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REPORT

2012 EMISSIONS COMPLIANCE TEST PROGRAM DUTCHESS COUNTY RESOURCE RECOVERY FACILITY POUGHKEEPSIE, NEW YORK

Prepared for

Covanta Hudson Valley Renewable Energy, LLC
Poughkeepsie, NY

Prepared by

TRC Environmental Corporation
Windsor, Connecticut

May 17, 2012

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Richard Kopacz
Project Engineer

TRC Project No. 192131-00000-000000
May 17, 2012

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TRC

REPORT CERTIFICATION

Test Report Prepared for Covanta HudsonValley Renewable Energy, LLC for Emissions Compliance Testing Conducted on Unit 1 and Unit 2 at Dutchess County Resource Recovery on April 17, 2012 through April 26, 2012 by TRC of Windsor, Connecticut.

Report Date: May 17, 2012
TRC Project No. 192131-00000-00000

We have reviewed all testing details and results in this test report, and we certify that we believe the information provided in this document to be true, accurate and complete. Furthermore, we certify that, to the best or our knowledge, all testing was conducted in accordance with test protocol approved by NYSDEC; and that all appropriate QA/QC procedures were adhered to in the execution of this test program and in the preparation of this report.

James Canora
Measurement Section Manager
TRC

Richard Kopacz
Project Manager
TRC

1.0 INTRODUCTION

TRC Environmental Corporation (TRC) was retained by Covanta Hudson Valley Renewable Energy, LLC. to conduct a compliance emissions measurement program at the Dutchess County Waste-to-Energy Facility in Poughkeepsie, New York. The purpose of this program was to demonstrate that emissions of particulate matter (PM), hydrogen chloride (HCl), metals (cadmium, lead, and mercury), dioxins/furans (PCDD/PCDF), sulfur dioxide (SO_2), oxides of nitrogen (NO_x), carbon monoxide (CO), opacity and fugitive ash from two boiler/incinerators and associated pollution control systems are in compliance with the emission limits specified by 40CFR60 Sub Part BBBB. The testing was conducted in accordance with the procedures of Appendix A to Title 40, Part 60 of the Code of Federal Regulations (40CFR60), or in accordance with other methods accepted by the Environmental Protection Agency (EPA) and NYDEC.

The test program was conducted at the exhaust stack of each of two municipal solid waste (MSW) combustor units and inlet to the pollution control equipment (designated Unit 1 and Unit 2) operated by the facility. Sampling was conducted for the pollutants listed in **Table 1**; which lists the average emissions for each pollutant; permitted emission limits; test methods; number and duration of tests runs. The testing was conducted in accordance with the procedures of Appendix A to Title 40, Part 60 of the Code of Federal Regulations (40CFR60), or in accordance with other methods accepted by the Environmental Protection Agency (EPA) and NYDEC. **Appendix A** of this report contains a log of the date and time of each test.

The test program was conducted on April 17, 2012 through April 18, 2012 and April 25, 2012 through April 26, 2012. The following personnel participated in the program.

NAME	AFFILIATION	POSITION
Dan White	Covanta Hudson Valley	EHS Engineer
	NYSDEC	Environmental Engineering Technician
James Canora	TRC	Project Manager
Ted Bennett	TRC	Senior Project Scientist
Rich Carter	TRC	Project Scientist
Pat Wright	TRC	Technician
William Deveau	TRC	Associate Project Scientist
Leah Stevens	TRC	Technician
Mike Maraghy	TRC	Senior Project Scientist
Ray Potter	TRC	Senior Project Scientist

Section 2.0 of this report presents a summary and discussion of results. Field test changes are presented in Section 3.0. A description of the process is contained in Section 4.0. Section 5.0 presents descriptions of the sampling and analytical methods and Section 6.0 presents a discussion of quality assurance.

Table 1

SUMMARY OF AVERAGE EMISSIONS
COVANTA HUDSON VALLEY RENEWABLE ENERGY WASTE-TO-ENERGY FACILITY

Air Pollutant	Test Method (No. of Tests x Test Duration)	Unit 1	Unit 2	Ash Conveyor & Building	Sub Part BBBB Emission Limits
Particulate Matter, (PM)	EPA 5 (3 x 120 min.)	4.3	2.32		27 mg/dscm@7%O_2
Cadmium (Cd)	EPA 29 (3 x 120)	0.00015	0.00020		0.04 mg/dscm@7%O_2
Lead, (Pb)	EPA 29 (3 x 120)	0.0043	0.0049		0.49 mg/dscm@7%O_2
Mercury, (Hg)	EPA 29 (3 x 120)	0.0034	0.043		0.08 mg/dscm@7%O_2
Mercury (Hg removal)	EPA 29 (3 x 120)	93.9	73.4		85%
Sulfur Dioxide (SO_2)	24 hour average	13.0	11.0		31 ppm@7%O_2
Sulfur Dioxide (SO_2 removal)	24 hour average	91.0	86.3		75%
Nitrogen oxides, (NOx)	24 hour average	128.0	114.5		170 ppm@7%O_2
Carbon Monoxide, (CO)	24 hour average	54.0	148.5		250 ppm@7%O_2
Total Dioxin/Furan, (PCDD/PCDF)	EPA 23 (3 x 240)	NA[1]	2.76		30 ng/dscm@7%O_2
Hydrogen Chloride (HCl)	EPA 26A (3 x 60)	8.3	2.6		31 ppm@7%O_2
Hydrogen Chloride (HCl removal)	EPA 26A (3 x 60)	98.2	99.6		95%
Opacity	EPA 9 (3 x 60)	0	0		10%
Fugitive Ash (Northwest Door)	EPA22 (3 x 60)			0	5%
Fugitive Ash (Southeast Door)	EPA22 (3 x 60)			0.3	5%

1 PCDD/PCDF was tested only on Unit 2 in 2012 in accordance with 40CFR60.1795(b).

2.0 SUMMARY AND DISCUSSION OF RESULTS

The emissions data tables for each unit are presented at the end of this section.

2.1 Unit 1

2.1.1 EPA Method 5 – Particulate and Metals Emissions

Particulate and metals stack emissions data from Unit No. 1 are reported in **Table 2** and the complete data are contained in **Appendix B-1**. Particulate emissions averaged 4.3 milligrams per dry standard cubic meter corrected to seven percent oxygen (mg/dscm @7%O_2). The permitted limit is 27 mg/dscm@7%O_2.

The cadmium, lead and mercury emissions from Unit 1 were in compliance with their permit limits of 0.04 mg/dscm @7%O_2, 0.49 mg/dscm @7%O_2, and 0.08 mg/dscm @7%O_2. The average cadmium, lead, and mercury emissions were 0.00015 mg/dscm @7%O_2, 0.0043 mg/dscm @7%O_2, and 0.0034 mg/dscm @7%O_2

2.1.2 Emission Monitoring – SO_2, NOx and CO

Emission monitoring data from Unit No. 1 is summarized in **Table 4**. Complete data is contained in **Appendix C-1**. Emissions of each parameter were below the applicable limits. The average sulfur dioxide (SO_2), oxides of nitrogen (NO_X), and carbon monoxide (CO) emission rates were as follows: 13.0 parts per million corrected to seven percent oxygen (ppm@7%O_2), 128.0 ppm@7%O_2, and 54.0 ppm@7%O_2. The emission limits are as follows: 31 ppm@7%O_2 – SO_2; 170 ppm@7%O_2 - NO_X; 250 ppm@7%O_2 – CO.

2.1.4 EPA Method 26 – HCl Emissions

HCl emissions data from Unit No. 1 are reported in **Table 8** and the complete data are contained in **Appendix E-1**. The HCl emissions from Unit 1 averaged 8.3 ppm@7%O_2 which was in compliance with the Sub Part BBBB emission limit of 31 ppm@7%O_2. The average HCl removal efficiency was 98.2% which was greater than the required removal efficiency of 95% as stated in the Sub Part BBBB regulation.

2.1.5 EPA Method 9 – Opacity Emissions

Opacity emissions data from Unit No. 1 are reported in **Table 10** and the complete data are contained in **Appendix F**. The average opacity from Unit 1 was 0%, which was less than the Sub Part BBBB emission limit of 10%.

