.62	2.4
Methylene Chloride	75-09-2	0.098	0.24	0.75	0.13 J
Propylbenzene	103-65-1	0.14	0.35	0.87	Not Detected
Styrene	100-42-5	0.18	0.30	0.75	Not Detected

1.2

~~0.29 J~~

DK
12/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ A	Date/Time Analyzed:	11/13/13 11:02 PM
Lab ID:	1311171A-06A	Dilution Factor:	1.77
Date/Time Collecte	11/8/13 04:04 PM	Instrument/Filename:	msda.i / at111314
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.18	1.0	2.6	0.26 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

DJK
12/16/13



Air Toxicics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
 Lab ID: 1311171A-06B
 Date/Time Collecte: 11/8/13 04:04 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/13/13 11:02 PM
 Dilution Factor: 1.77
 Instrument/Filename: msda.i / a111314sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.048	0.19	0.028 J
1,1-Dichloroethane	75-34-3	0.0062	0.036	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.036	0.14	0.26
Benzene	71-43-2	0.026	0.028	0.28	0.27 J
Chloroform	67-66-3	0.0095	NA	0.17	0.072 J
cis-1,2-Dichloroethene	156-59-2	0.0074	0.035	0.14	Not Detected
Ethyl Benzene	100-41-4	0.010	0.038	0.15	Not Detected
m,p-Xylene	108-38-3	0.016	0.038	0.31	0.13 J
Methyl tert-butyl ether	1634-04-4	0.015	0.032	0.64	0.41
o-Xylene	95-47-6	0.013	0.038	0.15	Not Detected
Tetrachloroethene	127-18-4	0.0073	0.060	0.24	0.21
Toluene	108-88-3	0.0087	0.033	0.13	0.080 J
trans-1,2-Dichloroethene	156-60-5	0.0077	0.035	0.70	0.79
Trichloroethene	79-01-6	0.0043	0.048	0.19	0.024 J
Vinyl Chloride	75-01-4	0.0076	0.023	0.045	0.015 J Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	97

DSK
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████	Date/Time Analyzed:	11/13/13 11:02 PM
Lab ID:	1311771A-06B	Dilution Factor:	1.77
Date/Time Collecte	11/8/13 04:04 PM	Instrument/Filename:	msda.i / at11314sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DJL
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 131171A-07A
Date/Time Collected: 11/8/13 04:01 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/14/13 03:32 PM
Dilution Factor: 2.04
Instrument/File Name: msda.i / a111406

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.29	0.40	1.0	0.65
1,4-Dioxane	123-91-1	0.49	0.49	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.27	1.2	3.0	1.8 J
2-Hexanone	591-78-6	0.34	1.7	4.2	Not Detected
2-Propanol	67-63-0	0.28	1.0	2.5	2.0 J
4-Methyl-2-pentanone	108-10-1	0.41	0.41	0.84	Not Detected
Acetone	67-64-1	0.50	0.97	2.4	9.6
Bromomethane	74-83-9	0.71	1.6	4.0	Not Detected
Carbon Disulfide	75-15-0	0.22	1.3	3.2	Not Detected
Carbon Tetrachloride	56-23-5	0.24	0.51	1.3	Not Detected
Chlorobenzene	108-90-7	0.068	0.38	0.94	0.58 J
Chloroethane	75-00-3	0.42	1.1	2.7	Not Detected
Chloromethane	74-87-3	0.38	0.84	2.1	Not Detected
Cumene	98-82-8	0.10	0.40	1.0	1.3 J
Cyclohexane	110-82-7	0.12	0.28	0.70	Not Detected
Freon 11	75-69-4	0.14	0.46	1.1	0.24 J
Freon 113	76-13-1	0.19	0.62	1.6	2.2
Freon 12	75-71-8	0.12	0.40	1.0	0.61 J
Hexane	110-54-3	0.094	0.29	0.72	2.5
Methylene Chloride	75-09-2	0.11	0.28	1.4	0.35 J
Propylbenzene	103-65-1	0.16	0.40	1.0	0.45
Styrene	100-42-5	0.20	0.35	0.87	Not Detected

OTK
12/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	11/14/13 03:32 PM
Lab ID:	1311771A-07A	Dilution Factor:	2.04
Date/Time Collecte	11/8/13 04:01 PM	Instrument/Filename:	msda.i / a111406
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.20	1.2	3.0	0.27 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	96

DTK
12/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	11/14/13 03:32 PM
Lab ID:	13111771A-07B	Dilution Factor:	2.04
Date/Time Collecte:	11/8/13 04:01 PM	Instrument/Filename:	msda.i / a111406sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.021	0.056	0.22	0.022 J
1,1-Dichloroethane	75-34-3	0.0071	0.041	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.014	0.041	0.16	0.28 JF
Benzene	71-43-2	0.030	0.032	0.32	0.42
Chloroform	67-66-3	0.011	NA	0.20	0.12 J
cis-1,2-Dichloroethene	156-59-2	0.0086	0.040	0.16	0.099 J
Ethyl Benzene	100-41-4	0.012	0.044	0.18	0.33
m,p-Xylene	108-38-3	0.018	0.044	0.35	0.98
Methyl tert-butyl ether	1634-04-4	0.017	0.037	0.74	Not Detected
o-Xylene	95-47-6	0.015	0.044	0.18	0.34
Tetrachloroethene	127-18-4	0.0084	0.069	0.28	1.5
Toluene	108-88-3	0.010	0.038	0.15	3.0
trans-1,2-Dichloroethene	156-60-5	0.0089	0.040	0.81	0.075 J
Trichloroethene	79-01-6	0.0049	0.055	0.22	0.058 J
Vinyl Chloride	75-01-4	0.0087	0.026	0.052	0.013 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	94

DJK
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	11/14/13 03:32 PM
Lab ID:	13111771A-07B	Dilution Factor:	2.04
Date/Time Collecte	11/8/13 04:01 PM	Instrument/Filename:	msda.i / a111406sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DSK
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
 Lab ID: 1311171A-08A
 Date/Time Collecte: 11/8/13 03:59 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 11/14/13 04:09 PM
 Dilution Factor: 1.83
 Instrument/File Name: msda.i / a111407

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.26	0.36	0.90	0.57 J
1,4-Dioxane	123-91-1	0.44	0.44	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	1.1	2.7	1.8 J
2-Hexanone	591-78-6	0.30	1.5	3.7	Not Detected
2-Propanol	67-63-0	0.25	0.90	2.2	1.2 J
4-Methyl-2-pentanone	108-10-1	0.37	0.37	0.75	Not Detected
Acetone	67-64-1	0.44	0.87	2.2	9.4
Bromomethane	74-83-9	0.64	1.4	3.6	Not Detected
Carbon Disulfide	75-15-0	0.19	1.1	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.22	0.46	1.2	0.55 J
Chlorobenzene	108-90-7	0.061	0.34	0.84	Not Detected
Chloroethane	75-00-3	0.38	0.96	2.4	Not Detected
Chloromethane	74-87-3	0.34	0.76	1.9	1.4 J
Cumene	98-82-8	0.093	0.36	0.90	Not Detected
Cyclohexane	110-82-7	0.11	0.25	0.63	0.15 J
Freon 11	75-69-4	0.13	0.41	1.0	2.4
Freon 113	76-13-1	0.17	0.56	1.4	0.74 J
Freon 12	75-71-8	0.10	0.36	0.90	2.6
Hexane	110-54-3	0.084	0.26	0.64	0.27 J
Methylene Chloride	75-09-2	0.10	0.25	1.3	0.34 J
Propylbenzene	103-65-1	0.14	0.36	0.90	Not Detected
Styrene	100-42-5	0.18	0.31	0.78	Not Detected

Leave as is

1.3

DJL
12/16/13

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	11/14/13 04:09 PM
Lab ID:	13111771A-08A	Dilution Factor:	1.83
Date/Time Collecte	11/8/13 03:59 PM	Instrument/Filename:	msda.i / a111407
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.18	1.1	2.7	0.40 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	98

DTK
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] C	Date/Time Analyzed:	11/14/13 04:09 PM
Lab ID:	1311171A-08B	Dilution Factor:	1.83
Date/Time Collecte	11/8/13 03:59 PM	Instrument/Filename:	msda.i / a111407sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.019	0.050	0.20	0.027 J
1,1-Dichloroethane	75-34-3	0.0064	0.037	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.037	0.15	0.27 J+
Benzene	71-43-2	0.027	0.029	0.29	0.38
Chloroform	67-66-3	0.0098	NA		0.11 J
cis-1,2-Dichloroethene	156-59-2	0.0077	0.036	0.14	0.023 J
Ethyl Benzene	100-41-4	0.010	0.040	0.16	0.27
m,p-Xylene	108-38-3	0.016	0.040	0.32	0.94
Methyl tert-butyl ether	1634-04-4	0.015	0.033	0.66	Not Detected
o-Xylene	95-47-6	0.013	0.040	0.16	0.38
Tetrachloroethene	127-18-4	0.0076	0.062	0.25	0.12 J
Toluene	108-88-3	0.0090	0.034	0.14	2.3
trans-1,2-Dichloroethene	156-60-5	0.0080	0.036	0.72	0.659 J
Trichloroethene	79-01-6	0.0044	0.049	0.20	0.045 J
Vinyl Chloride	75-01-4	0.0078	0.023	0.47	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	96

DJK
12/16/13



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	11/14/13 04:09 PM
Lab ID:	1311771A-08B	Dilution Factor:	1.83
Date/Time Collecte	11/8/13 03:59 PM	Instrument/Filename:	msda.i / a111407sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	102

DJL
12/16/13



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager Mark Pearson

Collected by: (Print and Sign) Mark Pearson

Company Tetra Tech

Employment mark.pearson@tetratech.com

Address 861 Bridger Dr, Ste 6 City Bozeman State MT Zip 59715

Phone 406-582-8980 Fax _____

Project Info:

P.O. # _____

Project # 114-710303A Task 300

Project Name Bozeman Landfill

Turn Around Time: Normal Rush

5 day TBT

Lab Use Only Pressurized by: _____

Date: _____

Pressurization Gas: _____

specify N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum
						Initial Final Receipt Final (gas)
O1A	-SS1	4589	11/7/13	1139	See attached & Helium	-25.0 -4.6
O2A	-SS2	10988	↓	1646	↓ No Helium	-25.8 -7.0
O3A	-A	34192	11/8/13	1153	See attached VOCs, AM	-25.5 -5.8
O4A	-B	34417		1146		-25.9 -5.2
O5A	-C	916		1157		-24.0 -13.8
O6A	-A	5732		1604		-25.5 -3.5
O7A	-B	1054		1601		-25.6 -7.2
O8A	-C	34227		1559		-25.6 -4.6

Relinquished by: (signature) Mark Pearson Date/Time 11/8/13 @ 1700
 Relinquished by: (signature) _____ Date/Time _____
 Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) Felix-Blade Date/Time 11/8/13 @ 1700
 Received by: (signature) _____ Date/Time _____
 Received by: (signature) ATL Date/Time 11/11/13 0950

