

Derenzo and Associates, Inc.

Environmental Consultants

April 25, 2012

Ms. Trina Vielhauer, Bureau Chief
Bureau of Air Regulation
Department of Environmental Protection
STATE OF FLORIDA
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Subject: Brevard Energy, LLC
DEP File No. 0090069-008-AV
LFG Monitoring Chlorine Contents

RECEIVED

APR 30 2012

**DIVISION OF AIR
RESOURCE MANAGEMENT**

Dear Ms. Vielhauer:

Condition B21(a) of Subsection B of Title V Permit No. 0090069-008-AV issued Brevard Energy, LLC (Brevard Energy) on July 9, 2009 specifies that *The permittee shall comply with the following requirements to monitor the sulfur and chlorine content of the landfill gas:*

... the permittee shall sample and analyze the landfill gas for H₂S and chlorine content. The gas sample collected for the analyses shall be a composite sample and collected under normal operating conditions ... The gas sample collection and analyses for chlorine content shall be done semi-annually. Landfill gas sulfur (as H₂S) sampling and analysis under this condition shall be required for one year period (two semi-annual analyses) once the CMS equipment specified by this permit is installed and operational ... Results shall be reported as SO₂ and HCl emission factors in terms of lb/MMscf (equivalent in ppmv) and lb/MMBtu of landfill gas.

The initial gas sample collection and analyses were completed in February 2007. Therefore, Derenzo and Associates, Inc. (Derenzo and Associates), on behalf of Brevard Energy, is submitting to the Florida Department of Environmental Protection, Division of Air Resource Management (FDEP-DARM) results of chlorine analysis that was performed on a sample of landfill gas (LFG) obtained from the Brevard County Solid Waste Management Central Disposal Facility in March 2012 (semi-annual collection and analyses). The required HCl emission factors (in terms of lb/MMscf, equivalence in ppmv, and lb/MMBtu of landfill gas) and supporting analytical data are provided in the attached documents. The SO₂ emission factors, as described above, are required to be reported semi-annually for a period of one year after installation of the H₂S continuous monitoring system (CMS). The first semi-annual report of 2010 was the final semi-annual report to include an SO₂ emission factor.

The HCl emission factor developed from analyses of the March 26, 2012 sample of LFG obtained from the Brevard County Solid Waste Management Central Disposal Facility is

Derenzo and Associates, Inc.

Ms. Trina Vielhauer
FDEP-DARM

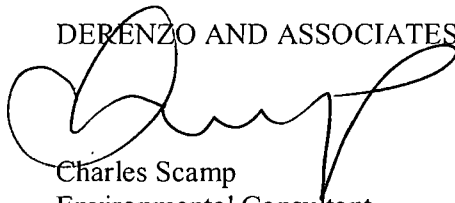
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- a) 0.25 lb/MMscf of LFG (<0.59 lb/MMscf of landfill gas with the incorporation of all non-measured chemicals at its reporting limit).
- b) 0.0005 lb/MMBtu of LFG (<0.001 lb/MMBtu of landfill gas with the incorporation of all non-measured chemicals at its reporting limit). The presented value is based on a fuel heating value of 487.43 Btu/scf HHV (48.26% methane).

Please contact us if you have questions or require clarifications

Sincerely,

DERENZO AND ASSOCIATES, INC.



Charles Scamp
Environmental Consultant

attachments

- c: Mike Laframboise, Landfill Energy Systems
Garry Kuberski; FDEP Central District Office

Brevard Energy, LLC (March 26, 2012 Sample)

