Derenzo and Associates, Inc.
Environmental Consultants

October 21, 2011

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

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 H_2S 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 H_2S)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 SO_2 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 September 2011 (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 SO_2 emission factors, as described above, are required to be reported semi-annually for a period of one year after installation of the H_2S continuous monitoring system (CMS). The first semi-annual report of 2010 was the final semi-annual report to include an SO_2 emission factor.

The HCl emission factor developed from analyses of the September 27, 2011 sample of LFG obtained from the Brevard County Solid Waste Management Central Disposal Facility is

a) 0.22 lb/MMscf of LFG (<0.67 lb/MMscf of landfill gas with the incorporation of all non-measured chemicals at its reporting limit).

b) 0.0004 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 (September 27, 2011 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)	0.210	CCl_2F_2	2	0.040 [2]
Freon 114 (Dichlorotetrafluroethane)	<0.050	$C_2Cl_2F_4$	2	<0.009
Chloromethane	<0.200	CH_3Cl	1	<0.019
Vinyl Chloride	0.086	C_2HCl	1	0.008
Chloroethane	<0.200	C_2H_5Cl	1	<0.019
Freon 11 (Fluorotrichloromethane)	<0.050	$CFCl_3$	3	<0.014
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	<0.050	$C_2Cl_2F_3$	2	<0.009
1,1-dichloroethene	<0.050	$C_2H_2Cl_2$	2	<0.009
3-Chloropropene	<0.200	C_3H_5Cl	1	<0.019
Methylene Chloride (Dichloromethane)	<0.050	CH_2Cl_2	2	<0.009
1,2-Dichloroethene (as cis-1,2-Dichloroethene)	0.270	$C_2H_2Cl_2$	2	0.051
1,2-Dichloroethene (as trans-1,2-Dichloroethene)	<0.050	$C_2H_2Cl_2$	2	<0.009
1,1-Dichloroethane	<0.050	$C_2H_4Cl_2$	2	<0.009
Chloroform	<0.050	$CHCl_3$	3	<0.014
1,1,1-Trichloroethane	<0.050	$C_2H_3Cl_3$	3	<0.014
Carbon Tetrachloride	<0.050	CCl_4	4	<0.019
1,2-Dichloroethane	0.100	$C_2H_4Cl_2$	2	0.019
Trichloroethene	0.097	C_2HCl_3	3	0.027
1,2-dichloropropane	<0.050	$C_3H_6Cl_2$	2	<0.009
Bromodichloromethane	<0.050	$CBrCl_2$	2	<0.009
1,3-Dichloropropene (as cis-1,3-Dichloropropene)	<0.050	$C_3H_4Cl_2$	2	<0.009
1,3-Dichloropropene (as trans-1,3-Dichloropropene	<0.050	$C_3H_4Cl_2$	2	<0.009
1,1,2-Trichloroethane	<0.050	$C_2H_3Cl_3$	3	<0.014
Tetrachloroethene (Perchloroethene)	0.170	C_2Cl_4	4	0.064
Dibromochloromethane	<0.050	$CHBr_2Cl$	1	<0.005
Chlorobenzene	0.100	C_6H_5Cl	1	0.009
1,1,2,2-Tetrachloroethane	<0.050	$C_2H_2Cl_4$	4	<0.019
1,3-Dichlorobenzene	<0.050	$C_6H_4Cl_2$	2	<0.009
1,4-Dichlorobenzene	<0.050	$C_6H_4Cl_2$	2	<0.009
alpha-Chlorotoluene	<0.050	C_7H_7Cl	1	<0.005
1,2-Dichlorobenzene	<0.050	$C_6H_4Cl_2$	2	<0.009
1,2,4-Trichlorobenzene	<0.200	$C_6H_3Cl_3$	3	<0.057
Hexachlorobutadiene	<0.200	C_4Cl_6	6	<0.113
Total hydrogen chloride emission factor (lb./MMcf)				**<0.67**
Total hydrogen chloride emission factor (lb./MMBtu)				**<0.001** [3]

Notes

1. September 29, 2011 laboratory analytical results (see Attachment) average of three samples

2. Example calculation for Freon 12 that assumes complete conversion of chloride to HCl
(0.210 ft^3 Freon 12/MMcf LFG) (2 mol HCl/mol Freon 12) (36.46 lb. HCl/mol) / (387 ft^3/mol)
= 0.040 lb. HCl/MMcf LFG