Notes:

2 boxes shipped

Shipper Name Felix Air Bill # _____ Temp (°C) N/A Condition Good Custody Seals Intact? Yes No None Work Order # 1311171

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethane	75-00-3	10000
Freon 11	75-69-4	730
Freon 113	76-13-1	31300
Acetone	67-64-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5200
Tetrahydrofuran	109-99-9	2090
Chloroform	67-66-3	0.11
Cyclohexane	110-82-7	6260
Carbon Tetrachloride	56-23-5	0.406
1,4-Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-65-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	156-59-2	35
1,1,1-Trichloroethane	71-55-6	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-6	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-6	104
trans-1,2-Dichloroethene	156-60-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note:

5/2013 EPA RSL

USEPA Residential Air Screening Levels,
 May 2013. Concentrations in micro-
 grams per cubic meter

and APH

January 15, 2014

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: January 15, 2014

Sample Delivery Group (SDG) No.	1311455A
Samples	██████-SS2, ██████-A, ██████-B, ██████-C, ██████-SS2, ██████-A, ██████-B, ██████-C, and ██████-D

Tetra Tech, Inc. conducted data validation of the analytical results for nine air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on November 18 and 19, 2013. The samples were analyzed under SDG No. 1311455A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



January 15, 2014

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1311455A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times with one exception. The chain-of-custody information for sample ██████-B did not match the information on the canister with regard to canister identification. Tetra Tech was notified of the discrepancy and the information on the canister was used to process and report the sample. No data were qualified.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analysis contained target analytes 1,2,4-trimethylbenzene, acetone and carbon disulfide below RLs. The method blank associated with the SIM analyses contained target analytes 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, o-xylene, toluene, trans-1,2-dichloroethene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminants acetone and methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

*The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits with the exception of bromomethane. Percent recoveries from both LCSs (133 and 136) and LCSDs (133 and 134) exceeded the QC limit of 130. All detected bromomethane results were qualified as estimated and possibly biased high ("J+").

January 15, 2014

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1311171A

(Thirty-two Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 131171A

(Two Sheets)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
 Lab ID: 1311455A-01A
 Date/Time Collected: 11/18/13 05:15 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 05:00 PM
 Dilution Factor: 2.00
 Instrument/Filename: msde.i / e120912

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.79	0.98	5.3
1,4-Dioxane	123-91-1	0.39	0.58	0.72	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.52	1.2	2.9	4.6
2-Hexanone	591-78-6	0.54	1.6	4.1	Not Detected
2-Propanol	67-63-0	0.50	0.98	2.4	1.0 J
4-Methyl-2-pentanone	108-10-1	0.21	0.66	0.82	0.59 J
Acetone	67-64-1	0.58	0.95	2.4	22
Bromomethane	74-83-9	1.1	1.6	3.9	Not Detected
Carbon Disulfide	75-15-0	0.82	1.2	1.2	0.99 J
Carbon Tetrachloride	56-23-5	0.16	1.0	1.2	0.51 J
Chlorobenzene	108-90-7	0.27	0.74	0.92	Not Detected
Chloroethane	75-00-3	0.51	1.0	2.6	Not Detected
Chloromethane	74-87-3	0.16	0.33	2.1	Not Detected
Cumene	98-82-8	0.11	0.79	0.98	0.59 J
Cyclohexane	110-82-7	0.21	0.55	0.69	0.82 J
Freon 11	75-69-4	0.17	0.90	1.1	2.0
Freon 113	76-13-1	0.45	1.2	1.5	0.90 J
Freon 12	75-71-8	0.25	0.79	0.99	Not Detected
Hexane	110-54-3	0.19	0.56	0.70	2.0
Methylene Chloride	75-09-2	0.34	0.56	1.4	2.7
Propylbenzene	103-65-1	0.16	0.79	0.98	0.44 J
Styrene	100-42-5	0.18	0.68	0.85	0.79 J
					0.47 J

3.1 DU

DSL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SSS2
Lab ID: 1311455A-01A
Date/Time Collecte 11/18/13 05:15 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 05:00 PM
Dilution Factor: 2.00
Instrument/Filename: msde.i / e120912

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.37	1.2	2.9	1.9 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	103

DSL
11/16/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	12/9/13 05:00 PM
Lab ID:	1311455A-01B	Dilution Factor:	2.00
Date/Time Collecte	11/18/13 05:15 PM	Instrument/Filename:	msde.l / e120912sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.024	0.044	0.22	0.024 J
1,1-Dichloroethane	75-34-3	0.011	0.032	0.16	0.018 J
1,2-Dichloroethane	107-06-2	0.011	0.032	0.16	0.018 J
Benzene	71-43-2	0.020	0.026	0.32	0.43 J
Chloroform	67-66-3	0.020	NA	0.20	1.3
cis-1,2-Dichloroethane	156-59-2	0.018	0.032	0.16	Not Detected
Ethyl Benzene	100-41-4	0.022	0.035	0.17	Not Detected
m,p-Xylene	108-38-3	0.025	0.035	0.35	1.7
Methyl tert-butyl ether	1634-04-4	0.017	0.029	0.72	7.1
o-Xylene	95-47-6	0.018	0.035	0.17	Not Detected
Tetrachloroethane	127-18-4	0.024	0.054	0.27	5.1
Toluene	108-88-3	0.013	0.030	0.15	1.8
trans-1,2-Dichloroethane	156-60-5	0.017	0.032	0.79	12
Trichloroethane	79-01-6	0.022	0.043	0.21	Not Detected
Vinyl Chloride	75-01-4	0.010	0.020	0.051	Not Detected

J = Estimated value.
J = Estimated value due to bias in the CCV.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92

DJK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	12/9/13 05:00 PM
Lab ID:	1311455A-01B	Dilution Factor:	2.00
Date/Time Collecte	11/18/13 05:15 PM	Instrument/Filename:	msde.i / e120912sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

DTL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1311455A-02A
Date/Time Collected: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 05:41 PM
Dilution Factor: 1.92
Instrument/Filename: msde1/e120913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.15	0.76	0.94	1.9
1,4-Dioxane	123-91-1	0.38	0.55	0.69	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.50	1.1	2.8	4.3
2-Hexanone	591-78-6	0.52	1.6	3.9	Not Detected
2-Propanol	67-63-0	0.48	0.94	2.4	3.8
4-Methyl-2-pentanone	108-10-1	0.20	0.63	0.79	0.47 J
Acetone	67-64-1	0.56	0.91	2.3	66
Bromomethane	74-83-9	1.0	1.5	3.7	Not Detected
Carbon Disulfide	75-15-0	0.79	1.2	1.2	0.90 J
Carbon Tetrachloride	56-23-5	0.15	0.97	1.2	0.52 J
Chlorobenzene	108-90-7	0.26	0.71	0.88	Not Detected
Chloroethane	75-00-3	0.49	1.0	2.5	Not Detected
Chloromethane	74-87-3	0.16	0.32	2.0	0.98 J
Cumene	98-82-8	0.11	0.76	0.94	Not Detected
Cyclohexane	110-82-7	0.20	0.53	0.66	2.2
Freon 11	75-69-4	0.16	0.86	1.1	0.86 J
Freon 113	76-13-1	0.43	1.2	1.5	0.55 J
Freon 12	75-71-8	0.24	0.76	0.95	1.8
Hexane	110-54-3	0.18	0.54	0.68	3.4
Methylene Chloride	75-09-2	0.33	0.53	1.3	Not Detected
Propylbenzene	103-65-1	0.16	0.76	0.94	0.35 J
Styrene	100-42-5	0.18	0.65	0.82	0.35 J

3.0 DU

DJK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1311455A-02A
Date/Time Collected: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/9/13 05:41 PM
Dilution Factor: 1.92
Instrument/Filename: msde.i / e120913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.35	1.1	2.8	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	95

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1311455A-02B
Date/Time Collected: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 05:41 PM
Dilution Factor: 1.92
Instrument/Filename: msde.i / e120913sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.023	0.042	0.21	Not Detected
1,1-Dichloroethane	75-34-3	0.010	0.031	0.16	0.017 J
1,2-Dichloroethane	107-06-2	0.010	0.031	0.16	1.0 J
Benzene	71-43-2	0.019	0.024	0.31	1.5
Chloroform	67-66-3	0.019	NA	0.19	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.018	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.021	0.033	0.17	Not Detected
m,p-Xylene	108-38-3	0.024	0.033	0.33	1.5
Methyl tert-butyl ether	1634-04-4	0.016	0.028	0.69	5.6
o-Xylene	95-47-6	0.017	0.033	0.17	Not Detected
Tetrachloroethene	127-18-4	0.024	0.052	0.26	1.8
Toluene	108-88-3	0.013	0.029	0.14	0.18 J
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.76	12
Trichloroethene	79-01-6	0.021	0.041	0.21	0.020 J
Vinyl Chloride	75-01-4	0.010	0.020	0.049	Not Detected

J = Estimated value.
J = Estimated value due to bias in the CCV.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	12/9/13 05:41 PM
Lab ID:	1311455A-02B	Dilution Factor:	1.92
Date/Time Collecte	11/19/13 05:19 PM	Instrument/Filename:	msde.i/e120913sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	98

DJK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	12/9/13 06:25 PM
Lab ID:	1311455A-03A	Dilution Factor:	2.06
Date/Time Collecte:	11/19/13 05:14 PM	Instrument/Filename:	msde.i / e120914
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.81	1.0	1.9
1,4-Dioxane	123-91-1	0.40	0.59	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.54	1.2	3.0	3.2
2-Hexanone	591-78-6	0.56	1.7	4.2	Not Detected
2-Propanol	67-63-0	0.51	1.0	2.5	4.5
4-Methyl-2-pentanone	108-10-1	0.21	0.68	0.84	0.51 J
Acetone	67-64-1	0.60	0.98	2.4	78
Bromomethane	74-83-9	1.1	1.6	4.0	Not Detected
Carbon Disulfide	75-15-0	0.84	1.3	1.3	0.91 J
Carbon Tetrachloride	56-23-5	0.16	1.0	1.3	0.48 J
Chlorobenzene	108-90-7	0.28	0.76	0.95	Not Detected
Chloroethane	75-00-3	0.52	1.1	2.7	Not Detected
Chloromethane	74-87-3	0.17	0.34	2.1	1.1 J
Cumene	98-82-8	0.12	0.81	1.0	Not Detected
Cyclohexane	110-82-7	0.22	0.57	0.71	1.7
Freon 11	75-69-4	0.18	0.92	1.2	0.87 J
Freon 113	76-13-1	0.46	1.3	1.6	Not Detected
Freon 12	75-71-8	0.26	0.82	1.0	1.8
Hexane	110-54-3	0.19	0.58	0.73	2.8
Methylene Chloride	75-09-2	0.35	0.57	1.4	0.42 J
Propylbenzene	103-65-1	0.17	0.81	1.0	0.25 J
Styrene	100-42-5	0.19	0.70	0.88	0.50 J