LFG Combustion Hydrogen Chloride Emission Factor

LFG Influent Chlorine Coumpounds	Analytical Report Concentration ¹ (ppm)	Molecular Formula	No. Chlorine Atoms	HCl Emission Factor (lb./MMcf)
Freon 12 (Dichlorodifluoromethane)	0.240	CCl ₂ F ₂	2	0.045 ²
Freon 114 (Dichlorotetrafluoroethane)	<0.038	C ₂ Cl ₂ F ₄	2	<0.007
Chloromethane	<0.293	CH ₃ Cl	1	<0.028
Vinyl Chloride	0.130	C ₂ HCl	1	0.012
Chloroethane	0.143	C ₂ H ₅ Cl	1	0.013
Freon 11 (Fluorotrichloromethane)	0.035	CFCl ₃	3	0.010
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	<0.029	C ₂ Cl ₂ F ₃	2	<0.005
1,1-dichloroethene	<0.029	C ₂ H ₂ Cl ₂	2	<0.005
3-Chloropropene	<0.200	C ₃ H ₅ Cl	1	<0.019
Methylene Chloride (Dichloromethane)	<0.293	CH ₂ Cl ₂	2	<0.055
1,2-Dichloroethene (as cis-1,2-Dichloroethene)	0.293	C ₂ H ₂ Cl ₂	2	0.055
1,2-Dichloroethene (as trans-1,2-Dichloroethene)	<0.029	C ₂ H ₂ Cl ₂	2	<0.005
1,1-Dichloroethane	<0.029	C ₂ H ₄ Cl ₂	2	<0.005
Chloroform	<0.029	CHCl ₃	3	<0.008
1,1,1-Trichloroethane	<0.029	C ₂ H ₃ Cl ₃	3	<0.008
Carbon Tetrachloride	<0.029	CCl ₄	4	<0.011
1,2-Dichloroethane	0.104	C ₂ H ₄ Cl ₂	2	0.020
Trichloroethene	0.071	C ₂ HCl ₃	3	0.020
1,2-dichloropropane	0.111	C ₃ H ₆ Cl ₂	2	0.021
Bromodichloromethane	<0.029	CBrCl ₂	2	<0.005
1,3-Dichloropropene (as cis-1,3-Dichloropropene)	<0.029	C ₃ H ₄ Cl ₂	2	<0.005
1,3-Dichloropropene (as trans-1,3-Dichloropropene)	<0.029	C ₃ H ₄ Cl ₂	2	<0.005
1,1,2-Trichloroethane	<0.029	C ₂ H ₃ Cl ₃	3	<0.008
Tetrachloroethene (Perchloroethene)	0.113	C ₂ Cl ₄	4	0.043
Dibromochloromethane	<0.029	CHBr ₂ Cl	1	<0.003
Chlorobenzene	0.042	C ₆ H ₅ Cl	1	0.004
1,1,2,2-Tetrachloroethane	<0.029	C ₂ H ₂ Cl ₄	4	<0.011
1,3-Dichlorobenzene	<0.029	C ₆ H ₄ Cl ₂	2	<0.005
1,4-Dichlorobenzene	0.036	C ₆ H ₄ Cl ₂	2	0.007
alpha-Chlorotoluene	<0.029	C ₇ H ₇ Cl	1	<0.003
1,2-Dichlorobenzene	<0.029	C ₆ H ₄ Cl ₂	2	<0.005
1,2,4-Trichlorobenzene	<0.119	C ₆ H ₃ Cl ₃	3	<0.034
Hexachlorobutadiene	<0.119	C ₄ Cl ₆	6	<0.067
Dichlorofluoromethane	<0.119	CHCl ₂ F	2	<0.022
Chlorodifluoromethane	<0.119	CHClF ₂	1	<0.011
Total hydrogen chloride emission factor (lb./MMcf)				<0.59
Total hydrogen chloride emission factor (lb./MMBtu)				<0.001³

Notes

1. April 6, 2012 laboratory analytical results (see Attachment) average of three samples

2. Example calculation for Freon 12 that assumes complete conversion of chloride to HCl

$$(0.240 \text{ ft}^3 \text{ Freon 12/MMcf LFG}) (2 \text{ mol HCl/mol Freon 12}) (36.46 \text{ lb. HCl/mol}) / (387 \text{ ft}^3/\text{mol})$$

$$= 0.045 \text{ lb. HCl/MMcf LFG}$$

3. (<0.59 lb. HCL/MMcf) (1 cf/487.42 Btu) = <0.001 lb. HCL/MMBtu

Brevard Energy, LLC (March 26, 2012 Sample)