3. (<0.67 lb. HCL/MMcf) (1 cf/487.42 Btu) = <0.001 lb. HCL/MMBtu

Brevard Energy, LLC (September 27, 2011 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)	0.210	CCl_2F_2	2	0.040 [2]
Vinyl Chloride	0.086	C_2HCl	1	0.008
1,2-Dichloroethene (as cis-1,2-Dichloroethene)	0.270	$C_2H_2Cl_2$	2	0.051
1,2-Dichloroethane	0.100	$C_2H_4Cl_2$	2	0.019
Trichloroethene	0.097	C_2HCl_3	3	0.027
Tetrachloroethene (Perchloroethene)	0.170	C_2Cl_4	4	0.064
Chlorobenzene	0.100	C_6H_5Cl	1	0.009
Total hydrogen chloride emission factor (lb./MMcf)				**0.22**
Total hydrogen chloride emission factor (lb./MMBtu)				**0.0004**

Notes

1. September 29, 2011 laboratory analytical results (see Attachment) average of three samples

2. Example calculation for Freon 12 that assumes complete conversion of chloride to HCl
(0.210 ft^3 Freon 12/MMcf LFG) (2 mol HCl/mol Freon 12) (36.46 lb. HCl/mol) / (387 ft^3/mol) = 0.040 lb. HCl/MMcf LFG

Air Toxics LTD.
Laboratory Services Since 1989

LABORATORY NARRATIVE
EPA Method TO-15
Derenzo & Associates
Workorder# 1109554

One 1 Liter Tedlar Bag sample was received on September 28, 2011. 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

Method TO-15 is validated for samples collected in specially treated canisters. As such, the use of Tedlar bags for sample collection is outside the scope of the method and not recommended for ambient or indoor air samples. It is the responsibility of the data user to determine the usability of TO-15 results generated from Tedlar bags.

Dilution was performed on sample BE1 due to the presence of high level target species.

All Quality Control Limit exceedences and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Definition of Data Qualifying Flags

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

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
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

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

Client Sample ID: BE1

Lab ID#: 1109554-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	50	210	250	1000
Vinyl Chloride	50	86	130	220
Ethanol	200	17000	380	32000
Acetone	200	11000	480	26000
2-Propanol	200	8300	490	20000
Hexane	50	320	180	1100
2-Butanone (Methyl Ethyl Ketone)	200	11000	590	32000
cis-1,2-Dichloroethene	50	270	200	1100
Tetrahydrofuran	50	2400	150	6900
Cyclohexane	50	350	170	1200
2,2,4-Trimethylpentane	50	190	230	910
Benzene	50	1000	160	3300
1,2-Dichloroethane	50	100	200	420
Heptane	50	590	200	2400
Trichloroethene	50	97	270	520
4-Methyl-2-pentanone	50	900	200	3700
Toluene	50	7200	190	27000
Tetrachloroethene	50	170	340	1100
Chlorobenzene	50	100	230	460
Ethyl Benzene	50	3500	220	15000
m,p-Xylene	50	5200	220	23000
o-Xylene	50	1300	220	5800
Styrene	50	180	210	760
Cumene	50	240	240	1200
Propylbenzene	50	170	240	860
4-Ethyltoluene	50	390	240	1900
1,3,5-Trimethylbenzene	50	210	240	1000
1,2,4-Trimethylbenzene	50	340	240	1700

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Client Sample ID: BE1

Lab ID#: 1109554-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092910**	**Date of Collection:**	**9/27/11 1:00:00 PM**
Dil. Factor:	**100**	**Date of Analysis:**	**9/29/11 12:50 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	50	210	250	1000
Freon 114	50	Not Detected	350	Not Detected
Chloromethane	200	Not Detected	410	Not Detected
Vinyl Chloride	50	86	130	220
1,3-Butadiene	50	Not Detected	110	Not Detected
Bromomethane	50	Not Detected	190	Not Detected
Chloroethane	200	Not Detected	530	Not Detected
Freon 11	50	Not Detected	280	Not Detected
Ethanol	200	17000	380	32000
Freon 113	50	Not Detected	380	Not Detected
1,1-Dichloroethene	50	Not Detected	200	Not Detected
Acetone	200	11000	480	26000
2-Propanol	200	8300	490	20000
Carbon Disulfide	200	Not Detected	620	Not Detected
3-Chloropropene	200	Not Detected	630	Not Detected
Methylene Chloride	50	Not Detected	170	Not Detected
Methyl tert-butyl ether	50	Not Detected	180	Not Detected
trans-1,2-Dichloroethene	50	Not Detected	200	Not Detected
Hexane	50	320	180	1100
1,1-Dichloroethane	50	Not Detected	200	Not Detected
2-Butanone (Methyl Ethyl Ketone)	200	11000	590	32000
cis-1,2-Dichloroethene	50	270	200	1100
Tetrahydrofuran	50	2400	150	6900
Chloroform	50	Not Detected	240	Not Detected
1,1,1-Trichloroethane	50	Not Detected	270	Not Detected
Cyclohexane	50	350	170	1200
Carbon Tetrachloride	50	Not Detected	310	Not Detected
2,2,4-Trimethylpentane	50	190	230	910
Benzene	50	1000	160	3300
1,2-Dichloroethane	50	100	200	420
Heptane	50	590	200	2400
Trichloroethene	50	97	270	520
1,2-Dichloropropane	50	Not Detected	230	Not Detected
1,4-Dioxane	200	Not Detected	720	Not Detected
Bromodichloromethane	50	Not Detected	340	Not Detected
cis-1,3-Dichloropropene	50	Not Detected	230	Not Detected
4-Methyl-2-pentanone	50	900	200	3700
Toluene	50	7200	190	27000
trans-1,3-Dichloropropene	50	Not Detected	230	Not Detected
1,1,2-Trichloroethane	50	Not Detected	270	Not Detected
Tetrachloroethene	50	170	340	1100