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1311455A-03A
Date/Time Collected: 11/19/13 05:14 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/9/13 06:25 PM
Dilution Factor: 2.06
Instrument/Filename: msde.i / e120914

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.38	1.2	3.0	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99

DJK
11/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
 Lab ID: 1311455A-03B
 Date/Time Collected: 11/19/13 05:14 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 12/9/13 06:25 PM
 Dilution Factor: 2.06
 Instrument/Filename: msde.i / e120914sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.025	0.045	0.22	0.028 J
1,1-Dichloroethane	75-34-3	0.011	0.033	0.17	0.011 J
1,2-Dichloroethane	107-06-2	0.011	0.033	0.17	0.74 J
Benzene	71-43-2	0.020	0.026	0.33	1.2
Chloroform	67-66-3	0.021	NA	0.20	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.019	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.023	0.036	0.18	Not Detected
m,p-Xylene	108-38-3	0.026	0.036	0.36	1.4
Methyl tert-butyl ether	1634-04-4	0.017	0.030	0.74	5.0
o-Xylene	95-47-6	0.019	0.036	0.18	Not Detected
Tetrachloroethene	127-18-4	0.025	0.056	0.28	1.6
Toluene	108-88-3	0.014	0.031	0.16	0.15 J
trans-1,2-Dichloroethene	156-60-5	0.018	0.033	0.82	12
Trichloroethene	79-01-6	0.022	0.044	0.22	Not Detected
Vinyl Chloride	75-01-4	0.011	0.021	0.053	Not Detected

J = Estimated value.
 J = Estimated value due to bias in the CCV.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94

DJL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	12/9/13 06:25 PM
Lab ID:	1311455A-03B	Dilution Factor:	2.06
Date/Time Collecte	11/19/13 05:14 PM	Instrument/Filename:	msde.i / e120914sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

DSK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1311455A-04A
Date/Time Collected: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 07:10 PM
Dilution Factor: 1.92
Instrument/Filename: msde1/e120915

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.15	0.76	0.94	2.3
1,4-Dioxane	123-91-1	0.38	0.55	0.69	0.40 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.50	1.1	2.8	3.9
2-Hexanone	591-78-6	0.52	1.6	3.9	Not Detected
2-Propanol	67-63-0	0.48	0.94	2.4	4.0
4-Methyl-2-pentanone	108-10-1	0.20	0.63	0.79	0.45 J
Acetone	67-64-1	0.56	0.91	2.3	76
Bromomethane	74-83-9	1.0	1.5	3.7	Not Detected
Carbon Disulfide	75-15-0	0.79	1.2	1.2	0.94 J
Carbon Tetrachloride	56-23-5	0.15	0.97	1.2	0.56 J
Chlorobenzene	108-90-7	0.26	0.71	0.88	Not Detected
Chloroethane	75-00-3	0.49	1.0	2.5	Not Detected
Chloromethane	74-87-3	0.16	0.32	2.0	0.96 J
Cumene	98-82-8	0.11	0.76	0.94	Not Detected
Cyclohexane	110-82-7	0.20	0.53	0.66	2.1
Freon 11	75-69-4	0.16	0.86	1.1	0.85 J
Freon 113	76-13-1	0.43	1.2	1.5	0.47 J
Freon 12	75-71-8	0.24	0.76	0.95	1.7
Hexane	110-54-3	0.18	0.54	0.68	3.2
Methylene Chloride	75-09-2	0.33	0.53	1.3	0.41 J
Propylbenzene	103-65-1	0.16	0.76	0.94	0.40 J
Styrene	100-42-5	0.18	0.65	0.82	0.42 J

3.0

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1311455A-04A
Date/Time Collected: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 07:10 PM
Dilution Factor: 1.92
Instrument/Filename: msd.e1/e120915

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.35	1.1	2.8	0.66 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	97

DOTL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1311455A-04B
Date/Time Collected: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 07:10 PM
Dilution Factor: 1.92
Instrument/Filename: msde.i/e120915sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.023	0.042	0.21	Not Detected
1,1-Dichloroethane	75-34-3	0.010	0.031	0.16	0.018 J
1,2-Dichloroethane	107-06-2	0.010	0.031	0.16	4.0 J
Benzene	71-43-2	0.019	0.024	0.31	1.4
Chloroform	67-66-3	0.019	NA	0.19	Not Detected
cis-1,2-Dichloroethane	156-59-2	0.018	0.030	0.15	Not Detected
Ethyl Benzene	100-41-4	0.021	0.033	0.17	Not Detected
m,p-Xylene	108-38-3	0.024	0.033	0.33	1.6
Methyl tert-butyl ether	1634-04-4	0.016	0.028	0.69	5.8
o-Xylene	95-47-6	0.017	0.033	0.17	Not Detected
Tetrachloroethene	127-18-4	0.024	0.052	0.26	1.9
Toluene	108-88-3	0.013	0.029	0.14	0.18 J
trans-1,2-Dichloroethene	156-60-5	0.016	0.030	0.14	12
Trichloroethene	79-01-6	0.021	0.041	0.76	0.024 J
Vinyl Chloride	75-01-4	0.010	0.020	0.21	Not Detected

J = Estimated value.
J = Estimated value due to bias in the CCV.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
Lab ID: 1311455A-04B
Date/Time Collecte: 11/19/13 05:19 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/9/13 07:10 PM
Dilution Factor: 1.92
Instrument/Filename: msde.i / e120915sim

Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	12/9/13 08:02 PM
Lab ID:	1311455A-05A	Dilution Factor:	1.97
Date/Time Collecte	11/18/13 01:36 PM	Instrument/Filename:	msde.i / e120916
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.77	0.97	3.0
1,4-Dioxane	123-91-1	0.38	0.57	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.51	1.2	2.9	2.7 J
2-Hexanone	591-78-6	0.53	1.6	4.0	Not Detected
2-Propanol	67-63-0	0.49	0.97	2.4	0.90 J
4-Methyl-2-pentanone	108-10-1	0.20	0.64	0.81	0.74 J
Acetone	67-64-1	0.57	0.94	2.3	8.7
Bromomethane	74-83-9	1.1	1.5	3.8	Not Detected
Carbon Disulfide	75-15-0	0.81	1.2	3.1	0.99 J
Carbon Tetrachloride	56-23-5	0.16	0.99	1.2	0.42 J
Chlorobenzene	108-90-7	0.26	0.72	0.91	Not Detected
Chloroethane	75-00-3	0.50	1.0	2.6	Not Detected
Chloromethane	74-87-3	0.16	0.32	2.0	0.82 J
Cumene	98-82-8	0.11	0.77	0.97	24
Cyclohexane	110-82-7	0.21	0.54	0.68	1.2
Freon 11	75-69-4	0.17	0.88	1.1	0.89 J
Freon 113	76-13-1	0.44	1.2	1.5	Not Detected
Freon 12	75-71-8	0.24	0.78	0.97	1.9
Hexane	110-54-3	0.18	0.56	0.69	0.77
Methylene Chloride	75-09-2	0.34	0.55	1.4	0.41 J
Propylbenzene	103-65-1	0.16	0.77	0.97	0.62 J
Styrene	100-42-5	0.18	0.67	0.84	0.39 J

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
Lab ID: 1311455A-05A
Date/Time Collected: 11/18/13 01:36 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/9/13 08:02 PM
Dilution Factor: 1.97
Instrument/Filename: msde.i / e120916

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.36	1.2	2.9	1.2 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
 Lab ID: 1311455A-05B
 Date/Time Collected: 11/18/13 01:36 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 08:02 PM
 Dilution Factor: 1.97
 Instrument/Filename: msde.i / e120916sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.024	0.043	0.21	Not Detected
1,1-Dichloroethane	75-34-3	0.010	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.011	0.032	0.16	Not Detected
Benzene	71-43-2	0.019	0.025	0.31	0.039
Chloroform	67-66-3	0.020	NA	0.19	7.9
cis-1,2-Dichloroethene	156-59-2	0.018	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.022	0.034	0.17	Not Detected
m,p-Xylene	108-38-3	0.025	0.034	0.17	1.1
Methyl tert-butyl ether	1634-04-4	0.017	0.028	0.34	4.2
o-Xylene	95-47-6	0.018	0.034	0.71	Not Detected
Tetrachloroethene	127-18-4	0.024	0.053	0.17	1.5
Toluene	108-88-3	0.013	0.030	0.27	0.45
trans-1,2-Dichloroethene	156-60-5	0.017	0.031	0.15	10
Trichloroethene	79-01-6	0.022	0.042	0.78	Not Detected
Vinyl Chloride	75-01-4	0.010	0.020	0.21	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	106

DOTL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SS2
Lab ID: 1311455A-05B
Date/Time Collecte 11/18/13 01:36 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/9/13 08:02 PM
Dilution Factor: 1.97
Instrument/Filename: msde.i / e120916sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DOTK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1311455A-06A
Date/Time Collected: 11/19/13 12:41 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/9/13 09:09 PM
Dilution Factor: 1.97
Instrument/File Name: msd.e1/e120917

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.77	0.97	2.6
1,4-Dioxane	123-91-1	0.38	0.57	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.51	1.2	2.9	2.9
2-Hexanone	591-78-6	0.53	1.6	4.0	Not Detected
2-Propanol	67-63-0	0.49	0.97	2.4	2.6
4-Methyl-2-pentanone	108-10-1	0.20	0.64	0.81	0.44 J
Acetone	67-64-1	0.57	0.94	2.3	18
Bromomethane	74-83-9	1.1	1.5	3.8	Not Detected
Carbon Disulfide	75-15-0	0.81	1.2	3.1	4.9 J
Carbon Tetrachloride	56-23-5	0.16	0.99	1.2	0.54 J
Chlorobenzene	108-90-7	0.26	0.72	0.91	Not Detected
Chloroethane	75-00-3	0.50	1.0	2.6	Not Detected
Chloromethane	74-87-3	0.16	0.32	2.0	1.2 J
Cumene	98-82-8	0.11	0.77	0.97	Not Detected
Cyclohexane	110-82-7	0.21	0.54	0.68	1.1
Freon 11	75-69-4	0.17	0.88	1.1	0.88 J
Freon 113	76-13-1	0.44	1.2	1.5	0.48 J
Freon 12	75-71-8	0.24	0.78	0.97	2.0
Hexane	110-54-3	0.18	0.56	0.69	1.2
Methylene Chloride	75-09-2	0.34	0.55	1.4	Not Detected
Propylbenzene	103-65-1	0.16	0.77	0.97	0.37 J
Styrene	100-42-5	0.18	0.67	0.84	0.34 J

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-A	Date/Time Analyzed:	12/9/13 09:09 PM
Lab ID:	1311455A-06A	Dilution Factor:	1.97
Date/Time Collected:	11/19/13 12:41 PM	Instrument/Filename:	msde.i / e120917
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.36	1.2	2.9	0.66 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