2.2 Unit 2

2.2.1 EPA Method 5 – Particulate and Metals Emissions

Particulate and metals stack emissions data from Unit No. 2 are reported in **Table 3** and the complete data are contained in **Appendix B-2**. Particulate emissions averaged 2.3 mg/dscm @7%O_2 The permitted limit is 27 mg/dscm@7%O_2.

The cadmium, lead and mercury emissions from Unit 2 were in compliance with their permit limits of 0.04 mg/dscm @7%O_2, 0.49 mg/dscm @7%O_2, and 0.08 mg/dscm @7%O_2. The average cadmium, lead, and mercury emissions were 0.0002mg/dscm @7%O_2, 0.0049 mg/dscm @7%O_2, and 0.043 mg/dscm @7%O_2

2.2.2 Emission Monitoring – SO_2, NOx and CO

Emission monitoring data from Unit No. 2 is summarized in **Table 5**. Complete data is contained in **Appendix C-2**. Emissions of each parameter were below the applicable limits. The average SO_2, NO_X, and CO emission rates were as follows: 11.0 ppm@7%O_2, 114.5 ppm@7%O_2, and 148.5 ppm@7%O_2. The emission limits are as follows: 31 ppm@7%O_2 – SO_2; 170 ppm@7%O_2 - NO_X; 250 ppm@7%O_2 – CO.

2.2.3 EPA Method 26 – HCl Emissions

HCl emissions data from Unit No. 2 are reported in **Table 9** and the complete data are contained in **Appendix E-2**. The HCl emissions from Unit 2 averaged 2.6 ppm@7%O_2 which was below the Sub Part BBBB emission limit of 31 ppm@7%O_2. The average HCl removal efficiency was 99.6% which was greater than the required removal efficiency of 95% as stated in the Sub Part BBBB regulation.

2.2.4 EPA Method 9 – Opacity Emissions

Opacity emissions data from Unit No. 2 are reported in **Table 10** and the complete data are contained in **Appendix F**. The average opacity from Unit 1 was 0%, which was less than the Sub Part BBBB emission limit of 10%.

2.2.5 EPA Method 23 – PCDD/PCDF Emissions

A summary of the PCDD/PCDF emissions are presented in **Table 7**. The average PCDD/PCDF emission rate from Unit 2 was 2.8 ng/dscm@7%O_2 and in compliance with the permit limit of 30 ng/dscm@7%O_2. Additional tables are presented in **Appendix D-2**.

2.3 Fugitive Ash Emissions

The fugitive ash emissions were observed for the common enclosed ash conveyor system and ash disposal building. The results of these observations are presented in **Table 10** and are reported in terms of minutes of visible emissions and percent of observation period with visible emissions. Visible emissions were observed at the rear, Northwest door, for an average of 0.0% of the observation period and for 0 minutes across the three 60-minute periods. Visible emissions were observed at the front, Southeast door, for an average of 0.3% of the observation period and for 0.5 minutes across the three 60-minute periods. The visible emissions were less than the regulatory limit of 5% of the observation period or 9 minutes during a three-hour period. Complete data is contained in **Appendix G**.

2.4 Facility Operation

Appendix N contains the facility operating data recorded during the test program. In addition, the stack test log is also included in **Appendix A**.

2.5 Annual Steam Load Demonstration

The facility established new annual steam load limits based upon the requirements of 40CFR60, Subpart BBBB. Results of the steam flows that were demonstrated during the EPA Method 23 runs are referenced in **Appendix P**. The maximum Unit 2 (4-hour) arithmetic average steam load was achieved during the second dioxin/furan test at 54.9 klb/hr.

2.6 Reporting Non-Detected Fractions/Species

When two or more fractions are reported for a given compound, and one or more fraction(s) are below the detection limit and one or more fraction(s) are above the detection limit, then the emissions are calculated based on the data above the detection limit. The data reported in the analytical reports as non-detect is treated as zero. The emissions results are reported as detected or actual emissions, and no less than (<) prefix is used.

If the sample analysis yields all the fractions below the detection limit, then the emission rate is calculated based on the sum of all the fractions. In this case the result was preceded by a '<' symbol. When reporting metals emissions, the sums of all fractions/species that are above the detection limit are included in the total. However, all PCDD/PCDF congeners were reported regardless if they are estimated or are non-detected values. These values were not be prefaced with a '<' symbol.

2.7 Field Test Problems and Deviations

In accordance with 40CFR60.1795(b), Covanta has successfully demonstrated for two consecutive years that the dioxin/furan emission levels from both MWC units are less than 15 ng/dscm. The facility is only required to conduct performance testing for dioxin/furan on one unit. Unit 2 was tested in 2012, and Covanta will rotate performance testing between the two units each performance test in a fixed sequence so that each unit is tested at the same frequency.

Concentrations of sulfur dioxide (SO_2), nitrogen oxides (NO_x) and carbon monoxide (CO) were measured by the plant continuous emissions monitoring systems (CEMS/COMS).

TABLE 2

UNIT 1 PARTICULATE AND METALS EMISSIONS 2012 COMPLIANCE TEST SUMMARY

Covanta Hudson Valley Renewable Energy, LLC

Poughkeepsie, New York

April 17, 2012

Test Number	U1-M29-R1	U1-M29-R1	U1-M29-R2	U1-M29-R2	U1-M29-R3	U1-M29-R3	Average	Average	Emission Limit
Sample Date	4/17/12	4/17/12	4/17/12	4/17/12	4/17/12	4/17/12			
Sample Time	0810-1015	0810-1015	1100-1305	1100-1306	1345-1555	1345-1555	Inlet	Outlet	Outlet
Stack Conditions									
Stack Temperature, (°F)	426	356	427	350	431	351	428	352.47	
Carbon Dioxide, (%)	9.4	8.7	9.4	8.9	8.6	8.4	9.1	8.7	
Oxygen, (%)	10.4	10.7	10.5	10.7	10.9	11.1	10.6	10.8	
Moisure, (%)	16.2	13.9	16.2	15.2	16.6	16.7	16.3	15.3	
Volumetric Flowrate, Actual, (acfm)	59924	65261	61927	66942	63931	66426	61927	66210	
Volumetric Flowrate, Dry Std, (dscfm)[1]	29963	36668	30872	37280	31619	36319	30818	36756	
Sampling Data									
Sample Volume, dry (dscf)	68.384	85.925	70.110	91.599	73.413	92.736	70.636	90.1	
Isokinetic Ratio, %	95.5	94.7	95.0	99.3	97.1	103.2	95.9	99.1	
Particulate Emissions									
Total Catch, (mg)		6.8		9		8.3		8.0	
Concentration (grains/dscf@12%CO2)		0.0017		0.0020		0.0020		0.0019	0.015
Concentration (mg/dscm @ 7% Oxygen)		3.81		4.70		4.50		4.34	27
Mass Emission Rate, (lb/hr)		0.384		0.485		0.430		0.433	
Cadmium Emissions									
Total Catch, (ug)		0.3		0.3		0.3		0.3	
Concentration (mg/dscm)		0.00013		0.00011		0.00010		0.00011	
Concentration (mg/dscm @ 7% Oxygen)		0.00017		0.00015		0.00014		0.00015	0.040
Mass Emission Rate, (lb/hr)		0.00002		0.00002		0.00001		0.00002	
Lead Emissions									
Total Catch, (ug)		10.20		6.26		7.27		7.91	
Concentration (mg/dscm)		0.00419		0.00241		0.00277		0.00312	
Concentration (mg/dscm @ 7% Oxygen)		0.0057		0.0033		0.0039		0.0043	0.49
Mass Emission Rate, (lb/hr)		0.00058		0.00034		0.00038		0.00043	
Mercury Emissions									
Total Catch, (ug)	49.4	5.8	108.5	6.0	365.5	7.2	174.5	6.3	
Concentration (mg/dscm)	0.026	0.0024	0.055	0.0023	0.176	0.0027	0.085	0.0025	
Concentration (mg/dscm @ 7% Oxygen)	0.034	0.0033	0.073	0.0032	0.244	0.0034	0.117	0.0034	0.080
Hg Removal Efficiency by Weight, %	88.56%		94.87%		98.21%		93.88%		
Percent Reduction Limit, %							85.0%		
Mass Emission Rate, (lb/hr)	0.0029	0.00003	0.00003	0.00002	0.0008	0.000037	0.0100	0.000034	

1 - dscfm Dry Standard Cubic Feet per Minute at 68°F and 29.92 in. Hg.