LFG Combustion Hydrogen Chloride Emission Factor

LFG Influent Chlorine Compounds	Measured Concentration ¹ (ppm)	Molecular Formula	No. Chlorine Atoms	HCl Emission Factor (lb./MMcf)
Freon 12 (Dichlorodifluoromethane)	0.240	CCl ₂ F ₂	2	0.045 ²
Vinyl Chloride	0.130	C ₂ HCl	1	0.012
Chloroethane	0.143	C ₂ H ₅ Cl	1	0.013
Freon 11 (Fluorotrichloromethane)	0.035	CFCl ₃	3	0.010
1,2-Dichloroethene (as cis-1,2-Dichloroethene)	0.293	C ₂ H ₂ Cl ₂	2	0.055
1,2-Dichloroethane	0.104	C ₂ H ₄ Cl ₂	2	0.020
Trichloroethene	0.071	C ₂ HCl ₃	3	0.020
1,2-dichloropropane	0.111	C ₃ H ₆ Cl ₂	2	0.021
Tetrachloroethene (Perchloroethene)	0.113	C ₂ Cl ₄	4	0.043
Chlorobenzene	0.042	C ₆ H ₅ Cl	1	0.004
1,4-Dichlorobenzene	0.036	C ₆ H ₄ Cl ₂	2	0.007
Total hydrogen chloride emission factor (lb./MMcf)				0.25
Total hydrogen chloride emission factor (lb./MMBtu)				0.0005

Notes

1. April 6, 2012 laboratory analytical results (see Attachment) average of three samples
2. Example calculation for Freon 12 that assumes complete conversion of chloride to HCl
 $(0.240 \text{ ft}^3 \text{ Freon 12/MMcf LFG}) (2 \text{ mol HCl/mol Freon 12}) (36.46 \text{ lb. HCl/mol}) / (387 \text{ ft}^3/\text{mol}) = 0.045 \text{ lb. HCl/MMcf LFG}$

LABORATORY NARRATIVE
EPA Method TO-15
Derenzo & Associates
Workorder# 1204106

Three 6 Liter Summa Canister samples were received on April 05, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The canisters in this work order were pressurized with Helium prior to sampling, per client request. Dilution factors have been adjusted accordingly.

Dilution was performed on all of the samples due to the presence of high level non-target species.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



Air Toxics

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

Client Sample ID: BEC-1

Lab ID#: 1204106-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	12	250	58	1200
Freon 114	12	39	82	270
Vinyl Chloride	12	140	30	350
Chloroethane	47	120	120	310
Freon 11	12	28	66	150
cis-1,2-Dichloroethene	12	340	47	1300
1,2-Dichloroethane	12	120	48	490
Trichloroethene	12	93	63	500
1,2-Dichloropropane	12	35	54	160
Tetrachloroethene	12	110	80	780
Chlorobenzene	12	42	54	190
1,4-Dichlorobenzene	12	33	71	200
Dichlorofluoromethane	47	66	200	280
Chlorodifluoromethane	47	1500	170	5400

Client Sample ID: BEC-2

Lab ID#: 1204106-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	39	240	190	1200
Vinyl Chloride	39	130	100	330
cis-1,2-Dichloroethene	39	270	150	1100
1,2-Dichloroethane	39	93	160	380
Trichloroethene	39	82	210	440
Tetrachloroethene	39	110	260	720
Chlorodifluoromethane	160	1500	550	5400

Client Sample ID: BEC-3

Lab ID#: 1204106-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	37	230	180	1200
Vinyl Chloride	37	120	95	320



Air Toxics

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

Client Sample ID: BEC-3

Lab ID#: 1204106-03A

cis-1,2-Dichloroethene	37	270	150	1100
1,2-Dichloroethane	37	100	150	410
Tetrachloroethene	37	120	250	800
Chlorobenzene	37	45	170	200
Chlorodifluoromethane	150	1400	530	5100