DSK
11/6/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-A	Date/Time Analyzed:	12/9/13 09:09 PM
Lab ID:	1311455A-06B	Dilution Factor:	1.97
Date/Time Collected:	11/19/13 12:41 PM	Instrument/Filename:	msde.i / e120917sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.024	0.043	0.21	Not Detected
1,1-Dichloroethane	75-34-3	0.010	0.032	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.011	0.032	0.16	Not Detected
Benzene	71-43-2	0.019	0.025	0.31	1.0
Chloroform	67-66-3	0.020	NA	0.19	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.018	0.031	0.16	Not Detected
Ethyl Benzene	100-41-4	0.022	0.034	0.17	Not Detected
m,p-Xylene	108-38-3	0.025	0.034	0.34	1.5
Methyl tert-butyl ether	1634-04-4	0.017	0.028	0.71	Not Detected
o-Xylene	95-47-6	0.018	0.034	0.17	2.0
Tetrachloroethene	127-18-4	0.024	0.053	0.27	0.34
Toluene	108-88-3	0.013	0.030	0.15	17
trans-1,2-Dichloroethene	156-60-5	0.017	0.031	0.28	Not Detected
Trichloroethene	79-01-6	0.022	0.042	0.21	Not Detected
Vinyl Chloride	75-01-4	0.010	0.020	0.050	Not Detected

J = Estimated value due to bias in the CCV.
J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92

OK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	12/9/13 09:09 PM
Lab ID:	1311455A-06B	Dilution Factor:	1.97
Date/Time Collecte	11/19/13 12:41 PM	Instrument/Filename:	msde.i / e120917sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

DKL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
 Lab ID: 1311455A-07A
 Date/Time Collected: 11/19/13 12:42 PM
 Media: 6 Liter Summa Canister (SIM Certified)
 Date/Time Analyzed: 12/9/13 09:56 PM
 Dilution Factor: 2.07
 Instrument/Filename: msde.i/e120918

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.16	0.81	1.0	2.2
1,4-Dioxane	123-91-1	0.40	0.60	0.74	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.54	1.2	3.0	1.8 J
2-Hexanone	591-78-6	0.56	1.7	4.2	Not Detected
2-Propanol	67-63-0	0.52	1.0	2.5	2.5
4-Methyl-2-pentanone	108-10-1	0.21	0.68	0.85	0.46 J
Acetone	67-64-1	0.60	0.98	2.4	16
Bromomethane	74-83-9	1.1	1.6	4.0	Not Detected
Carbon Disulfide	75-15-0	0.85	1.3	3.2	0.91 J
Carbon Tetrachloride	56-23-5	0.16	1.0	1.3	0.56 J
Chlorobenzene	108-90-7	0.28	0.76	0.95	Not Detected
Chloroethane	75-00-3	0.52	1.1	2.7	Not Detected
Chloromethane	74-87-3	0.17	0.34	2.1	1.0 J
Cumene	98-82-8	0.12	0.81	1.0	Not Detected
Cyclohexane	110-82-7	0.22	0.57	0.71	1.0
Freon 11	75-69-4	0.18	0.93	1.2	0.91 J
Freon 113	76-13-1	0.46	1.3	1.6	0.55 J
Freon 12	75-71-8	0.26	0.82	1.0	2.0
Hexane	110-54-3	0.19	0.58	0.73	1.1
Methylene Chloride	75-09-2	0.35	0.58	1.4	0.58 J
Propylbenzene	103-65-1	0.17	0.81	1.0	0.40 J
Styrene	100-42-5	0.19	0.70	0.88	0.28 J

DJL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	B	Date/Time Analyzed:	12/9/13 09:56 PM
Lab ID:	1311455A-07A	Dilution Factor:	2.07
Date/Time Collecte	11/19/13 12:42 PM	Instrument/Filename:	msde.i / e120918
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.38	1.2	3.0	0.41 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

DJK
1/5/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] B	Date/Time Analyzed:	12/9/13 09:56 PM
Lab ID:	1311455A-07B	Dilution Factor:	2.07
Date/Time Collected:	11/19/13 12:42 PM	Instrument/File name:	msde.i / e120918sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.025	0.045	0.22	Not Detected
1,1-Dichloroethane	75-34-3	0.011	0.034	0.17	Not Detected
1,2-Dichloroethane	107-06-2	0.011	0.034	0.17	Not Detected
Benzene	71-43-2	0.020	0.026	0.33	1.0
Chloroform	67-66-3	0.021	NA	0.20	Not Detected
cis-1,2-Dichloroethane	156-59-2	0.019	0.033	0.16	Not Detected
Ethyl Benzene	100-41-4	0.023	0.036	0.18	Not Detected
m,p-Xylene	108-38-3	0.026	0.036	0.36	5.6
Methyl tert-butyl ether	1634-04-4	0.017	0.030	0.75	Not Detected
o-Xylene	95-47-6	0.019	0.036	0.18	1.8
Tetrachloroethene	127-18-4	0.025	0.056	0.28	0.30
Toluene	108-88-3	0.014	0.031	0.16	16
trans-1,2-Dichloroethene	156-60-5	0.018	0.033	0.82	Not Detected
Trichloroethene	79-01-6	0.023	0.044	0.22	Not Detected
Vinyl Chloride	75-01-4	0.011	0.021	0.053	Not Detected

J = Estimated value due to bias in the CCV.
 J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93

DJL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	-B	Date/Time Analyzed:	12/9/13 09:56 PM
Lab ID:	1311455A-07B	Dilution Factor:	2.07
Date/Time Collecte	11/19/13 12:42 PM	Instrument/Filename:	msde.i/e120918sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

DOTL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████-C	Date/Time Analyzed:	12/9/13 10:36 PM
Lab ID:	1311455A-08A	Dilution Factor:	1.81
Date/Time Collecte	11/19/13 12:45 PM	Instrument/Filename:	msde.i/e120919
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.14	0.71	0.89	3.4
1,4-Dioxane	123-91-1	0.35	0.52	0.65	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.47	1.1	2.7	2.6 J
2-Hexanone	591-78-6	0.49	1.5	3.7	Not Detected
2-Propanol	67-63-0	0.45	0.89	2.2	3.9
4-Methyl-2-pentanone	108-10-1	0.19	0.59	0.74	0.46 J
Acetone	67-64-1	0.53	0.86	2.1	19
Bromomethane	74-83-9	0.99	1.4	3.5	Not Detected
Carbon Disulfide	75-15-0	0.74	1.1	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.14	0.91	1.1	Not Detected
Chlorobenzene	108-90-7	0.24	0.67	0.83	0.49 J
Chloroethane	75-00-3	0.46	0.96	2.4	Not Detected
Chloromethane	74-87-3	0.15	0.30	1.9	Not Detected
Cumene	98-82-8	0.10	0.71	0.89	0.97 J
Cyclohexane	110-82-7	0.19	0.50	0.62	Not Detected
Freon 11	75-69-4	0.15	0.81	1.0	0.92
Freon 113	76-13-1	0.40	1.1	1.4	0.87 J
Freon 12	75-71-8	0.22	0.72	0.90	0.46 J
Hexane	110-54-3	0.17	0.51	0.64	2.0
Methylene Chloride	75-09-2	0.31	0.50	1.2	1.2
Propylbenzene	103-65-1	0.15	0.71	0.89	0.50 J
Styrene	100-42-5	0.17	0.62	0.77	0.55 J
					0.41 J

DDK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-C	Date/Time Analyzed:	12/9/13 10:36 PM
Lab ID:	1311455A-08A	Dilution Factor:	1.81
Date/Time Collecte	11/19/13 12:45 PM	Instrument/Filename:	msde.j / e120919
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.33	1.1	2.7	0.58 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

DJL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C
 Lab ID: 1311455A-08B
 Date/Time Collected: 11/19/13 12:45 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 10:36 PM
 Dilution Factor: 1.81
 Instrument/Filename: msde.i / e120919sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.022	0.040	0.20	Not Detected
1,1-Dichloroethane	75-34-3	0.0097	0.029	0.15	Not Detected
1,2-Dichloroethane	107-06-2	0.0098	0.029	0.15	Not Detected
Benzene	71-43-2	0.018	0.023	0.29	1.6
Chloroform	67-66-3	0.018	NA	0.18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.016	0.029	0.14	Not Detected
Ethyl Benzene	100-41-4	0.020	0.031	0.16	2.6
m,p-Xylene	108-38-3	0.023	0.031	0.31	11
Methyl tert-butyl ether	1634-04-4	0.015	0.026	0.65	Not Detected
o-Xylene	95-47-6	0.016	0.031	0.16	3.4
Tetrachloroethene	127-18-4	0.022	0.049	0.24	0.38
Toluene	108-88-3	0.012	0.027	0.14	23
trans-1,2-Dichloroethene	156-60-5	0.016	0.029	0.72	9.919
Trichloroethene	79-01-6	0.020	0.039	0.19	0.022
Vinyl Chloride	75-01-4	0.0095	0.018	0.046	Not Detected

J = Estimated value due to bias in the CCV.
 J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92

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1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	C	Date/Time Analyzed:	12/9/13 10:36 PM
Lab ID:	1311455A-08B	Dilution Factor:	1.81
Date/Time Collecte	11/19/13 12:45 PM	Instrument/Filename:	msde.i / e120919sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

DJK
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] D	Date/Time Analyzed:	12/9/13 11:22 PM
Lab ID:	1371455A-09A	Dilution Factor:	1.71
Date/Time Collected:	11/19/13 12:36 PM	Instrument/File Name:	msdel / e120920
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.14	0.67	0.84	0.79 J
1,4-Dioxane	123-91-1	0.33	0.49	0.62	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.44	1.0	2.5	1.3 J
2-Hexanone	591-78-6	0.46	1.4	3.5	Not Detected
2-Propanol	67-63-0	0.42	0.84	2.1	0.80 J
4-Methyl-2-pentanone	108-10-1	0.18	0.56	0.70	0.20 J
Acetone	67-64-1	0.50	0.81	2.0	5.4
Bromomethane	74-83-9	0.94	1.3	3.3	Not Detected
Carbon Disulfide	75-15-0	0.70	1.1	2.7	Not Detected
Carbon Tetrachloride	56-23-5	0.14	0.86	1.1	0.29 J
Chlorobenzene	108-90-7	0.23	0.63	0.79	Not Detected
Chloroethane	75-00-3	0.43	0.90	2.2	Not Detected
Chloromethane	74-87-3	0.14	0.28	1.8	0.85 J
Cumene	98-82-8	0.096	0.67	0.84	0.098 J
Cyclohexane	110-82-7	0.18	0.47	0.59	0.38 J
Freon 11	75-69-4	0.14	0.77	0.96	0.92 J
Freon 113	76-13-1	0.38	1.0	1.3	0.44 J
Freon 12	75-71-8	0.21	0.68	0.84	1.9
Hexane	110-54-3	0.16	0.48	0.60	0.62
Methylene Chloride	75-09-2	0.29	0.48	1.2	0.44 J
Propylbenzene	103-65-1	0.14	0.67	0.84	Not Detected
Styrene	100-42-5	0.16	0.58	0.73	Not Detected