TABLE 3

UNIT 2 PARTICULATE AND METALS EMISSIONS 2012 COMPLIANCE TEST SUMMARY

Covanta Hudson Valley Renewable Energy, LLC

Poughkeepsie, New York

April 18, 2012

Test Number	U2-M29-R1	U2-M29-R1	U2-M29-R2	U2-M29-R2	U2-M29-R3	U2-M29-R3	Average	Average	Emission Limit
Sample Date	4/18/12	4/18/12	4/18/12	4/18/12	4/18/12	4/18/12			
Sample Time	0800-1008	0800-1005	1040-1250	1040-1244	1315-1520	1315-1518	Inlet	Outlet	Outlet
Stack Conditions									
Stack Temperature, (°F)	411	315	417	315	419	316	415	315.17	
Carbon Dioxide, (%)	10.1	9.0	10.0	9.3	10.7	9.5	10.3	9.3	
Oxygen, (%)	9.5	10.7	9.9	10.8	9.1	10.4	9.5	10.6	
Moisure, (%)	16.0	16.1	17.0	17.1	18.9	16.9	17.3	16.7	
Volumetric Flowrate, Actual, (acfm)	58229	58663	61091	61566	61701	60800	60340	60343	
Volumetric Flowrate, Dry Std, (dscfm)[1]	29599	33936	30487	35153	30024	34808	30037	34633	
Sampling Data									
Sample Volume, dry (dscf)	70.852	86.767	72.542	88.708	72.606	88.584	72.000	88.0	
Isokinetic Ratio, %	100.1	103.4	99.6	102.0	101.2	102.9	100.3	102.7	
Particulate Emissions									
Total Catch, (mg)		6.9		2.8		3.1		4.3	
Concentration (grains/dscf@12%CO2)		0.0016		0.0006		0.0007		0.0010	0.015
Concentration (mg/dscm @ 7% Oxygen)		3.81		1.53		1.64		2.32	27
Mass Emission Rate, (lb/hr)		0.36		0.15		0.16		0.22	
Cadmium Emissions									
Total Catch, (ug)		0.41		0.47		0.22		0.37	
Concentration (mg/dscm @ 7% Oxygen)		0.00023		0.00025		0.00012		0.00020	0.040
Mass Emission Rate, (lb/hr)		2.12E-05		2.46E-05		1.14E-05		1.91E-05	
Lead Emissions									
Total Catch, (ug)		7.29		12.80		7.01		9.03	
Concentration (mg/dscm @ 7% Oxygen)		0.004		0.007		0.004		0.0049	0.49
Mass Emission Rate, (lb/hr)		0.0004		0.0007		0.0004		0.0005	
Mercury Emissions									
Total Catch, (ug)	364.5	108.1	155.6	68.2	526.5	60.0	349.0	78.8	
Concentration (mg/dscm)	0.183	0.0440	0.08	0.0271	0.26	0.0239	0.177	0.0317	
Concentration (mg/dscm @ 7% Oxygen)	0.221	0.060	0.096	0.037	0.300	0.032	0.206	0.043	0.080
Hg Removal Efficiency by Weight, %	72.25%		58.68%		89.17%		73.37%		
Percent Reduction Limit, %							85.0%		
Mass Emission Rate, (lb/hr)	0.020	0.0056	0.009	0.0036	0.029	0.0031	0.019	0.0041	

1 - dscfm Dry Standard Cubic Feet per Minute at 68°F and 29.92 in. Hg.

Table 4

SUMMARY OF NOx, SO2 and CO EMISSIONS
HUDSON VALLEY RENEWABLE ENERGY WASTE-TO-ENERGY FACILITY

Unit 1

Run No. Date	U1 17-Apr-12 24 hr avg	U1 18-Apr-12 24 hr avg	AVERAGES (24 hour)	Permit Limits
NOx EMISSIONS				
Concentration @7% O2	123.0	133.0	**128.0**	170
SO2 EMISSIONS				
Concentration @7% O2	17.0	9.0	**13.0**	31
SO2 Reduction, %	89.6	92.4	**91.0**	75
CO EMISSIONS				
Concentration @7% O2	54.0	54.0	**54.0**	250

Table 5

SUMMARY OF NOx, SO2 and CO EMISSIONS
HUDSON VALLEY RENEWABLE ENERGY WASTE-TO-ENERGY FACILITY

Unit 2

Run No. **Date**	**U2** **17-Apr-12** **24 hr avg**	**U2** **18-Apr-12** **24 hr avg**	**AVERAGES** **(24 hour)**	**Permit** **Limits**
NOx EMISSIONS				
Concentration @7% O2	114.0	115.0	**114.5**	170
SO2 EMISSIONS				
Concentration @7% O2	9.0	13.0	**11.0**	31
SO2 Reduction, %	82.3	90.2	**86.3**	75
CO EMISSIONS				
Concentration @7% O2	166.0	131.0	**148.5**	250

Table 6

SUMMARY OF U1 & U2 OPACITY EMISSIONS and FUGITIVE EMISSIONS FROM ASH CONVEYOR
COVANTA HUDSON VALLEY RENEWABLE ENERGY WASTE-TO-ENERGY FACILITY

Unit 1 Opacity Emissions

Run No. Date Start Time Stop Time	U1 R1 17-Apr-12 08:40 09:40	U1 R2 17-Apr-12 10:25 11:25	U1 R3 17-Apr-12 12:50 13:50	AVERAGES	Permit Limits
Opacity, (%)	0.0	0.0	0.0	0.0	10

Unit 2 Opacity Emissions

Run No. Date Start Time Stop Time	U2 R1 17-Apr-12 08:40 09:40	U2 R2 17-Apr-12 10:25 11:25	U2 R3 17-Apr-12 12:50 13:50	AVERAGES	Permit Limits
Opacity, (%)	0.0	0.0	0.0	0.0	10

Fugitive Emissions From Ash Conveyor and Ash Disposal Building
Rear Northwest Door

Run No. Date Start Time Stop Time Observation period	M22 - 1 17-Apr-12 13:55 15:05 60 minutes	M22 - 2 17-Apr-12 15:10 16:20 60 minutes	M22 - 3 18-Apr-12 11:35 12:45 60 minutes	Total opacity observed 180 minutes	Permit Limits
Opacity observed > 0% (min.)	0	0	0	0.0	9
(% of observation period)	0	0	0	0.0	5

The regulatory limit for visual opacity emissions is 5% over the observation period or nine minutes during a three - hour period.

Fugitive Emissions From Ash Conveyor and Ash Disposal Building
Front Southeast Door

Run No. Date Start Time Stop Time Observation period	M22 - 1 18-Apr-12 07:50 09:00 60 minutes	M22 - 2 18-Apr-12 09:05 10:15 60 minutes	M22 - 3 18-Apr-12 10:20 11:30 60 minutes	Total opacity observed 180 minutes	Permit Limits
Opacity observed > 0% (min.)	0	0.5	0	0.5	9
(% of observation period)	0	0.83%	0	0.28%	5

The regulatory limit for visual opacity emissions is 5% over the observation period or nine minutes during a three - hour period.