Air Toxics

Client Sample ID: BEC-1

Lab ID#: 1204106-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040535	Date of Collection: 3/26/12 11:50:00 AM
Dil. Factor:	23.6	Date of Analysis: 4/6/12 12:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	12	250	58	1200
Freon 114	12	39	82	270
Chloromethane	120	Not Detected	240	Not Detected
Vinyl Chloride	12	140	30	350
Chloroethane	47	120	120	310
Freon 11	12	28	66	150
1,1-Dichloroethene	12	Not Detected	47	Not Detected
Freon 113	12	Not Detected	90	Not Detected
Methylene Chloride	120	Not Detected	410	Not Detected
1,1-Dichloroethane	12	Not Detected	48	Not Detected
cis-1,2-Dichloroethene	12	340	47	1300
Chloroform	12	Not Detected	58	Not Detected
1,1,1-Trichloroethane	12	Not Detected	64	Not Detected
Carbon Tetrachloride	12	Not Detected	74	Not Detected
1,2-Dichloroethane	12	120	48	490
Trichloroethene	12	93	63	500
1,2-Dichloropropane	12	35	54	160
cis-1,3-Dichloropropene	12	Not Detected	54	Not Detected
trans-1,3-Dichloropropene	12	Not Detected	54	Not Detected
1,1,2-Trichloroethane	12	Not Detected	64	Not Detected
Tetrachloroethene	12	110	80	780
Chlorobenzene	12	42	54	190
1,1,2,2-Tetrachloroethane	12	Not Detected	81	Not Detected
1,3-Dichlorobenzene	12	Not Detected	71	Not Detected
1,4-Dichlorobenzene	12	33	71	200
alpha-Chlorotoluene	12	Not Detected	61	Not Detected
1,2-Dichlorobenzene	12	Not Detected	71	Not Detected
1,2,4-Trichlorobenzene	47	Not Detected	350	Not Detected
Hexachlorobutadiene	47	Not Detected	500	Not Detected
trans-1,2-Dichloroethene	12	Not Detected	47	Not Detected
Bromodichloromethane	12	Not Detected	79	Not Detected
Dibromochloromethane	12	Not Detected	100	Not Detected
Dichlorofluoromethane	47	66	200	280
Chlorodifluoromethane	47	1500	170	5400

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: BEC-2

Lab ID#: 1204106-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040618	Date of Collection:	3/26/12 2:10:00 PM
Dil. Factor:	77.9	Date of Analysis:	4/7/12 08:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	39	240	190	1200
Freon 114	39	Not Detected	270	Not Detected
Chloromethane	390	Not Detected	800	Not Detected
Vinyl Chloride	39	130	100	330
Chloroethane	160	Not Detected	410	Not Detected
Freon 11	39	Not Detected	220	Not Detected
1,1-Dichloroethene	39	Not Detected	150	Not Detected
Freon 113	39	Not Detected	300	Not Detected
Methylene Chloride	390	Not Detected	1400	Not Detected
1,1-Dichloroethane	39	Not Detected	160	Not Detected
cis-1,2-Dichloroethene	39	270	150	1100
Chloroform	39	Not Detected	190	Not Detected
1,1,1-Trichloroethane	39	Not Detected	210	Not Detected
Carbon Tetrachloride	39	Not Detected	240	Not Detected
1,2-Dichloroethane	39	93	160	380
Trichloroethene	39	82	210	440
1,2-Dichloropropane	39	Not Detected	180	Not Detected
cis-1,3-Dichloropropene	39	Not Detected	180	Not Detected
trans-1,3-Dichloropropene	39	Not Detected	180	Not Detected
1,1,2-Trichloroethane	39	Not Detected	210	Not Detected
Tetrachloroethene	39	110	260	720
Chlorobenzene	39	Not Detected	180	Not Detected
1,1,2,2-Tetrachloroethane	39	Not Detected	270	Not Detected
1,3-Dichlorobenzene	39	Not Detected	230	Not Detected
1,4-Dichlorobenzene	39	Not Detected	230	Not Detected
alpha-Chlorotoluene	39	Not Detected	200	Not Detected
1,2-Dichlorobenzene	39	Not Detected	230	Not Detected
1,2,4-Trichlorobenzene	160	Not Detected	1200	Not Detected
Hexachlorobutadiene	160	Not Detected	1700	Not Detected
trans-1,2-Dichloroethene	39	Not Detected	150	Not Detected
Bromodichloromethane	39	Not Detected	260	Not Detected
Dibromochloromethane	39	Not Detected	330	Not Detected
Dichlorofluoromethane	160	Not Detected	660	Not Detected
Chlorodifluoromethane	160	1500	550	5400