Air Toxics LTD.
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Client Sample ID: BE1

Lab ID#: 1109554-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092910**	**Date of Collection: 9/27/11 1:00:00 PM**	
Dil. Factor:	**100**	**Date of Analysis: 9/29/11 12:50 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	200	Not Detected	820	Not Detected
Dibromochloromethane	50	Not Detected	420	Not Detected
1,2-Dibromoethane (EDB)	50	Not Detected	380	Not Detected
Chlorobenzene	50	100	230	460
Ethyl Benzene	50	3500	220	15000
m,p-Xylene	50	5200	220	23000
o-Xylene	50	1300	220	5800
Styrene	50	180	210	760
Bromoform	50	Not Detected	520	Not Detected
Cumene	50	240	240	1200
1,1,2,2-Tetrachloroethane	50	Not Detected	340	Not Detected
Propylbenzene	50	170	240	860
4-Ethyltoluene	50	390	240	1900
1,3,5-Trimethylbenzene	50	210	240	1000
1,2,4-Trimethylbenzene	50	340	240	1700
1,3-Dichlorobenzene	50	Not Detected	300	Not Detected
1,4-Dichlorobenzene	50	Not Detected	300	Not Detected
alpha-Chlorotoluene	50	Not Detected	260	Not Detected
1,2-Dichlorobenzene	50	Not Detected	300	Not Detected
1,2,4-Trichlorobenzene	200	Not Detected	1500	Not Detected
Hexachlorobutadiene	200	Not Detected	2100	Not Detected

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1109554-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092906**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 09:50 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	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
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	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

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1109554-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092906**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 09:50 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	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

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1109554-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 07:20 AM**	

Compound	%Recovery
Freon 12	95
Freon 114	94
Chloromethane	106
Vinyl Chloride	105
1,3-Butadiene	102
Bromomethane	103
Chloroethane	109
Freon 11	92
Ethanol	111
Freon 113	93
1,1-Dichloroethene	105
Acetone	105
2-Propanol	108
Carbon Disulfide	95
3-Chloropropene	112
Methylene Chloride	96
Methyl tert-butyl ether	98
trans-1,2-Dichloroethene	92
Hexane	97
1,1-Dichloroethane	91
2-Butanone (Methyl Ethyl Ketone)	99
cis-1,2-Dichloroethene	92
Tetrahydrofuran	95
Chloroform	90
1,1,1-Trichloroethane	90
Cyclohexane	97
Carbon Tetrachloride	92
2,2,4-Trimethylpentane	92
Benzene	89
1,2-Dichloroethane	86
Heptane	96
Trichloroethene	90
1,2-Dichloropropane	91
1,4-Dioxane	99
Bromodichloromethane	94
cis-1,3-Dichloropropene	101
4-Methyl-2-pentanone	103
Toluene	87
trans-1,3-Dichloropropene	108
1,1,2-Trichloroethane	89
Tetrachloroethene	88

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1109554-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092902**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 07:20 AM**

Compound	%Recovery
2-Hexanone	105
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	93
Chlorobenzene	87
Ethyl Benzene	96
m,p-Xylene	102
o-Xylene	107
Styrene	106
Bromoform	101
Cumene	106
1,1,2,2-Tetrachloroethane	90
Propylbenzene	108
4-Ethyltoluene	114
1,3,5-Trimethylbenzene	105
1,2,4-Trimethylbenzene	101
1,3-Dichlorobenzene	93
1,4-Dichlorobenzene	93
alpha-Chlorotoluene	118
1,2-Dichlorobenzene	94
1,2,4-Trichlorobenzene	71
Hexachlorobutadiene	88

Container Type: NA - Not Applicable

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

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1109554-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 07:59 AM**	