TABLE 7

SUMMARY OF PCDD/PCDF EMISSIONS
HUDSON VALLEY RENEWABLE ENERGY RESOURCE RECOVERY FACILITY

Unit 2

Test Number Time Date	U2-M23-R1 1015 - 1419 4/25/12	U2-M23-R2 1503 - 1906 4/25/12	U2-M23-R3 0815 - 1217 4/26/12	AVERAGE
PROCESS PARAMETERS				
Steam Load (klb/hr)	51.5	54.9	54.5	53.6
SAMPLING PARAMETERS				
Metered Volume, (acf)	163.043	177.244	169.772	170.020
Corrected Volume, (dscf)	152.232	163.095	159.600	158.309
Total Test Time, (minutes)	240	240	240	240
Isokinetic Ratio	105.0	102.6	102.7	103.4
GAS PARAMETERS				
Stack Temperature, (°F)	317	320	316	317
O_2	10.3	10.1	11.0	10.5
CO_2	9.3	9.4	8.9	9.2
Moisture	17.4	17.6	17.8	17.6
GAS FLOW RATE				
Velocity, (ft/sec)	69.2	76.3	74.2	73.2
Volumetric Flowrate, Actual, acfm	52146	57516	55968	55210
Volumetric Flowrate, Dry Std., dscfm[1]	29315	32142	31416	30958
TCDD EMISSIONS				
2378 - TCDD				
Conc. (ng/dscm @7% O2)	2.33E-03	2.66E-03	2.24E-03	2.41E-03
Mass Rate, (lb/hr)	1.95E-10	2.49E-10	1.88E-10	2.11E-10
Total TCDD				
Mass Rate, (lb/hr)	1.47E-08	1.58E-08	1.45E-08	1.50E-08
PCDD&PCDF EMISSIONS				
Conc. (ng/dscm @7%O2)	2.70	2.70	2.88	2.76
Subpart BBBB (ng/dscm@7% O2) Limit				**30**
Mass Rate, (lb/hr)	2.26E-07	2.52E-07	2.41E-07	2.40E-07
Mass Rate, (lb/hr) Emission Limit				**NA**
Mass Rate, (lb-TEQ/hr;I-TEF/89)	3.71E-09	4.37E-09	4.45E-09	4.18E-09
Mass Rate, (lb-TEQ/hr; NYTEF)	4.92E-09	6.63E-09	7.31E-09	6.29E-09

1 dscfm - dry standard cubic feet per minute corrected to 68°F and 29.92"Hg

TABLE 8

UNIT 1 HCL EMISSIONS TEST SUMMARY

2012 COMPLIANCE TEST

Covanta Hudson Valley Renewable Energy, LLC

Poughkeepsie, New York

April 17, 2012

Run No.	M26A-U1-1-IN	M26A-U1-R1	M26A-U1-2-IN	M26A-U1-R2	M26A-U1-3-IN	M26A-U1-R3	Average	Average	Emission Limit
Sampling Date	4/17/12	4/17/12	4/17/12	4/17/12	4/17/12	4/17/12			
Sampling Time	0810-0910	0810-0910	1115-1218	1115-1218	1345-1445	1345-1445	Inlet	Outlet	Outlet
Stack Conditions									
Stack Temperature (°F)	425	354	429	349	424	341	426	348	
CO2 (%)	9.4	8.7	9.4	8.9	8.6	8.4	9.1	8.7	
O2 (%)	10.4	10.7	10.5	10.7	10.9	11.1	10.6	10.8	
Moisture (%)	17.7	16.1	16.0	17.1	15.3	17.1	16.3	16.8	
Volumetric Flowrate, Actual (acfm)	59595	65421	67510	67901	69354	68996	65486	67439	
Volumetric Flowrate, Dry (dscfm) 1	29291	35910	33682	37075	35111	38015	32695	37000	
Sampling Data									
Sample Volume Dry (dscf)	44.051	44.317	42.848	43.245	42.218	43.177	43.039	43.579	
HCl Emissions									
Total HCl Catch (mg)	680.0	15.0	720.0	11.0	780.0	7.9	726.7	11.3	
Concentration (ppm)	359.7	7.9	391.6	5.9	430.5	4.3	393.9	6.0	
Concentration (ppmd @ 7% O2)	476.2	10.7	523.4	8.0	598.4	6.1	532.7	8.3	31.
HCl Removal Efficiency by Weight, %	97.31%		98.33%		98.93%		98.19%		
Percent Reduction Limit, %							95.0%		
Mass Emission Rate, (lb/hr)	59.8	1.6	74.9	1.2	85.8	0.9	73.5	1.3	

1 - dscfm Dry Standard Cubic Feet per Minute at 68°F and 29.92 in. Hg.

TABLE 9
UNIT 2 HCL EMISSIONS TEST SUMMARY
2012 COMPLIANCE TEST
Covanta Hudson Valley Renewable Energy, LLC
Poughkeepsie, New York
April 18, 2012

Run No.	M26A-U2-1-IN	M26A-U2-R1	M26A-U2-2-IN	M26A-U2-R2	M26A-U2-3-IN	M26A-U2-R3	Average	Average	Emission Limit
Sampling Date	4/18/12	4/18/12	4/18/12	4/18/12	4/18/12	4/18/12			
Sampling Time	0800-0907	0800-0900	1040-1148	1040-1140	1315-1420	1315-1415	Inlet	Outlet	Outlet
Stack Conditions									
Stack Temperature (°F)	410	317	416	316	419	320	415	318	
CO2 (%)	9.45	9.0	10.01	9.3	9.05	9.5	9.5	9.3	
O2 (%)	10.1	10.7	9.99	10.8	10.7	10.4	10.3	10.6	
Moisture (%)	16.0	13.8	16.5	17.1	20.7	16.7	17.7	15.9	
Volumetric Flowrate, Actual (acfm)	60582	57711	61268	58761	62710	59260	61520	58577	
Volumetric Flowrate, Dry (dscfm) 1	30849	34212	30757	33529	29839	33798	30482	33846	
Sampling Data									
Sample Volume Dry (dscf)	41.632	43.672	41.112	42.635	41.497	40.831	41.414	42.379	
HCl Emissions									
Total HCl Catch (mg)	840.0	3.6	910.0	3.9	790.0	3.0	846.7	3.5	
Concentration (ppm)	470.2	1.9	515.8	2.1	443.6	1.7	476.5	1.9	
Concentration (ppmd @ 7% O2)	605.1	2.6	657.2	2.9	604.5	2.3	622.3	2.6	31
HCl Removal Efficiency by Weight, %	99.55%		99.55%		99.56%		99.55%		
Percent Reduction Limit, %							95.0%		
Mass Emission Rate (lb/hr)	82.3	0.4	90.0	0.4	75.1	0.3	82.5	0.4	

1 - dscfm Dry Standard Cubic Feet per Minute at 68°F and 29.92 in. Hg.

3.0 PROCESS DESCRIPTION

The Dutchess County Resource Recovery Facility consists of two parallel, identical trains with Westinghouse O'Connor water-walled rotary combustors, permitted to burn approximately 456 tons per day (TPD) of municipal solid waste. The ton per day of municipal solid waste burned has been derated to 456 TPD for the facility (228 TPD per train). Figure 1, in Appendix H, shows the general layout for the facility. Each combustor train is served by a spray dryer absorber (SDA) and a fabric filter baghouse (FF). The SDA/FF each have a spray dryer absorber, followed by dry activated carbon injection, then by a reverse air fabric filter baghouse with ash removal hoppers. The SDA/FFBHs are designed to meet particulate matter limits of 27 milligram per dry standard cubic foot corrected to seven percent oxygen. Each incinerator train exhausts through a 48-inch inside diameter stack, 200 feet above grade.

Each boiler has its own flue-gas treatment and filtration system; exhaust gas from each stack exists via a separate flue in a common stack.

3.1 CEM Equipment

The CEMS monitors exhaust gases at the inlet and outlet of this APC system. The CEMS enclosure contains two MIR-9000 Multi-gas analyzers. Each analyzer is dedicated to each incinerator train for continuous monitoring of each outlet train. The analyzer monitors NO_X (range 0-250 ppm), SO_2 (range 0-200 ppm), CO_2 (range 0-20%) and CO has a dual range (0-500 ppm and 0-2000 ppm). The CEMS shelter also has a 19" rack that has two Ameteck O_2 analyzer and two Rosemount SO_2 analyzers. All four analyzers are for the inlet incinerator trains. The O_2 analyzer has a range of 0-25% and the SO_2 analyzer has a range of 0-500 ppm.

3.2 Data Acquisition

Data and handling is accomplished by utilizing a data acquisition and handling system (DAHS) designed and programmed by Trace Environmental Systems Inc.

4.0 SAMPLING AND ANALYTICAL METHODS

Emissions measurements are conducted in accordance with the following methods.

4.1 Sampling Locations

Emissions testing are conducted at sampling points selected in accordance with EPA Method 1. **Appendix H** includes Method 1 data forms and schematics for each sampling location.