Container Type: 6 Liter Summa Canister

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



Air Toxics

Client Sample ID: BEC-3

Lab ID#: 1204106-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040619	Date of Collection:	3/26/12 4:15:00 PM
Dil. Factor:	74.6	Date of Analysis:	4/7/12 09:21 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	37	230	180	1200
Freon 114	37	Not Detected	260	Not Detected
Chloromethane	370	Not Detected	770	Not Detected
Vinyl Chloride	37	120	95	320
Chloroethane	150	Not Detected	390	Not Detected
Freon 11	37	Not Detected	210	Not Detected
1,1-Dichloroethene	37	Not Detected	150	Not Detected
Freon 113	37	Not Detected	280	Not Detected
Methylene Chloride	370	Not Detected	1300	Not Detected
1,1-Dichloroethane	37	Not Detected	150	Not Detected
cis-1,2-Dichloroethene	37	270	150	1100
Chloroform	37	Not Detected	180	Not Detected
1,1,1-Trichloroethane	37	Not Detected	200	Not Detected
Carbon Tetrachloride	37	Not Detected	230	Not Detected
1,2-Dichloroethane	37	100	150	410
Trichloroethene	37	Not Detected	200	Not Detected
1,2-Dichloropropane	37	Not Detected	170	Not Detected
cis-1,3-Dichloropropene	37	Not Detected	170	Not Detected
trans-1,3-Dichloropropene	37	Not Detected	170	Not Detected
1,1,2-Trichloroethane	37	Not Detected	200	Not Detected
Tetrachloroethene	37	120	250	800
Chlorobenzene	37	45	170	200
1,1,2,2-Tetrachloroethane	37	Not Detected	260	Not Detected
1,3-Dichlorobenzene	37	Not Detected	220	Not Detected
1,4-Dichlorobenzene	37	Not Detected	220	Not Detected
alpha-Chlorotoluene	37	Not Detected	190	Not Detected
1,2-Dichlorobenzene	37	Not Detected	220	Not Detected
1,2,4-Trichlorobenzene	150	Not Detected	1100	Not Detected
Hexachlorobutadiene	150	Not Detected	1600	Not Detected
trans-1,2-Dichloroethene	37	Not Detected	150	Not Detected
Bromodichloromethane	37	Not Detected	250	Not Detected
Dibromochloromethane	37	Not Detected	320	Not Detected
Dichlorofluoromethane	150	Not Detected	630	Not Detected
Chlorodifluoromethane	150	1400	530	5100

Container Type: 6 Liter Summa Canister

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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1204106-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040517	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/5/12 06:52 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
Dichlorofluoromethane	2.0	Not Detected	8.4	Not Detected
Chlorodifluoromethane	2.0	Not Detected	7.1	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1204106-04B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040612d	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/6/12 09:06 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
Dichlorofluoromethane	2.0	Not Detected	8.4	Not Detected
Chlorodifluoromethane	2.0	Not Detected	7.1	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1204106-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040506	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/5/12 12:44 PM