DJK
11/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]	Date/Time Analyzed:	12/9/13 11:22 PM
Lab ID:	1311455A-09A	Dilution Factor:	1.71
Date/Time Collecte	11/19/13 12:36 PM	Instrument/Filename:	msde.i / e120920
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.32	1.0	2.5	0.48 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

DSL
1/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D
 Lab ID: 1311455A-09B
 Date/Time Collected: 11/19/13 12:36 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/9/13 11:22 PM
 Dilution Factor: 1.71
 Instrument/Filename: msde.i / e120920sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-trichloroethane	71-55-6	0.020	0.037	0.19	Not Detected
1,1-Dichloroethane	75-34-3	0.0091	0.028	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.0093	0.028	0.14	Not Detected
Benzene	71-43-2	0.017	0.022	0.27	0.064 J
Chloroform	67-66-3	0.017	NA	0.17	0.44
cis-1,2-Dichloroethene	156-59-2	0.016	0.027	0.14	Not Detected
Ethyl Benzene	100-41-4	0.019	0.030	0.15	Not Detected
m,p-Xylene	108-38-3	0.022	0.030	0.30	0.46
Methyl tert-butyl ether	1634-04-4	0.014	0.025	0.30	1.5
o-Xylene	95-47-6	0.015	0.030	0.62	Not Detected
Tetrachloroethene	127-18-4	0.021	0.046	0.15	0.98
Toluene	108-88-3	0.012	0.026	0.23	0.099 J
trans-1,2-Dichloroethene	156-60-5	0.015	0.027	0.13	2.9
Trichloroethene	79-01-6	0.019	0.037	0.68	0.022 J
Vinyl Chloride	75-01-4	0.0090	0.017	0.18	0.020 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98

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11/15/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-D	Date/Time Analyzed: 12/9/13 11:22 PM
Lab ID: 1311455A-09B	Dilution Factor: 1.71
Date/Time Collecte : 11/19/13 12:36 PM	Instrument/Filename: msde.i / e120920sim
Media: 6 Liter Summa Canister (SIM Certified)	

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	101

DJK
1/15/14



Air Toxics

Sample Transportation Notice

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Page 1 of 1

Project Manager Mark Pearson mark.pearson@eurofins.com

Collected by: (Print and Sign) MDP

Company Tetra Tech Email _____

Address 881 Bridge Dr. #46 City Beverly Hills State CA Zip 90715

Phone 406-582-8780 Fax _____

Project Info:

P.O. # _____

Project # 114-710303A

Project Name Beverly Hills #11

Turn Around Time: Normal

Rush

Lab Use Only Pressurized by: _____

Date: _____

Pressurization Gas: _____

specify: N₂ He

Lab I.D. Field Sample I.D. (Location)

01A S32 33542 11/18/13 1715 70-15+APM -25.7 -7.1

02A -A 22107 11/19/13 1719 1714 -24.7 -4.6

03A -B 33984 34738 1719 1719 -25.8 -6.3

04A -C 33884 11/18/13 1336 1241 -25.6 -4.8

05A S32 33540 11/19/13 1241 1242 -26.0 -6.2

06A -A 21005 1242 1245 -25.2 -6.0

07A -B 9935 1245 1236 -25.2 -2.6

08A -C 1521 1236 1236 -24.3 -2.9

09A -D 1521 1236 1236 -24.3 -2.9

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) Fedex-Belgrade Date/Time 11/20/13 @ 1600

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) ATL Date/Time 11/22/13 1000

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____

Shipper Name Fedex Air Bill # _____ Temp (°C) NA Condition Good Custody Seals Intact? Yes No None Work Order # 1311455

Notes: Seal checked

1311455

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethane	75-00-3	10000
Freon 11	75-69-4	730
Freon 113	76-13-1	31300
Acetone	67-64-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5200
Tetrahydrofuran	109-99-9	2090
Chloroform	67-66-3	0.11
Cyclohexane	110-82-7	6260
Carbon Tetrachloride	56-23-5	0.406
1,4-Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-65-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	156-59-2	35
1,1,1-Trichloroethane	71-55-6	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-6	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-6	104
trans-1,2-Dichloroethene	156-60-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note:
5/2013 EPA RSL

USEPA Residential Air Screening Levels,
May 2013. Concentrations in micro-
grams per cubic meter

and APH

COC for returning unused flow controllers

Returning

Vac Gage	1/2 hr FC	24 hr FC
4 vac gages in MT (in 3 boxes)	FC 00151	40656
	FC 00281	40320
	FC 00469	40552
	FC 00800	40049
	FC 00083	40627

we are keep these for now

Returning

- 1 FC 00930
- 2 FC 00152
- 3 20995
- 4 FC 00627
- 5 FC 00362
- 6 0000006569
- 7 FC 00099
- 8 FC 00725
- 9 0000006711
- 10 0000006718
- 11 FC 00887
- 12 40781
- 13 FC 00422
- 14 FC 00381
- 15 FC 00517

no # 1311455

Mark Pearson
Tetra Tech
Bozeman, MT

11/20/13 to All Topics

January 17, 2014

Site Name: Bozeman Landfill
Data Reviewer: Debbie Kutsal
Project No.: 114-710303.740
Analyses: Volatile organic compounds
Level of Validation Effort: Stage 2A
Report Date: January 17, 2014

Sample Delivery Group (SDG) No.	1312272A
Samples	████-SS1, █████-A, █████-B, █████-2-C, █████-SS2, █████-A, █████-B, and █████-C

Tetra Tech, Inc. conducted data validation of the analytical results for eight air samples that were collected at the Bozeman Landfill site in Bozeman, Montana, on December 11 and 12, 2013. The samples were analyzed under SDG No. 1312272A by Eurofins Air Toxics, Inc., of Folsom California, for volatile organic compounds (VOC) by modified Environmental Protection Agency (EPA) Toxic Organic Compendium Method TO-15 (January 1999).

Analytical data were evaluated in general accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) data validation guidance document. The following is a list of possible qualifiers used for the validation of this data package:

- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
- NJ = The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
- R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control (QC) criteria. The analyte may or may not be present in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit [RL]).
- UJ = The analyte was analyzed for, but was not detected at or above the associated value (RL), which is considered approximate due to deficiencies in one or more QC criteria.

Data were evaluated based on the following criteria:

- Data completeness
- Sample preservation, receipt, and holding times
- Field and laboratory blanks
- Field and laboratory duplicates
- Surrogate compound recoveries
- Field duplicates
- Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD)



January 17, 2014

- Sample dilution
- Re-extraction and reanalysis
- Analyte quantitation and reported detection limits

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review rather was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 is copies of the Form I's from the SDG, with hand-entered qualifications from the data validation effort. Enclosure 2 is a copy of the traffic report/chain-of-custody records for the SDG. The following sections discuss the SDG and provide an overall assessment of the data. This discussion concentrates on the nonconformances and other irregularities associated with the various parameters.

DATA COMPLETENESS

SDG No. 1312272A was complete as submitted.

SAMPLE PRESERVATION, RECEIPT, AND HOLDING TIMES

No problems were identified with sample preservation, receipt, or holding times.

FIELD AND LABORATORY BLANKS

No field blanks were included in this SDG. The method blank associated with the full scan analysis contained target analyte methylene chloride below the RL. The method blank associated with the SIM analyses contained target analytes 1,2-dichloroethane, benzene, cis-1,2-dichloroethene, ethyl benzene, m,p-xylene, o-xylene, toluene, and trichloroethene below RLs. Affected sample results for these target analytes below the RL were raised to the RL and flagged "U." Results greater than the RL but less than or equal to 5 times (10 times for common laboratory contaminant methylene chloride) the blank concentrations were qualified as estimated and possibly biased high (flagged "J+").

SYSTEM MONITORING COMPOUNDS (SURROGATES)

The recoveries for all surrogates were within the associated QC limits.

LABORATORY CONTROL SAMPLES AND LABORATORY CONTROL SAMPLE DUPLICATES

All percent recoveries and relative percent differences (RPD) for LCSs and LCSDs were within associated QC limits with one exception. The percent recovery of 4-methyl-2-pentanone (131) from the full scan analysis LCS slightly exceeded the QC limit (130). Detected 4-methyl-2-pentanone results for the associated samples were qualified as estimated and possibly biased high ("J+").

SAMPLE DILUTION

No dilution was required for the samples analyzed within this SDG.

January 17, 2014

RE-EXTRACTION AND REANALYSIS

No re-extraction and reanalysis was required for the samples analyzed within this SDG.

ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Per Tetra Tech's request, the laboratory reported estimated values for target compound hits below the RL but greater than the DL. Since the canisters used for this project are certified to the RL only, concentrations below the RL are estimated ("J") and could be false positives.

OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The data can be used as qualified.

ENCLOSURE 1

FORM I'S WITH HAND-ENTERED DATA VALIDATION QUALIFIERS FOR SDG 1312272A

(32 Sheets)

ENCLOSURE 2

TRAFFIC REPORT/CHAIN-OF-CUSTODY DOCUMENTATION FOR SDG 1312272A

(Two Sheets)





Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████-SS1
Lab ID: 1312272A-01A
Date/Time Collected: 12/11/13 02:55 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 03:45 PM
Dilution Factor: 1.67
Instrument/Filename: msda.i / a121907

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.23	0.33	0.82	2.3
1,4-Dioxane	123-91-1	0.40	0.40	0.60	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.98	2.5	1.5 J
2-Hexanone	591-78-6	0.27	1.4	3.4	Not Detected
2-Propanol	67-63-0	0.23	0.82	2.0	3.7
4-Methyl-2-pentanone	108-10-1	0.34	0.34	0.68	Not Detected
Acetone	67-64-1	0.41	0.79	2.0	6.0
Bromomethane	74-83-9	0.58	1.3	3.2	Not Detected
Carbon Disulfide	75-15-0	0.18	1.0	2.6	Not Detected
Carbon Tetrachloride	56-23-5	0.20	0.42	1.0	Not Detected
Chlorobenzene	108-90-7	0.056	0.31	0.77	0.11 J
Chloroethane	75-00-3	0.35	0.88	2.2	Not Detected
Chloromethane	74-87-3	0.31	0.69	1.7	Not Detected
Cumene	98-82-8	0.085	0.33	0.82	0.22 J
Cyclohexane	110-82-7	0.097	0.23	0.57	0.14 J
Freon 11	75-69-4	0.12	0.38	0.94	1.4
Freon 113	76-13-1	0.15	0.51	1.3	0.48 J
Freon 12	75-71-8	0.096	0.33	0.82	2.6
Hexane	110-54-3	0.077	0.24	0.59	0.42 J
Methylene Chloride	75-09-2	0.092	0.23	0.67	0.21 J
Propylbenzene	103-65-1	0.13	0.33	0.82	0.71 J
Styrene	100-42-5	0.17	0.28	0.71	0.32 J

1.2 u

DSK
11/17/14

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████-SS1
 Lab ID: 1312272A-01A
 Date/Time Collected: 12/11/13 02:55 PM
 Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 03:45 PM
 Dilution Factor: 1.67
 Instrument/Filename: msda.i / a121907

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.16	0.98	2.5	1.0 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	97