The outlet sampling locations are essentially identical. Four four inch diameter sampling ports, 21 to 26 inches in length, spaced 90 degrees apart are located on the 48 inch diameter stack. The ports are 8.75 diameters downstream of the induced draft fan ducting and approximately 34 diameters, upstream from the stack discharge. There are twelve (12) traverse points, six (6) per port available for isokinetic sampling.

The inlet sampling locations are essentially identical. Two four inch diameter sampling ports, 4 inches in length, spaced 90 degrees apart are located on the 56 inch diameter duct. The ports are greater than 8 diameters downstream of the economizer and greater than 2 diameters from the spray dryer inlet. There are twelve (12) traverse points, six (6) per port available for isokinetic sampling.

4.2 PCDD/PCDF Measurements - EPA Method 23

Sampling is performed to measure emissions of PCDD/PCDFs using EPA Method 23 guidelines. The sample train components (rinses, filter, and XAD resin) are extracted and analyzed together. This procedure of combining extracts provided the lowest possible detection limits. Analysis is conducted according to Method 23 using high-resolution gas chromatography/mass spectrometry (GC/MS). Three 240-minute test runs are conducted at the baghouse exhaust of each unit.

4.2.1 Sample Collection

Sampling for PCDD/PCDFs are performed isokinetically at each sampling point. Exhaust gas and sampling train conditions are measured every five minutes. The sampling train is presented in **Figure 4-1**. The train consists of a calibrated glass nozzle, a heated glass-lined probe, a heated glass-fiber filter encased in a glass filter holder, a Graham spiral-type condenser, a water-jacketed sorbent module, and five Greenberg-Smith impingers. The first impinger is empty (knockout) and has a short stem. The second and third impingers are charged with 100 milliliters (ml) deionized distilled water (DDH_2O). The fourth impinger is empty, and the fifth impinger contains 200 grams (g) of indicating silica gel to remove any remaining moisture.

The sorbent module is water-jacketed and filled with clean XAD-2 resin. The sorbent module is located in a vertical position where the sample gases flow downward to prevent channeling. All glass and Teflon components of the sampling train are prewashed as described in Section 3A of the 1980 Manual of Analytical Methods for Analysis of Pesticide Residues in Human and Environmental Samples.

The sampling probe and filter temperatures are maintained at 250°F +/-25°F. The condenser-sorbent tube module jacket and the gas temperatures at the outlet of the fifth impinger are maintained at or below 68°F. No silicone vacuum grease is used on any of the sampling train components.

The remainder of the sampling train consists of flexible tubing, a vacuum gauge, a leak-free vacuum pump with a bypass and fine adjustment valve, a calibrated orifice, and a dual-inclined manometer. An S-type pitot is attached to the sampling probe. Flexible tubing runs from the probe to a dual-inclined manometer in order to monitor velocity pressure in the stack.

A personal computer is used to quickly determine the orifice pressure drop required to maintain isokinetic sampling conditions. Before and after each test run, the impingers are weighed with an electronic balance to within 0.5 grams to quantify the condensate collected from each test run. The complete sampling train is also leak-checked before and after each test to demonstrate compliance with the 0.02 cfm leak rate limit. Impinger weights, leak test results, and sampling data is recorded on prepared field data forms. A minimum of 140 dry standard cubic feet was obtained for each test run.

Prior to actual sampling with the train as described, a field blank is prepared. One sampling train is completely charged, set up on the stack, leak-checked, and heated as if ready to test. The sampling train is then broken down and the sample fractions are recovered and analyzed with the same procedures employed for sample recovery and analysis.

4.2.2 Sample Recovery

Sample recovery takes place in a clean, wind free location. After the probe is removed from the stack, particulate matter was wiped from the exterior of the nozzle and the nozzle were capped to prevent loss or gain of sample.

The filter holder, condenser, and XAD-2 sorbent cartridge was sealed with Teflon tape and wrapped in aluminum foil. The impinger outlet vacuum line will then be removed and the impinger train was sealed with Teflon tape. The probe, filter, condenser, XAD-2 sorbent cartridge, and impinger train was transported to the recovery area. Four sample containers were used for recovery as follows:

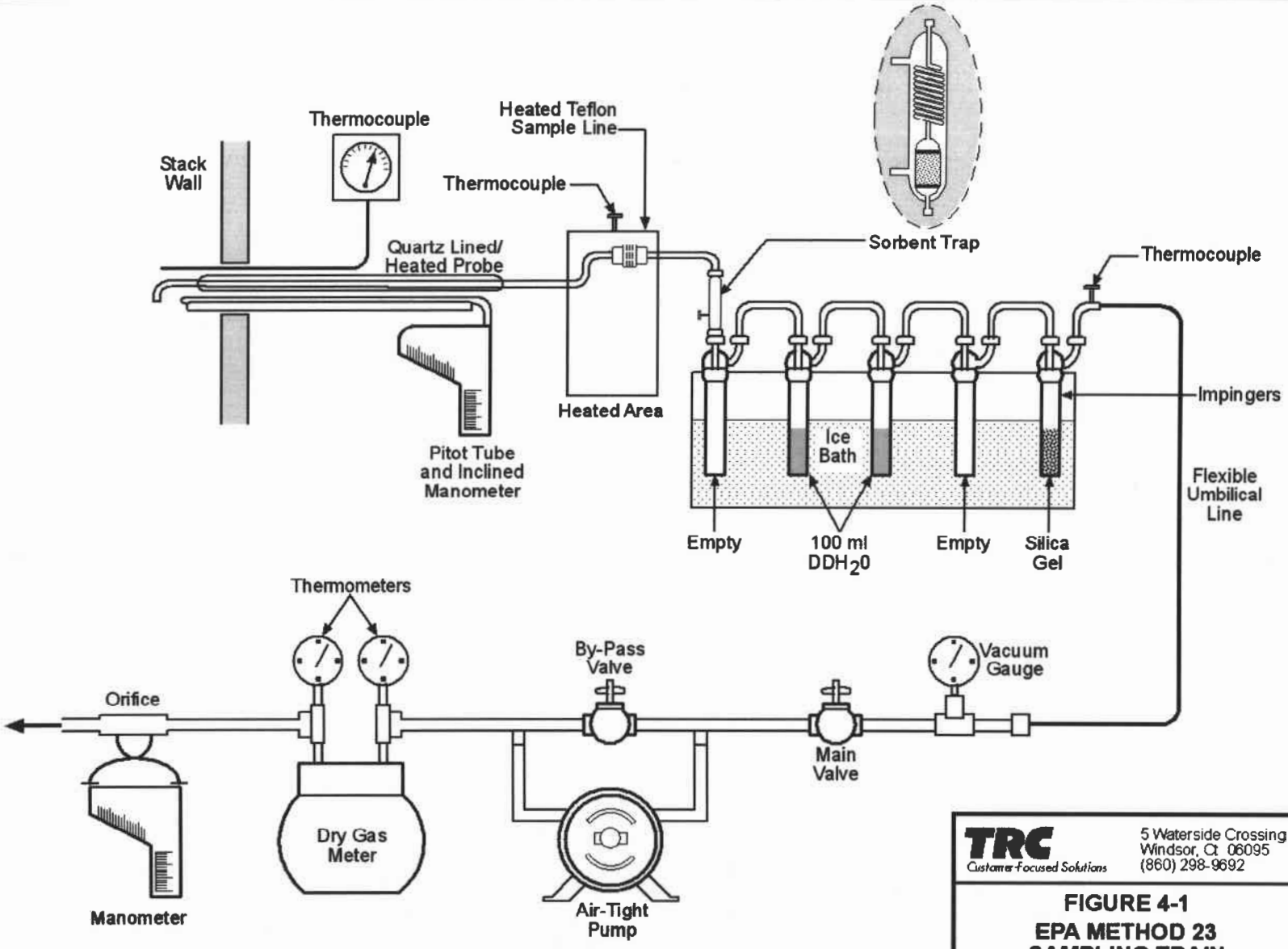

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FIGURE 4-1
EPA METHOD 23 SAMPLING TRAIN SCHEMATIC

Container No. 1:	The nozzle, probe, and front half of the filter holder are brushed and rinsed sequentially three times with acetone and rinsed three times with methylene chloride. In addition, the back half of the filter holder and spiral condenser is rinsed sequentially three times with acetone and methylene chloride. The rinses are deposited into a clean 500 ml sample container and the liquid level is marked.
Container No. 2:	The nozzle, probe, and front half of the filter holder are rinsed in triplicate with toluene. TRC conducted three separate five minutes soaks on the spiral condenser with toluene solution. The rinses are deposited into a clean 500 ml sample container and the liquid level is marked.
Container No. 3	The filter is removed from the filter holder and placed in a clean glass petri dish. The petri dish is sealed with Teflon tape.
Container No. 4:	The XAD-2 resin cartridge is sealed with ground glass caps, labeled and placed in zip lock bags. The cartridges are stored and shipped on ice.