Compound	%Recovery
Freon 12	113
Freon 114	105
Chloromethane	114
Vinyl Chloride	107
Chloroethane	113
Freon 11	111
1,1-Dichloroethene	100
Freon 113	108
Methylene Chloride	110
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	105
Chloroform	108
1,1,1-Trichloroethane	112
Carbon Tetrachloride	115
1,2-Dichloroethane	111
Trichloroethene	103
1,2-Dichloropropane	102
cis-1,3-Dichloropropene	102
trans-1,3-Dichloropropene	105
1,1,2-Trichloroethane	103
Tetrachloroethene	104
Chlorobenzene	102
1,1,2,2-Tetrachloroethane	102
1,3-Dichlorobenzene	105
1,4-Dichlorobenzene	99
alpha-Chlorotoluene	105
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	100
Hexachlorobutadiene	106
trans-1,2-Dichloroethene	102
Bromodichloromethane	106
Dibromochloromethane	108
Dichlorofluoromethane	111
Chlorodifluoromethane	110

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1204106-05B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/6/12 04:30 PM

Compound	%Recovery
Freon 12	99
Freon 114	96
Chloromethane	104
Vinyl Chloride	93
Chloroethane	103
Freon 11	91
1,1-Dichloroethene	90
Freon 113	98
Methylene Chloride	96
1,1-Dichloroethane	96
cis-1,2-Dichloroethene	94
Chloroform	97
1,1,1-Trichloroethane	101
Carbon Tetrachloride	103
1,2-Dichloroethane	104
Trichloroethene	100
1,2-Dichloropropane	101
cis-1,3-Dichloropropene	100
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	100
Tetrachloroethene	103
Chlorobenzene	101
1,1,2,2-Tetrachloroethane	100
1,3-Dichlorobenzene	103
1,4-Dichlorobenzene	98
alpha-Chlorotoluene	102
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	98
Hexachlorobutadiene	101
trans-1,2-Dichloroethene	94
Bromodichloromethane	105
Dibromochloromethane	105
Dichlorofluoromethane	109
Chlorodifluoromethane	111

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1204106-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040507	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/5/12 01:26 PM

Compound	%Recovery
Freon 12	116
Freon 114	107
Chloromethane	111
Vinyl Chloride	108
Chloroethane	118
Freon 11	112
1,1-Dichloroethene	107
Freon 113	109
Methylene Chloride	108
1,1-Dichloroethane	107
cis-1,2-Dichloroethene	108
Chloroform	108
1,1,1-Trichloroethane	112
Carbon Tetrachloride	117
1,2-Dichloroethane	118
Trichloroethene	111
1,2-Dichloropropane	109
cis-1,3-Dichloropropene	112
trans-1,3-Dichloropropene	115
1,1,2-Trichloroethane	110
Tetrachloroethene	109
Chlorobenzene	108
1,1,2,2-Tetrachloroethane	110
1,3-Dichlorobenzene	112
1,4-Dichlorobenzene	105
alpha-Chlorotoluene	110
1,2-Dichlorobenzene	109
1,2,4-Trichlorobenzene	111
Hexachlorobutadiene	111
trans-1,2-Dichloroethene	112
Bromodichloromethane	115
Dibromochloromethane	113
Dichlorofluoromethane	Not Spiked
Chlorodifluoromethane	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1204106-06AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040508	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/5/12 01:43 PM

Compound	%Recovery
Freon 12	117
Freon 114	111
Chloromethane	118
Vinyl Chloride	106
Chloroethane	120
Freon 11	113
1,1-Dichloroethene	113
Freon 113	113
Methylene Chloride	111
1,1-Dichloroethane	111
cis-1,2-Dichloroethene	109
Chloroform	111
1,1,1-Trichloroethane	113
Carbon Tetrachloride	118
1,2-Dichloroethane	117
Trichloroethene	112
1,2-Dichloropropane	107
cis-1,3-Dichloropropene	110
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	111
Tetrachloroethene	108
Chlorobenzene	111
1,1,2,2-Tetrachloroethane	113
1,3-Dichlorobenzene	116
1,4-Dichlorobenzene	109
alpha-Chlorotoluene	113
1,2-Dichlorobenzene	114
1,2,4-Trichlorobenzene	118
Hexachlorobutadiene	117
trans-1,2-Dichloroethene	122
Bromodichloromethane	115
Dibromochloromethane	113
Dichlorofluoromethane	Not Spiked
Chlorodifluoromethane	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: LCS
 Lab ID#: 1204106-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040605	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/6/12 05:04 PM