DJK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: ██████████ SS1
Lab ID: 1312272A-01B
Date/Time Collected: 12/11/13 02:55 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 03:45 PM
Dilution Factor: 1.67
Instrument/Filename: msda.i / at121907sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.046	0.18	0.065 J
1,1-Dichloroethane	75-34-3	0.0058	0.034	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.011	0.034	0.14	Not Detected
Benzene	71-43-2	0.025	0.027	0.14	0.040 J
Chloroform	67-66-3	0.0090	NA	0.16	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.0070	0.033	0.13	0.35
Ethyl Benzene	100-41-4	0.0095	0.036	0.14	0.021 J
m,p-Xylene	108-38-3	0.015	0.036	0.29	0.67
Methyl tert-butyl ether	1634-04-4	0.014	0.030	0.60	2.2
o-Xylene	95-47-6	0.012	0.036	0.14	0.027 J
Tetrachloroethene	127-18-4	0.0069	0.057	0.23	0.98
Toluene	108-88-3	0.0082	0.031	0.12	0.11 J
trans-1,2-Dichloroethene	156-60-5	0.0073	0.033	0.66	1.4
Trichloroethene	79-01-6	0.0040	0.045	0.18	Not Detected
Vinyl Chloride	75-01-4	0.0071	0.021	0.043	0.022 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	98

DSK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS1	Date/Time Analyzed:	12/19/13 03:45 PM
Lab ID:	1312272A-01B	Dilution Factor:	1.67
Date/Time Collecte	12/11/13 02:55 PM	Instrument/Filename:	msda.i / a121907sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	100

DSK
1/13/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1312272A-02A
Date/Time Collecte: 12/12/13 02:28 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 04:22 PM
Dilution Factor: 1.93
Instrument/File name: msda.i/ar121908

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.27	0.38	0.95	2.1
1,4-Dioxane	123-91-1	0.46	0.46	0.70	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.26	1.1	2.8	9.8
2-Hexanone	591-78-6	0.32	1.6	4.0	Not Detected
2-Propanol	67-63-0	0.27	0.95	2.4	15
4-Methyl-2-pentanone	108-10-1	0.39	0.39	0.79	Not Detected
Acetone	67-64-1	0.47	0.92	2.3	80
Bromomethane	74-83-9	0.67	1.5	3.7	Not Detected
Carbon Disulfide	75-15-0	0.20	1.2	3.0	Not Detected
Carbon Tetrachloride	56-23-5	0.23	0.48	1.2	0.68 J
Chlorobenzene	108-90-7	0.065	0.36	0.89	Not Detected
Chloroethane	75-00-3	0.40	1.0	2.5	Not Detected
Chloromethane	74-87-3	0.36	0.80	2.0	Not Detected
Cumene	98-82-8	0.098	0.38	0.95	11
Cyclohexane	110-82-7	0.11	0.26	0.66	Not Detected
Freon 11	75-69-4	0.14	0.43	1.1	0.94
Freon 113	76-13-1	0.18	0.59	1.5	1.9
Freon 12	75-71-8	0.11	0.38	0.95	0.63 J
Hexane	110-54-3	0.089	0.27	0.68	2.5
Methylene Chloride	75-09-2	0.11	0.27	1.3	2.5
Propylbenzene	103-65-1	0.15	0.38	0.95	1.5
Styrene	100-42-5	0.19	0.33	0.82	0.46 J

5+

OSYK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-A
Lab ID: 1312272A-02A
Date/Time Collected: 12/12/13 02:28 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/19/13 04:22 PM
Dilution Factor: 1.93
Instrument/Filename: msda.i / a121908

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.19	1.1	2.8	11

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

DJK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A	Date/Time Analyzed: 12/19/13 04:22 PM
Lab ID: 1312272A-02B	Dilution Factor: 1.93
Date/Time Collecte: 12/12/13 02:28 PM	Instrument/File name: msda.i / at121908sim
Media: 6 Liter Summa Canister (SIM Certified)	

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
1,1,1-Trichloroethane	71-55-6	0.020	0.053	0.21	0.071 J
1,1-Dichloroethane	75-34-3	0.0067	0.039	0.16	Not Detected
1,2-Dichloroethane	107-06-2	0.013	0.039	0.16	Not Detected
Benzene	71-43-2	0.029	0.031	0.31	6.0
Chloroform	67-66-3	0.010	NA	0.19	0.49
cis-1,2-Dichloroethene	156-59-2	0.0081	0.038	0.15	0.034 J
Ethyl Benzene	100-41-4	0.011	0.042	0.17	2.0
m,p-Xylene	108-38-3	0.017	0.042	0.34	6.8
Methyl tert-butyl ether	1634-04-4	0.016	0.035	0.70	0.021 J
o-Xylene	95-47-6	0.014	0.042	0.17	1.6
Tetrachloroethene	127-18-4	0.0080	0.065	0.26	0.31
Toluene	108-88-3	0.0094	0.036	0.14	16
trans-1,2-Dichloroethene	156-60-5	0.0084	0.038	0.76	0.15 J
Trichloroethene	79-01-6	0.0047	0.052	0.21	0.027 J
Vinyl Chloride	75-01-4	0.0082	0.025	0.049	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	99

DKL
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1312272A-02B
Date/Time Collected: 12/12/13 02:28 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/19/13 04:22 PM
Dilution Factor: 1.93
Instrument/Filename: msda.i / a121908sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	99

OSL
1/18/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1312272A-03A
Date/Time Collected: 12/12/13 02:30 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 04:59 PM
Dilution Factor: 1.80
Instrument/File Name: msdai / a121909

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.25	0.35	0.88	1.0
1,4-Dioxane	123-91-1	0.43	0.43	0.65	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.24	1.1	2.6	1.9 J
2-Hexanone	591-78-6	0.30	1.5	3.7	Not Detected
2-Propanol	67-63-0	0.25	0.88	2.2	2.5
4-Methyl-2-pentanone	108-10-1	0.36	0.36	0.74	Not Detected
Acetone	67-64-1	0.44	0.86	2.1	8.1
Bromomethane	74-83-9	0.62	1.4	3.5	Not Detected
Carbon Disulfide	75-15-0	0.19	1.1	2.8	Not Detected
Carbon Tetrachloride	56-23-5	0.21	0.45	1.1	0.60 J
Chlorobenzene	108-90-7	0.060	0.33	0.83	Not Detected
Chloroethane	75-00-3	0.37	0.95	2.4	Not Detected
Chloromethane	74-87-3	0.33	0.74	1.8	1.8 J
Cumene	98-82-8	0.091	0.35	0.88	Not Detected
Cyclohexane	110-82-7	0.10	0.25	0.62	1.1
Freon 11	75-69-4	0.13	0.40	1.0	2.0
Freon 113	76-13-1	0.16	0.55	1.4	0.53 J
Freon 12	75-71-8	0.10	0.36	0.89	2.3
Hexane	110-54-3	0.083	0.25	0.63	1.1
Methylene Chloride	75-09-2	0.099	0.25	0.63	0.65 J
Propylbenzene	103-65-1	0.14	0.35	0.88	0.30 J
Styrene	100-42-5	0.18	0.31	0.77	0.48 J

1.2 u

OSK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1312272A-03A
Date/Time Collected: 12/12/13 02:30 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/19/13 04:59 PM
Dilution Factor: 1.80
Instrument/Filename: msda.i / a121909

Compound	CAS#	MDL (ug/m ³)	LOD (ug/m ³)	Rpt. Limit (ug/m ³)	Amount (ug/m ³)
Tetrahydrofuran	109-99-9	0.18	1.1	2.6	1.2 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99

DIR
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-B	Date/Time Analyzed:	12/19/13 04:59 PM
Lab ID:	1312272A-03B	Dilution Factor:	1.80
Date/Time Collected:	12/12/13 02:30 PM	Instrument/Filename:	msda.i / at121909sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-trichloroethane	71-55-6	0.018	0.049	0.20	0.042 J
1,1-Dichloroethane	75-34-3	0.0063	0.036	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.036	0.14	0.092 J
Benzene	71-43-2	0.027	0.029	0.29	1.0
Chloroform	67-66-3	0.0097	NA	0.18	0.23
cis-1,2-Dichloroethene	156-59-2	0.0076	0.036	0.14	Not Detected
Ethyl Benzene	100-41-4	0.010	0.039	0.16	0.65
m,p-Xylene	108-38-3	0.016	0.039	0.31	2.1
Methyl tert-butyl ether	1634-04-4	0.015	0.032	0.65	0.028 J
o-Xylene	95-47-6	0.013	0.039	0.16	0.82
Tetrachloroethene	127-18-4	0.0074	0.061	0.24	0.44
Toluene	108-88-3	0.0088	0.034	0.14	3.6
trans-1,2-Dichloroethene	156-60-5	0.0078	0.036	0.71	0.057 J
Trichloroethene	79-01-6	0.0044	0.048	0.19	0.017 J
Vinyl Chloride	75-01-4	0.0077	0.023	0.046	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	97

DK
1/13/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-B
Lab ID: 1312272A-03B
Date/Time Collecte 12/12/13 02:30 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 04:59 PM
Dilution Factor: 1.80
Instrument/Filename: msda.i / a121909sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-C	Date/Time Analyzed:	12/19/13 05:35 PM
Lab ID:	1312272A-04A	Dilution Factor:	1.52
Date/Time Collecte	12/12/13 02:32 PM	Instrument/File name:	msda.i / a121910
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.21	0.30	0.75	Not Detected
1,4-Dioxane	123-91-1	0.37	0.37	0.55	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.20	0.90	2.2	0.61 J
2-Hexanone	591-78-6	0.25	1.2	3.1	Not Detected
2-Propanol	67-63-0	0.21	0.75	1.9	0.47 J
4-Methyl-2-pentanone	108-10-1	0.31	0.31	0.62	Not Detected
Acetone	67-64-1	0.37	0.72	1.8	3.2
Bromomethane	74-83-9	0.53	1.2	3.0	Not Detected
Carbon Disulfide	75-15-0	0.16	0.95	2.4	Not Detected
Carbon Tetrachloride	56-23-5	0.18	0.38	0.96	Not Detected
Chlorobenzene	108-90-7	0.051	0.28	0.70	0.50 J
Chloroethane	75-00-3	0.32	0.80	2.0	Not Detected
Chloromethane	74-87-3	0.28	0.63	1.6	0.99 J
Cumene	98-82-8	0.077	0.30	0.75	Not Detected
Cyclohexane	110-82-7	0.088	0.21	0.52	Not Detected
Freon 11	75-69-4	0.11	0.34	0.85	1.3
Freon 113	76-13-1	0.14	0.46	1.2	0.79 J
Freon 12	75-71-8	0.088	0.30	0.75	2.4
Hexane	110-54-3	0.070	0.21	0.54	0.46 J
Methylene Chloride	75-09-2	0.084	0.21	0.75	Not Detected
Propylbenzene	103-65-1	0.12	0.30	0.75	Not Detected
Styrene	100-42-5	0.15	0.26	0.65	Not Detected