4.2.3 Sample Analysis

The samples are sent to Analytical Perspectives for analysis by high-resolution GC/MS for PCDD/PCDF. The filter and XAD-2 resin are extracted together with toluene in a Soxhlet apparatus for at least 3 hours. The acetone rinse and the toluene rinse are each concentrated to 1-5 mls and combined with the filter/XAD-2 fraction in the Soxhlet apparatus. The combined sample is then spiked with internal standard, and extracted for 16 hours.

Quantification of PCDD/PCDFs is based on the concentration of a 2,3,7,8-PCDD analytical standard. Results are reported as total PCDD/PCDFs (total tetra through octa homologues), as well as the specific isomers and homologue groups as presented in **Table 4-1**. Emissions of PCDD/PCDF are reported in both nanograms per dry standard cubic meter corrected to 7% oxygen using total mass and pounds per hour using both New York and International Toxic Equivalency Factors.

Table 4-1
PCDD/PCDF Isomers for Analysis

Compound	New York TEF	EPA – International TEF
Dioxins		
2,3,7,8 TCDD	1	1
Other TCDD	**0.01**	**0**
1,2,3,7,8 PeCDD	1	0.5
Other PeCDD	**0.01**	**0**
1,2,3,4,7,8 HxCDD	0.03	0.0
1,2,3,6,7,8 HxCDD	0.03	0.1
1,2,3,7,8,9 HxCDD	0.03	0.1
Other HxCDD	**0.0003**	**0**
1,2,3,4,6,7,8 HpCDD	0.001	0.01
Other HpCDD	**0.00001**	**0**
Total OCDD	**0**	**0.001**
Furans		
2,3,7,8 TCDF	0.33	0.1
Other TCDF	**0.003**	**0**
1,2,3,7,8 PeCDF	0.33	0.05
2,3,4,7,8 PeCDF	0.33	0.5
Other PeCDF	**0.003**	**0**
1,2,3,4,7,8 HxCDF	0.01	0.1
1,2,3,7,8,9 HxCDF	0.01	0.1
1,2,3,6,7,8 HxCDF	0.01	0.1
2,3,4,6,7,8 HxCDF	0.01	0.1
Other HxCDF	**0.0001**	**0**
1,2,3,4,6,7,8 HpCDF	0.001	0.01
1,2,3,4,7,8,9 HpCDF	0.001	0.01
Other HpCDF	**0.00001**	**0**
Total OCDF	**0**	**0.001**

4.3 HCl Measurements – EPA Method 26

The HCl concentration is determined in accordance with EPA Method 26. Triplicate 60-minute tests were performed at the baghouse exhaust of each unit.

4.3.1 Sample Collection

HCl sampling is conducted utilizing EPA Method 26. The sample train is shown schematically in **Figure 4-2** and consists of a glass nozzle, a probe, a filter, five impingers, a vacuum pump, dry gas meter, and an orifice flow meter. The nozzle is attached to a glass-lined stainless steel probe, which is heated to 250°F +/-25°F. Quartz mat filter papers supported in 3-inch glass filter holders with Teflon filter supports are used as the particulate collection media. The filter assembly is enclosed in a heated box to maintain the filter temperature at 250°F +/-25°F. A thermocouple is located inside the back half of the filter holder to monitor the filter outlet gas temperature.

An ice bath containing five impingers is attached to the back end of the filter. The first two imingers contained 100 ml each of 0.1 N H_2SO_4 and the third and fourth impingers contained 100 ml each of distilled water. The fifth impinger contained silica gel to remove any remaining moisture. Flexible tubing, a vacuum gauge, a needle valve, a leakless vacuum pump, a bypass valve, a dry gas meter calibration orifice, and an inclined manometer complete the sampling train. The stack velocity pressure couple connected to a potentiometer.

Before and after each test run, the impingers are weighed with an electronic balance to within 0.5 grams to quantify the condensate collected from each test run. The complete sampling train is also leak-checked before and after each test to demonstrate compliance with the 0.02 cfm leak rate limit. Impinger weights, leak test results, and sampling data are recorded on prepared field data forms.

4.3.2 Sample Recovery

Prior to sample recovery the filter holder is inspected for the presence of moisture. If moisture is found to be present the entire sampling train is purged for 30-minutes at a low flow rate; then successive 15-minute purges until all moisture is gone. Two sample containers are used as follows:

Container No. 1:	The contents of the first two impingers are deposited into a wide mouth glass jar with a Teflon lid. The impingers and filter back half are rinsed in triplicate with deionized water, and the rinses are combined with the impinger contents.

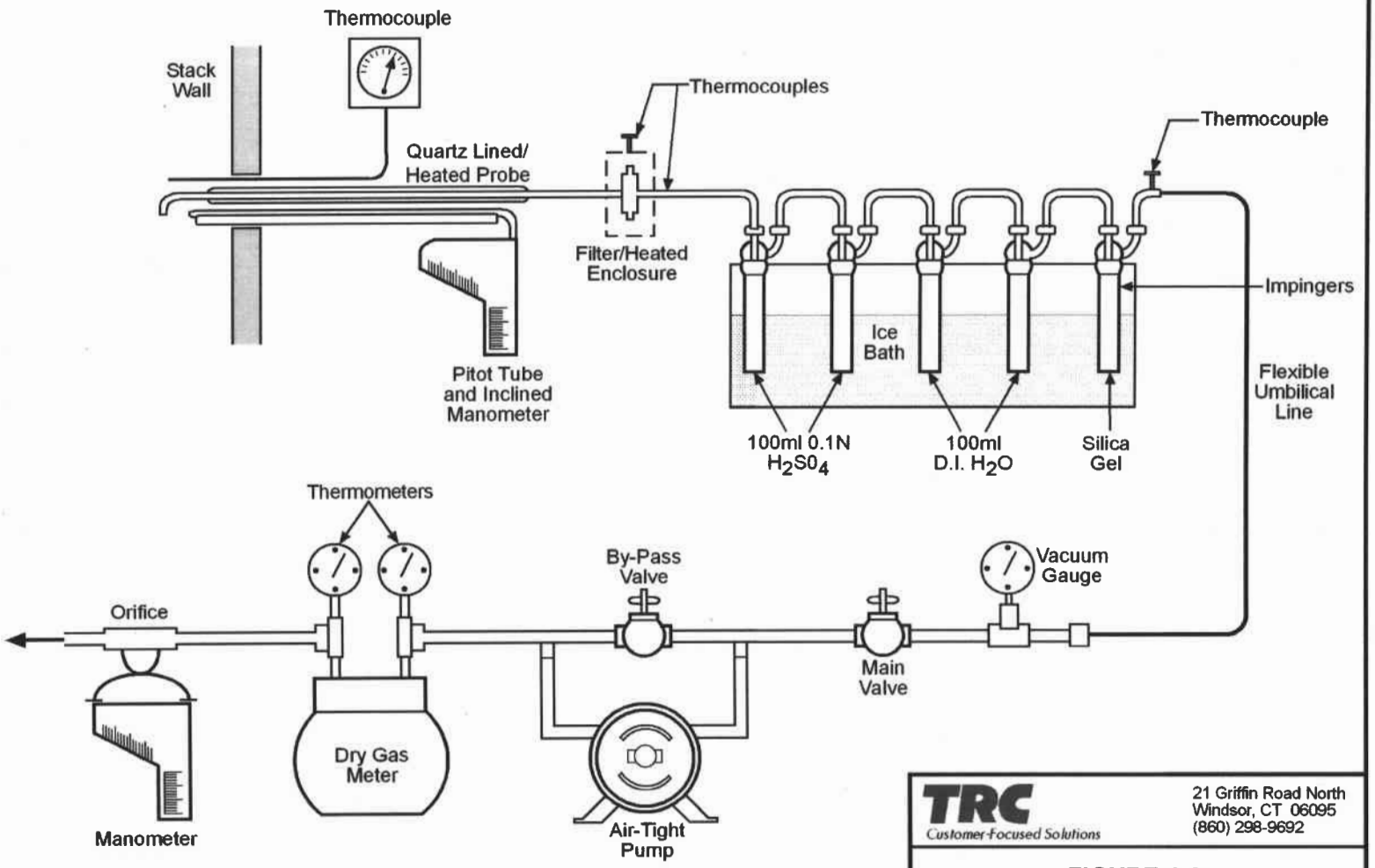

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FIGURE 4-2

EPA METHOD 26 SAMPLING TRAIN SCHEMATIC

AIR/52085.FH10

Container No. 2: The DI impingers are rinsed with DI water and combined with the DI water impinger contents.