Compound	%Recovery
Freon 12	79
Freon 114	78
Chloromethane	88
Vinyl Chloride	86
1,3-Butadiene	82
Bromomethane	84
Chloroethane	91
Freon 11	79
Ethanol	94
Freon 113	78
1,1-Dichloroethene	96
Acetone	88
2-Propanol	92
Carbon Disulfide	107
3-Chloropropene	117
Methylene Chloride	83
Methyl tert-butyl ether	87
trans-1,2-Dichloroethene	89
Hexane	81
1,1-Dichloroethane	78
2-Butanone (Methyl Ethyl Ketone)	84
cis-1,2-Dichloroethene	80
Tetrahydrofuran	79
Chloroform	79
1,1,1-Trichloroethane	80
Cyclohexane	82
Carbon Tetrachloride	80
2,2,4-Trimethylpentane	77
Benzene	79
1,2-Dichloroethane	76
Heptane	82
Trichloroethene	80
1,2-Dichloropropane	79
1,4-Dioxane	84
Bromodichloromethane	82
cis-1,3-Dichloropropene	89
4-Methyl-2-pentanone	89
Toluene	75
trans-1,3-Dichloropropene	93
1,1,2-Trichloroethane	78
Tetrachloroethene	75

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1109554-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 07:59 AM**	

Compound	%Recovery
2-Hexanone	88
Dibromochloromethane	84
1,2-Dibromoethane (EDB)	81
Chlorobenzene	77
Ethyl Benzene	83
m,p-Xylene	89
o-Xylene	90
Styrene	91
Bromoform	85
Cumene	92
1,1,2,2-Tetrachloroethane	79
Propylbenzene	92
4-Ethyltoluene	93
1,3,5-Trimethylbenzene	90
1,2,4-Trimethylbenzene	84
1,3-Dichlorobenzene	80
1,4-Dichlorobenzene	79
alpha-Chlorotoluene	94
1,2-Dichlorobenzene	80
1,2,4-Trichlorobenzene	62 Q
Hexachlorobutadiene	75

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1109554-04AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 08:28 AM**	

Compound	%Recovery
Freon 12	73
Freon 114	72
Chloromethane	80
Vinyl Chloride	79
1,3-Butadiene	76
Bromomethane	80
Chloroethane	86
Freon 11	75
Ethanol	91
Freon 113	75
1,1-Dichloroethene	91
Acetone	83
2-Propanol	88
Carbon Disulfide	103
3-Chloropropene	108
Methylene Chloride	80
Methyl tert-butyl ether	84
trans-1,2-Dichloroethene	87
Hexane	77
1,1-Dichloroethane	76
2-Butanone (Methyl Ethyl Ketone)	81
cis-1,2-Dichloroethene	79
Tetrahydrofuran	77
Chloroform	76
1,1,1-Trichloroethane	77
Cyclohexane	79
Carbon Tetrachloride	77
2,2,4-Trimethylpentane	75
Benzene	77
1,2-Dichloroethane	74
Heptane	80
Trichloroethene	77
1,2-Dichloropropane	76
1,4-Dioxane	81
Bromodichloromethane	80
cis-1,3-Dichloropropene	86
4-Methyl-2-pentanone	87
Toluene	74
trans-1,3-Dichloropropene	90
1,1,2-Trichloroethane	76
Tetrachloroethene	74

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1109554-04AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2092904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/11 08:28 AM**	

Compound	%Recovery
2-Hexanone	87
Dibromochloromethane	80
1,2-Dibromoethane (EDB)	79
Chlorobenzene	75
Ethyl Benzene	81
m,p-Xylene	84
o-Xylene	86
Styrene	87
Bromoform	83
Cumene	88
1,1,2,2-Tetrachloroethane	77
Propylbenzene	88
4-Ethyltoluene	90
1,3,5-Trimethylbenzene	85
1,2,4-Trimethylbenzene	79
1,3-Dichlorobenzene	77
1,4-Dichlorobenzene	74
alpha-Chlorotoluene	95
1,2-Dichlorobenzene	79
1,2,4-Trichlorobenzene	61 Q
Hexachlorobutadiene	74

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.

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 David Derenzo

Collected by: (Print and Sign) Joe Mutchler

Company Derenzo & Associates Email dderenzo@derenzo.com

Address 39395 Schoolcraft City Livonia State MI Zip 48150

Phone 734-464-3880 Fax 734-464-4368

Project Info:
P.O. # 1437
Project # 1101015B
Project Name Brevard Energy

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by: ____
Date: ____
Pressurization Gas: 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)
01A	BE1		9/27/11	1300	EPA TO-15 (modified TO-15)				

Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time
	TRZ AIR 09/28/11 0900
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time

Notes:
2 samples are provided, analyze only one. Second sample is provided in case 1 of 2 is damaged

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	FEDEX		NA	GOOD	Yes No (None)	1109554

Form 1293 rev.11