1.0 DU

D57L
1/13/14

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-C	Date/Time Analyzed:	12/19/13 05:35 PM
Lab ID:	1312272A-04A	Dilution Factor:	1.52
Date/Time Collecte	12/12/13 02:32 PM	Instrument/Filename:	msda.i / a121910
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.15	0.90	2.2	0.21 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

DOE
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]
Lab ID: 1312272A-04B
Date/Time Collected: 12/12/13 02:32 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 05:35 PM
Dilution Factor: 1.52
Instrument/Filename: msda.i / a121910sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.016	0.041	0.16	0.041 J
1,1-Dichloroethane	75-34-3	0.0053	0.031	0.12	Not Detected
1,2-Dichloroethane	107-06-2	0.010	0.031	0.12	Not Detected
Benzene	71-43-2	0.022	0.024	0.24	0.57
Chloroform	67-66-3	0.0082	NA	0.15	0.081 J
cis-1,2-Dichloroethene	156-59-2	0.0064	0.030	0.12	Not Detected
Ethyl Benzene	100-41-4	0.0086	0.033	0.13	0.15
m,p-Xylene	108-38-3	0.013	0.033	0.26	0.42
Methyl tert-butyl ether	1634-04-4	0.013	0.027	0.55	0.018 J
o-Xylene	95-47-6	0.011	0.033	0.13	0.14
Tetrachloroethene	127-18-4	0.0063	0.052	0.21	0.030 J
Toluene	108-88-3	0.0074	0.029	0.11	0.75
trans-1,2-Dichloroethene	156-60-5	0.0066	0.030	0.60	0.052 J
Trichloroethene	79-01-6	0.0037	0.041	0.16	Not Detected
Vinyl Chloride	75-01-4	0.0065	0.019	0.039	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	97

DL
11/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED]-C
Lab ID: 1312272A-04B
Date/Time Collecte 12/12/13 02:32 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 05:35 PM
Dilution Factor: 1.52
Instrument/Filename: msda.i / a121910sim

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DJL
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	12/19/13 06:13 PM
Lab ID:	1312272A-05A	Dilution Factor:	1.64
Date/Time Collecte	12/11/13 04:30 PM	Instrument/File name:	msda.i / a121911
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.23	0.32	0.81	3.6
1,4-Dioxane	123-91-1	0.40	0.40	0.59	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.22	0.97	2.4	3.7
2-Hexanone	591-78-6	0.27	1.3	3.4	0.30 J
2-Propanol	67-63-0	0.23	0.81	2.0	1.6 J
4-Methyl-2-pentanone	108-10-1	0.33	0.33	0.67	0.36 J +
Acetone	67-64-1	0.40	0.78	1.9	8.1
Bromomethane	74-83-9	0.57	1.3	3.2	Not Detected
Carbon Disulfide	75-15-0	0.17	1.0	2.6	0.24 J
Carbon Tetrachloride	56-23-5	0.19	0.41	1.0	0.46 J
Chlorobenzene	108-90-7	0.055	0.30	0.76	0.090 J
Chloroethane	75-00-3	0.34	0.86	2.2	Not Detected
Chloromethane	74-87-3	0.30	0.68	1.7	0.97 J
Cumene	98-82-8	0.083	0.32	0.81	0.60 J
Cyclohexane	110-82-7	0.095	0.22	0.56	0.30 J
Freon 11	75-69-4	0.12	0.37	0.92	1.5
Freon 113	76-13-1	0.15	0.50	1.2	0.89 J
Freon 12	75-71-8	0.095	0.32	0.81	2.6
Hexane	110-54-3	0.076	0.23	0.58	0.60
Methylene Chloride	75-09-2	0.090	0.23	0.60	0.60 J
Propylbenzene	103-65-1	0.13	0.32	0.81	0.94
Styrene	100-42-5	0.16	0.28	0.70	0.49 J

1.14

DJK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] SSS2
Lab ID: 1312272A-05A
Date/Time Collected: 12/11/13 04:30 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/19/13 06:13 PM
Dilution Factor: 1.64
Instrument/Filename: msdai/a121911

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.16	0.97	2.4	2.3 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

DRL
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	12/19/13 06:13 PM
Lab ID:	1312272A-05B	Dilution Factor:	1.64
Date/Time Collected:	12/11/13 04:30 PM	Instrument/File name:	msda.j / a121911sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.017	0.045	0.18	0.030 J
1,1-Dichloroethane	75-34-3	0.0057	0.033	0.13	0.015 J
1,2-Dichloroethane	107-06-2	0.011	0.033	0.13	0.088 J
Benzene	71-43-2	0.024	0.026	0.26	0.49
Chloroform	67-66-3	0.0088	NA	0.16	0.24
cis-1,2-Dichloroethane	156-59-2	0.0069	0.032	0.13	Not Detected
Ethyl Benzene	100-41-4	0.0093	0.036	0.14	1.1
m,p-Xylene	108-38-3	0.014	0.036	0.28	3.8
Methyl tert-butyl ether	1634-04-4	0.014	0.030	0.59	0.019 J
o-Xylene	95-47-6	0.012	0.036	0.14	1.7
Tetrachloroethene	127-18-4	0.0068	0.056	0.22	0.16 J
Toluene	108-88-3	0.0080	0.031	0.12	2.4
trans-1,2-Dichloroethane	156-60-5	0.0072	0.032	0.65	0.047 J
Trichloroethene	79-01-6	0.0040	0.044	0.18	0.030 J
Vinyl Chloride	75-01-4	0.0070	0.021	0.042	0.042

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	100

DJK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	SS2	Date/Time Analyzed:	12/19/13 06:13 PM
Lab ID:	1312272A-05B	Dilution Factor:	1.64
Date/Time Collecte	12/11/13 04:30 PM	Instrument/Filename:	msda.i / at121911sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DDV
1/13/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	12/19/13 07:09 PM
Lab ID:	1312272A-06A	Dilution Factor:	2.24
Date/Time Collecte:	12/12/13 04:21 PM	Instrument/File name:	msda.i / a121912
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.31	0.44	1.1	0.43 J
1,4-Dioxane	123-91-1	0.54	0.54	0.81	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.30	1.3	3.3	2.0 J
2-Hexanone	591-78-6	0.37	1.8	4.6	Not Detected
2-Propanol	67-63-0	0.31	1.1	2.8	0.79 J
4-Methyl-2-pentanone	108-10-1	0.45	0.45	0.92	Not Detected
Acetone	67-64-1	0.54	1.1	2.7	9.0
Bromomethane	74-83-9	0.78	1.7	4.3	Not Detected
Carbon Disulfide	75-15-0	0.24	1.4	3.5	Not Detected
Carbon Tetrachloride	56-23-5	0.26	0.56	1.4	0.41 J
Chlorobenzene	108-90-7	0.075	0.41	1.0	Not Detected
Chloroethane	75-00-3	0.46	1.2	3.0	Not Detected
Chloromethane	74-87-3	0.41	0.92	2.3	1.6 J
Cumene	98-82-8	0.11	0.44	1.1	Not Detected
Cyclohexane	110-82-7	0.13	0.31	0.77	0.46 J
Freon 11	75-69-4	0.16	0.50	1.2	1.4
Freon 113	76-13-1	0.20	0.69	1.7	0.67 J
Freon 12	75-71-8	0.13	0.44	1.1	2.8
Hexane	110-54-3	0.10	0.32	0.79	0.81
Methylene Chloride	75-09-2	0.12	0.31	1.6	0.54 J
Propylbenzene	103-65-1	0.17	0.44	1.1	Not Detected
Styrene	100-42-5	0.22	0.38	0.95	Not Detected

DSK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] A
Lab ID: 1312272A-06A
Date/Time Collecte 12/12/13 04:21 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/19/13 07:09 PM
Dilution Factor: 2.24
Instrument/Filename: msda.i / at121912

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.22	1.3	3.3	0.39 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

DSL
1/12/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] A	Date/Time Analyzed:	12/19/13 07:09 PM
Lab ID:	1312272A-06B	Dilution Factor:	2.24
Date/Time Collected:	12/12/13 04:21 PM	Instrument/Filename:	msda.i / at121912sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.023	0.061	0.24	0.036 J
1,1-Dichloroethane	75-34-3	0.0078	0.045	0.18	Not Detected
1,2-Dichloroethane	107-06-2	0.015	0.045	0.18	Not Detected
Benzene	71-43-2	0.033	0.036	0.36	0.68
Chloroform	67-66-3	0.012	NA	0.22	0.13 J
cis-1,2-Dichloroethane	156-59-2	0.0094	0.044	0.18	Not Detected
Ethyl Benzene	100-41-4	0.013	0.049	0.19	0.25
m,p-Xylene	108-38-3	0.020	0.049	0.39	0.50
Methyl tert-butyl ether	1634-04-4	0.019	0.040	0.81	0.031 J
o-Xylene	95-47-6	0.016	0.049	0.19	0.28
Tetrachloroethane	127-18-4	0.0093	0.076	0.30	0.058 J
Toluene	108-88-3	0.011	0.042	0.17	1.3
trans-1,2-Dichloroethane	156-60-5	0.0098	0.044	0.89	Not Detected
Trichloroethane	79-01-6	0.0054	0.060	0.24	Not Detected
Vinyl Chloride	75-01-4	0.0096	0.029	0.057	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	94

DJK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	A	Date/Time Analyzed:	12/19/13 07:09 PM
Lab ID:	1312272A-06B	Dilution Factor:	2.24
Date/Time Collecte	12/12/13 04:21 PM	Instrument/Filename:	msda.i / at121912sim
Media:	6 Liter Summa Canister (SIM Certified)		

Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

DSK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: B
Lab ID: 1312272A-07A
Date/Time Collected: 12/12/13 04:15 PM
Media: 6 Liter Summa Canister (SIM Certified)

Date/Time Analyzed: 12/19/13 08:21 PM
Dilution Factor: 1.99
Instrument/File Name: msda.i / a121913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.28	0.39	0.98	0.36 J
1,4-Dioxane	123-91-1	0.48	0.48	0.72	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.27	1.2	2.9	1.9 J
2-Hexanone	591-78-6	0.33	1.6	4.1	Not Detected
2-Propanol	67-63-0	0.28	0.98	2.4	0.98 J
4-Methyl-2-pentanone	108-10-1	0.40	0.40	0.82	Not Detected
Acetone	67-64-1	0.48	0.94	2.4	8.3
Bromomethane	74-83-9	0.69	1.5	3.9	Not Detected
Carbon Disulfide	75-15-0	0.21	1.2	3.1	Not Detected
Carbon Tetrachloride	56-23-5	0.24	0.50	1.2	0.69 J
Chlorobenzene	108-90-7	0.067	0.37	0.92	Not Detected
Chloroethane	75-00-3	0.41	1.0	2.6	Not Detected
Chloromethane	74-87-3	0.37	0.82	2.0	0.77 J
Cumene	98-82-8	0.10	0.39	0.98	Not Detected
Cyclohexane	110-82-7	0.12	0.27	0.68	0.36 J
Freon 11	75-69-4	0.14	0.45	1.1	1.4
Freon 113	76-13-1	0.18	0.61	1.5	0.96 J
Freon 12	75-71-8	0.11	0.39	0.98	2.7
Hexane	110-54-3	0.092	0.28	0.70	0.70
Methylene Chloride	75-09-2	0.11	0.28	1.4	0.54 J
Propylbenzene	103-65-1	0.15	0.39	0.98	Not Detected
Styrene	100-42-5	0.20	0.34	0.85	0.23 J