4.3.3 Sample Analysis

The samples are transported to a contract laboratory or TRC's in-house laboratory where the following analyses is performed:

Container No. 1: The contents of impingers 1and 2 are analyzed for the Cl ions by ion chromatography (SW Method 9057) by Maxxam Analytics Laboratory.

Container No. 2: The contents are discarded.

4.4 Particulate and Metals Measurements - EPA Method 5/29

Sampling for particulate and metals (Cd, Pb and Hg) is performed according to EPA Method 29. Triplicate 120-minute tests are performed at the baghouse exhaust of each unit.

4.4.1 Sample Collection

The sampling train, depicted in **Figure 4-3**, consists of a quartz button-hook nozzle, a quartz-lined probe, a filter, seven impingers, a vacuum pump, a dry gas meter, a calibrated orifice, and an inclined manometer. A quartz nozzle is attached to a quartz-lined probe heated to 250°F +/-25°F. A thermocouple is located inside the back half of the filter holder to monitor the filter gas temperature and is kept at 250°F +/-25°F.

An ice bath containing the impingers is attached to the back end of the filter. The first impinger is a knockout. The second and third impingers each contain 100 ml of 5% nitric acid (HNO_3)/10% hydrogen peroxide (H_2O_2) solution. The fourth impinger is empty. The fifth and sixth impingers contain 100 ml of a 4% potassium permanganate ($KMnO_4$)/10% sulfuric acid (H_2SO_4) solution. The seventh impinger contains a preweighed silica gel to remove any remaining moisture.

The stack velocity pressure is measured using an S-type pitot tube and an inclined manometer. The stack temperature is monitored by a thermocouple attached to the pitot and connected to a potentiometer.

A personal computer is used to quickly determine the orifice pressure drop required to maintain isokinetic sampling conditions. Before and after each test run, the entire impinger train is weighed with an

electronic balance to within 0.5 grams to quantify the condensate collected from each test run. The complete sampling train is also leak- checked before and after each test to demonstrate compliance with the 0.02 cfm leak rate limit.

4.4.2 Sample Recovery and Analysis

Six sample containers are used as follows:

Container No. 1:	The 3-inch filter is removed from its holder, placed in a petri dish, sealed, and labeled.
Container No. 2:	The probe, nozzle, and front half of the filter holder is brushed and rinsed three times with Acetone.
Container No. 3:	The probe, nozzle, and front half of the filter holder is brushed and rinsed three times with 100 ml 0.1 N HNO_3. The wash is deposited into a glass sample jar with a Teflon-lined cap and labeled.
Container No. 4	The contents of the first three impingers were deposited in a glass sample jar with a Teflon lid. The impingers, back-half filter housing, right angle, and U-tubes were rinsed three times with 100 ml 0.1 N HNO_3. The impinger contents and rinses were deposited into the same sample jar.
Container No. 5A	The fourth impinger and U-tube were rinsed three times with 100 ml 0.1 N HNO_3. The impinger contents and rinses were deposited into a glass sample jar with a Teflon-lined cap and labeled.
Container No. 5B	The fifth and sixth impinger contents and rinses are deposited into a glass sample jar with a Teflon-lined cap and labeled. The impingers and U-tubes are first rinsed three times with 100 ml of an acidified potassium permanganate solution. The impinger and U-tubes is then rinsed with 100 ml of deionized water.
Container No. 5C	If deposits are present on the impinger and U-tube walls, the fifth and sixth impingers and connecting U-tubes are rinsed with 25 ml of 8 N HCl into a sample container containing 200 ml of deionized water. The container is sealed and labeled.

All samples are placed in shock-proof containers for transport to the analytical laboratory.

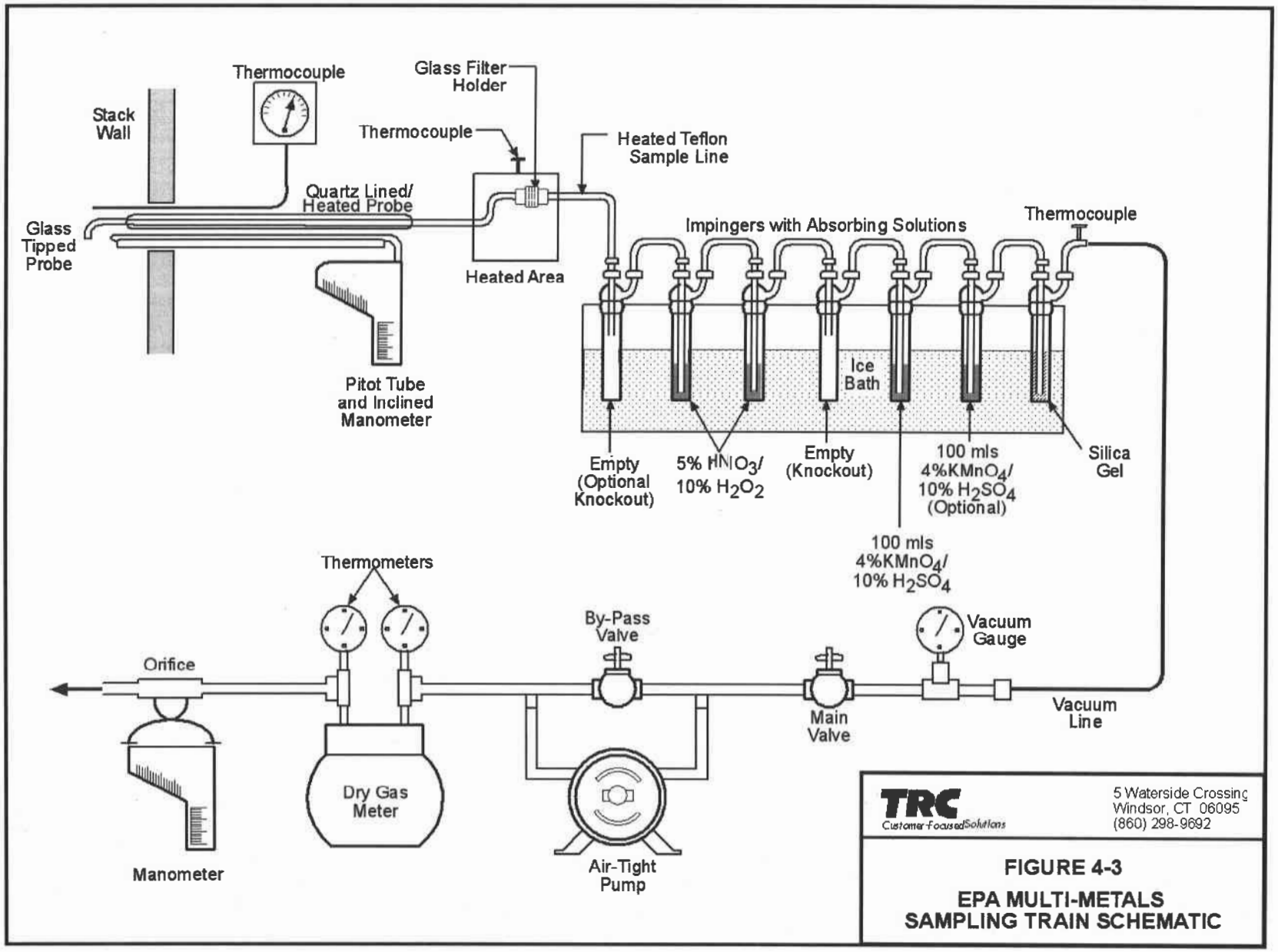

FIGURE 4-3

EPA MULTI-METALS SAMPLING TRAIN SCHEMATIC

The filter and any loose PM from Sample Container 1 was transferred to a tared Teflon weighing dish, desiccated for at least twenty four-hours, and weighed to constant weight with a minimum of 6-hours of desiccation in between each weighing. The acetone wash was transferred to a tared Teflon weighing beaker, evaporated to dryness at ambient temperature and pressure, desiccated for at least two hours, and weighed to constant weight. Results are reported to the nearest 0.1 mg.