Compound	%Recovery
Freon 12	118
Freon 114	113
Chloromethane	126
Vinyl Chloride	111
Chloroethane	110
Freon 11	115
1,1-Dichloroethene	112
Freon 113	118
Methylene Chloride	111
1,1-Dichloroethane	111
cis-1,2-Dichloroethene	111
Chloroform	115
1,1,1-Trichloroethane	119
Carbon Tetrachloride	122
1,2-Dichloroethane	119
Trichloroethene	116
1,2-Dichloropropane	114
cis-1,3-Dichloropropene	115
trans-1,3-Dichloropropene	113
1,1,2-Trichloroethane	110
Tetrachloroethene	110
Chlorobenzene	111
1,1,2,2-Tetrachloroethane	112
1,3-Dichlorobenzene	114
1,4-Dichlorobenzene	107
alpha-Chlorotoluene	113
1,2-Dichlorobenzene	112
1,2,4-Trichlorobenzene	108
Hexachlorobutadiene	109
trans-1,2-Dichloroethene	119
Bromodichloromethane	121
Dibromochloromethane	114
Dichlorofluoromethane	Not Spiked
Chlorodifluoromethane	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1204106-06BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3040606	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/6/12 05:21 PM

Compound	%Recovery
Freon 12	110
Freon 114	107
Chloromethane	118
Vinyl Chloride	106
Chloroethane	103
Freon 11	108
1,1-Dichloroethene	108
Freon 113	109
Methylene Chloride	105
1,1-Dichloroethane	106
cis-1,2-Dichloroethene	105
Chloroform	109
1,1,1-Trichloroethane	115
Carbon Tetrachloride	120
1,2-Dichloroethane	119
Trichloroethene	114
1,2-Dichloropropane	112
cis-1,3-Dichloropropene	111
trans-1,3-Dichloropropene	114
1,1,2-Trichloroethane	113
Tetrachloroethene	112
Chlorobenzene	113
1,1,2,2-Tetrachloroethane	115
1,3-Dichlorobenzene	116
1,4-Dichlorobenzene	109
alpha-Chlorotoluene	113
1,2-Dichlorobenzene	114
1,2,4-Trichlorobenzene	114
Hexachlorobutadiene	112
trans-1,2-Dichloroethene	115
Bromodichloromethane	116
Dibromochloromethane	115
Dichlorofluoromethane	Not Spiked
Chlorodifluoromethane	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	104	70-130



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 MIKE BRACK
 Collected by: (Print and Sign) [Signature]
 Company DREWARD ASSOCIATES Email MBRACK@DREWARD.COM
 Address 39375 SUNCOAST City LIVONIA State Mi Zip 48150
 Phone 734 464 3880 Fax 734 464 4368

Project Info:
 P.O. # 1507
 Project # 1201047
 Project Name DREWARD Energy

Turn Around Time:
 Normal
 Rush
specify
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	BEC-1	33789	3/26/12	11:50	70-15 Chlorinated only	26.5	8.5		
02A	BEC-2	33385	3/26/12	14:10	" " "	26	3.5		
03A	BEC-3	35278	3/26/12	16:15	" " "	26	3.0		

Relinquished by: (signature) <u>[Signature]</u> Date/Time <u>4/3/12 1200</u>	Received by: (signature) <u>[Signature]</u> Date/Time <u>4.5.12 0850</u>
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____

Notes: Landfill gas samples (padded)

Lab Use Only	Shipper Name <u>[Signature]</u>	Air Bill # _____	Temp (°C) <u>NA</u>	Condition <u>Good</u>	Custody Seals Intact? Yes No <u>None</u>	Work Order # <u>1204106</u>
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