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Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] B
Lab ID: 1312272A-07A
Date/Time Collected: 12/12/13 04:15 PM
Media: 6 Liter Summa Canister (SIM Certified)
Date/Time Analyzed: 12/19/13 08:21 PM
Dilution Factor: 1.99
Instrument/Filename: msda.i / a121913

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.20	1.2	2.9	0.36 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	102

DDK
11/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED] B	Date/Time Analyzed:	12/19/13 08:21 PM
Lab ID:	1312272A-07B	Dilution Factor:	1.99
Date/Time Collecte	12/12/13 04:15 PM	Instrument/Filename:	msdai / a121913sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.020	0.054	0.22	0.022 J
1,1-Dichloroethane	75-34-3	0.0069	0.040	0.16	0.016 J
1,2-Dichloroethane	107-06-2	0.014	0.040	0.16	0.10 J
Benzene	71-43-2	0.030	0.032	0.32	0.56
Chloroform	67-66-3	0.011	NA	0.19	0.10 J
cis-1,2-Dichloroethene	156-59-2	0.0084	0.039	0.16	Not Detected
Ethyl Benzene	100-41-4	0.011	0.043	0.17	0.28
m,p-Xylene	108-38-3	0.018	0.043	0.34	0.56
Methyl tert-butyl ether	1634-04-4	0.017	0.036	0.72	0.029 J
o-Xylene	95-47-6	0.014	0.043	0.17	0.18
Tetrachloroethene	127-18-4	0.0082	0.068	0.27	0.041 J
Toluene	108-88-3	0.0097	0.037	0.15	1.2
trans-1,2-Dichloroethene	156-60-5	0.0087	0.039	0.79	Not Detected
Trichloroethene	79-01-6	0.0048	0.053	0.21	0.021 J
Vinyl Chloride	75-01-4	0.0085	0.025	0.051	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	97

DOTL
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████-B	Date/Time Analyzed:	12/19/13 08:21 PM
Lab ID:	1312272A-07B	Dilution Factor:	1.99
Date/Time Collecte	12/12/13 04:15 PM	Instrument/Filename:	msda.i / a121913sim
Media:	6 Liter Summa Canister (SIM Certified)		
Surrogates	CAS#	Limits	%Recovery
Toluene-d8	2037-26-5	70-130	98

D57L
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]	Date/Time Analyzed:	12/19/13 09:14 PM
Lab ID:	1312272A-08A	Dilution Factor:	1.75
Date/Time Collecte:	12/12/13 04:13 PM	Instrument/Filename:	msda.i / at121914
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trimethylbenzene	95-63-6	0.25	0.34	0.86	Not Detected
1,4-Dioxane	123-91-1	0.42	0.42	0.63	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.23	1.0	2.6	1.9 J
2-Hexanone	591-78-6	0.29	1.4	3.6	Not Detected
2-Propanol	67-63-0	0.24	0.86	2.2	0.44 J
4-Methyl-2-pentanone	108-10-1	0.35	0.35	0.72	Not Detected
Acetone	67-64-1	0.42	0.83	2.1	5.1
Bromomethane	74-83-9	0.61	1.4	3.4	Not Detected
Carbon Disulfide	75-15-0	0.18	1.1	2.7	Not Detected
Carbon Tetrachloride	56-23-5	0.21	0.44	1.1	0.34 J
Chlorobenzene	108-90-7	0.059	0.32	0.80	Not Detected
Chloroethane	75-00-3	0.36	0.92	2.3	Not Detected
Chloromethane	74-87-3	0.32	0.72	1.8	1.0 J
Cumene	98-82-8	0.089	0.34	0.86	Not Detected
Cyclohexane	110-82-7	0.10	0.24	0.60	0.47 J
Freon 11	75-69-4	0.12	0.39	0.98	1.1
Freon 113	76-13-1	0.16	0.54	1.3	0.74 J
Freon 12	75-71-8	0.10	0.35	0.86	2.2
Hexane	110-54-3	0.081	0.25	0.62	0.65
Methylene Chloride	75-09-2	0.096	0.24	0.62	0.28 J
Propylbenzene	103-65-1	0.14	0.34	0.86	Not Detected
Styrene	100-42-5	0.18	0.30	0.74	Not Detected

DOTK
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	[REDACTED]-C	Date/Time Analyzed:	12/19/13 09:14 PM
Lab ID:	1312272A-08A	Dilution Factor:	1.75
Date/Time Collecte	12/12/13 04:13 PM	Instrument/Filename:	msda.i / a121914
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrahydrofuran	109-99-9	0.17	1.0	2.6	0.58 J

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	78
4-Bromofluorobenzene	480-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

DTL
1/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID:	██████████ C	Date/Time Analyzed:	12/19/13 09:14 PM
Lab ID:	1312272A-08B	Dilution Factor:	1.75
Date/Time Collecte	12/12/13 04:13 PM	Instrument/Filename:	msda.i / at121914sim
Media:	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.018	0.048	0.19	0.039 J
1,1-Dichloroethane	75-34-3	0.0061	0.035	0.14	Not Detected
1,2-Dichloroethane	107-06-2	0.012	0.035	0.14	0.11 J
Benzene	71-43-2	0.026	0.028	0.28	0.50
Chloroform	67-66-3	0.0094	NA	0.17	0.13 J
cis-1,2-Dichloroethene	156-59-2	0.0074	0.035	0.14	Not Detected
Ethyl Benzene	100-41-4	0.010	0.038	0.15	0.19
m,p-Xylene	108-38-3	0.015	0.038	0.30	0.46
Methyl tert-butyl ether	1634-04-4	0.015	0.032	0.63	Not Detected
o-Xylene	95-47-6	0.013	0.038	0.15	0.24
Tetrachloroethene	127-18-4	0.0072	0.059	0.24	0.028 J
Toluene	108-88-3	0.0086	0.033	0.13	0.96
trans-1,2-Dichloroethene	156-60-5	0.0076	0.035	0.69	Not Detected
Trichloroethene	79-01-6	0.0042	0.047	0.19	Not Detected
Vinyl Chloride	75-01-4	0.0075	0.022	0.045	Not Detected

J = Estimated value.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	99

D57L
11/17/14



Air Toxics

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
Bozeman Landfill

Client ID: [REDACTED] C	Date/Time Analyzed: 12/19/13 09:14 PM
Lab ID: 1312272A-08B	Dilution Factor: 1.75
Date/Time Collecte : 12/12/13 04:13 PM	Instrument/Filename: msda.i / a121914sim
Media: 6 Liter Summa Canister (SIM Certified)	
Surrogates	CAS#
Toluene-d8	2037-26-5
	Limits
	70-130
	%Recovery
	99

DJL
1/13/14



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 457-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager Hark Pearson

Collected by: (Print and Sign) Mull Brown

Company TehaTech

Email hark.pearson@tehatel.com

Address 851 Bridger Dr. Sycamore, CA 95221 State CA Zip 95221

Phone 408-582-8780 Fax _____

Project Info:

P.O. # _____

Project # 114-710303 A

Project Name BROWMAN CURB-11

Turn Around Time: _____

Lab Use Only Pressurized by: _____

Normal

Rush

Date: _____

Pressurization Gas: _____

specify

N₂ He

Lab I.D. Field Sample I.D. (Location)

Can #

Date of Collection

Time of Collection

Analyses Requested

Canister Pressure/Vacuum

Initial Final Receipt Final (psf)

01A	-SSA	33798	12/11/13	1455	See Attached	-26.0	-4.9		
02A	-A	34418	12/12/13	1428		-23.5	-3.5		
03A	-B	35996		1430		-25.0	-3.5		
04A	-C	10777		1432		-25.0	-0.0		
05A	-SSA	34017	12/11/13	1630		-26.0	-4.2		
06A	-A	5706	12/12/13	1621		-25.3	-7.0		
07A	-B	11878		1615		-25.5	-6.0		
08A	-C	5752		1613		-26.0	-4.5		

Relinquished by: (signature) Mull Brown Date/Time 12/13/13

Received by: (signature) Fedex Belgrade Date/Time 12/13/13 10:00

Notes: Ship 2 Boxes

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) Bridger Date/Time 12/16/13 10:35

Relinquished by: (signature) _____ Date/Time _____

Received by: (signature) _____ Date/Time _____

Lab Shipper Name Fedex Air Bill # _____

Temp (°C) N/A Condition Good

Custody Seals Intact? Yes

Work Order # 1312272

Use Only

Temp (°C) N/A Condition Good

Custody Seals Intact? Yes

Work Order # 1312272

1312272

Constituent List
Bozeman Landfill Soil Gas Investigation
July 9, 2013

COMPOUND NAME	CASNUM	5/2013 EPA RSL
Freon 12	75-71-8	100
Chloromethane	74-87-3	94
Bromomethane	74-83-9	5.2
Chloroethane	75-00-3	10000
Freon 11	75-69-4	730
Freon 113	76-13-1	31300
Acetone	67-64-1	32000
2-Propanol	67-63-0	7300
Carbon Disulfide	75-15-0	730
Methylene Chloride	75-09-2	96
Hexane	110-54-3	730
2-Butanone (Methyl Ethyl Ketone)	78-93-3	5200
Tetrahydrofuran	109-99-9	2090
Chloroform	67-66-3	0.11
Cyclohexane	110-82-7	6260
Carbon Tetrachloride	56-23-5	0.406
1,4-Dioxane	123-91-1	0.316
4-Methyl-2-pentanone	108-10-1	3130
2-Hexanone	591-78-6	31
Chlorobenzene	108-90-7	52
Styrene	100-42-5	1000
Cumene	98-82-8	420
Propylbenzene	103-65-1	1000
1,2,4-Trimethylbenzene	95-63-6	7.3
Vinyl Chloride	75-01-4	0.16
1,1-Dichloroethane	75-34-3	1.52
cis-1,2-Dichloroethene	156-59-2	35
1,1,1-Trichloroethane	71-55-6	5200
Benzene	71-43-2	0.31
1,2-Dichloroethane	107-06-2	0.094
Trichloroethene	79-01-6	0.43
Toluene	108-88-3	5210
Tetrachloroethene	127-18-4	9.4
Ethyl Benzene	100-41-4	0.97
m,p-Xylene	108-38-3/106-42-3	104
o-Xylene	95-47-6	104
trans-1,2-Dichloroethene	156-60-5	63
Methyl tert-butyl ether	1634-04-4	9.36

Note:

5/2013 EPA RSL

USEPA Residential Air Screening Levels,
May 2013. Concentrations in micro-
grams per cubic meter

and APH