The filter, rinses, and impinger contents are analyzed for metals by atomic absorption (AA) inductive capacitance argon plasma (ICAP) emission spectroscopy, or cold vapor atomic absorption (for mercury).

4.5 Oxygen and Carbon Dioxide Measurements

TRC measured emission concentrations of oxygen (O_2) and carbon dioxide (CO_2) at each location in accordance with EPA Method 3/3A for determining the average molecular weight of the stack gas. With this method, a sample of stack gas is extracted from the sampling location and collected in a Tedlar sample bag. The Tedlar bag sample is then analyzed for concentrations of O_2 and CO_2 using paramagnetic and infrared analyzers. One Tedlar bag sample is collected during each isokinetic sample run.

4.6 Opacity Measurements

Opacity was in accordance with EPA Method 9 by a certified opacity reader. A qualified observer was positioned at one location to observe visible emissions from the exhaust stack from Unit No. 1 and Unit No. 2 in accordance with EPA Method 9 (40CFR60, Appendix A). Data was collected approximately every fifteen seconds. TRC conducted three one hour visible emissions tests.

Opacity data for each Unit is presented in **Appendix F**.

4.7 Fugitive Emissions Measurements

TRC conducted opacity measurements for fugitive emissions from the ash handling area in accordance with EPA Method 22. Three 60-minute test runs were conducted using a qualified observer. Fugitive emissions were monitored from a single location.

5.0 QUALITY ASSURANCE

TRC's quality assurance program for source emission measurement is designed so that work is performed by competent individuals using properly calibrated equipment and approved procedures for sample collection, recovery and analyses. The Program Manager, Project Manager and the Program Quality Assurance Manager are responsible for developing data of the highest quality. The Program Quality Assurance Manager is responsible for performing the accuracy and precision evaluations and the QC reporting. Specific details of TRC's quality assurance program may be found in EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III (EPA-600/4-77-0271b).

Sampling and measurement equipment, including continuous analyzers, recorders, pitot tubes, dry meters, orifice meters, thermocouples, probes, nozzles, and any other pertinent apparatus, is uniquely identified, undergoes preventive maintenance, and is calibrated before and after each field effort, following written procedures and acceptance criteria. All calibrations are performed with standards traceable to the National Institute for Science and Technology (NIST). These standards include wet test meters, standard pitot tubes, and NIST Standard Reference Materials. Records of all calibration data are maintained in TRC files. Copies of calibration records were available on-site.

During field tests, sampling performance and progress are continually evaluated, and deviations from sampling method criteria are reported to the Field Team Leader who then determines the validity of the test run. All field data are recorded on prepared data sheets. Field Team Leaders maintain a written log describing the events of each day. Field samples, including field blanks, are transported from the field in shockproof, secure containers. Sample integrity is controlled through the use of prepared data sheets, positive sample identification, and chain-of-custody forms.

All calculations are performed using an Excel spreadsheet developed by TRC. Final results are checked by a senior-level project engineer.

The following discussions present the standard TRC QC procedures for each test methods.

5.1 EPA Method 23

EPA Method 23 sampling is conducted by individuals experienced in the operation and recovery of this method. To obtain the lowest possible detection limits, the sample train fraction recovery procedure is modified; sample train fractions including the toluene rinse are combined for one analysis.

5.1.1 Sampling

The sampling train is leak checked before and after each test run. A leak rate of less than 0.02 cfm is considered acceptable. During sampling, isokinetics is maintained by the use of a programmed calculator or computer. All pertinent test data is recorded on prepared data sheets. At the conclusion of each test isokinetics is calculated and the test is accepted if the calculated isokinetics is 100 +/- 10%.

5.1.2 Recovery

At the conclusion of each test, care is taken not to introduce any contamination into the sampling train. Recovery is conducted in a clean wind-free location with reagent grade solutions. All sample fractions are clearly labeled and solution levels are marked. After the toluene rinse is conducted as specified in Method 23, the sample train components are rinsed with acetone prior to conducting the next test run.

5.1.3 Analytical

All field samples are packed into shock proof containers prior to shipment to the contract laboratory. The following QA samples are included:

Reagent Blank Aliquots of the reagents used to charge the impingers and to conduct recovery are submitted to the contract laboratory for analysis.

Field Blank One sampling train is completely charged, set up on the stack, leak-checked, and heated as if ready to test. The blank run sampling train is broken down and the sample fractions recovered.

Method Blank To ensure that no contamination occurs during the laboratory work-up, the contract laboratory analyzes a method blank.

Spiked Sample Each XAD-2 cartridge is spiked with surrogates prior to sampling to determine the percent recovery to demonstrate accuracy.

The case narrative for the PCDD/PCDF analyses is located in **Appendix J**.

5.2 EPA Method 26

EPA Method 26 sampling is conducted by individuals experienced in the operation and recovery of this method.

5.2.1 Sampling

The sampling train is leak checked before and after each test run. A leak rate of less than 0.02 cfm is considered acceptable. During sampling, isokinetics is maintained by the use of a programmed calculator or personal computer. All pertinent test data is recorded on prepared data sheets.

5.2.2 Recovery

At the conclusion of each test care is taken not to introduce any contamination into the sampling train. Recovery is conducted in a clean wind-free location with reagent grade solutions. All sample fractions are clearly labeled and solution levels are marked.

5.2.3 Analytical

All field samples are packed into shock proof containers prior to shipment. In addition to the test samples, the following blank samples are collected and analyzed:

Reagent/Filter Blanks - Filters and aliquots of the reagents used are submitted for analysis.

Prior to calibration a stable baseline was established by injecting a water sample to determine if Cl^-, Br^- or F^- appeared in the chromatogram. The laboratory prepared at least four calibration standards for each absorbing reagent which included either 0.1 N H_2SO_4 or 0.1 N NaOH. The samples and reagent blanks were injected in duplicate. All the duplicate samples were within 5% of their mean value. A complete laboratory report is included in **Appendix M**.

5.3 EPA Method 5/29

EPA Method 5/29 sampling is conducted by individuals experienced in the operation and recovery of this method.

5.3.1 Sampling

The sampling train is leak checked before and after each test run and a leak rate of less than 0.02 cfm is considered acceptable. During sampling, isokinetics is maintained by the use of a programmed calculator or personal computer. All pertinent test data is recorded on prepared data sheets. At the conclusion of each test, isokinetics is calculated and the test is accepted if the calculated isokinetics is 100 +/- 10%.

5.3.2 Recovery

At the conclusion of each test care is taken not to introduce any contamination into the sampling train. Recovery is conducted in a clean wind-free location with reagent grade solutions. All sample fractions are clearly labeled and solution levels are marked.

5.3.3 Analytical

All field samples are packed into shock-proof containers prior to shipment. In addition to the test samples, the following blanks and collected and analyzed:

Reagent/Filter Blanks - Filters and aliquots of the reagents are submitted for analysis.

The particulate samples were desiccated for 24 hours. The filters were weighed in duplicate with at least 6 hours between weighing. No leakage of acetone occurred during transport to the laboratory. The acetone rinse samples were evaporated to dryness, at ambient temperature and pressure; desiccated for 24 hours and weighed to a constant weight. Additional information is supplied in **Appendix I**.

The metals were analyzed by ICP-MS according to Method 6020 as referenced in EPA Publication SW846 3rd Edition (November 1986). Two calibration checks were conducted. One QC sample was run to check the accuracy of the calibration standard. The QC sample is required to be 25% of the initial calibration. One duplicate analysis is required to demonstrate sample precision within 20% of the average.

CVAAS analysis was performed for mercury. All the samples were analyzed in duplicate. One QC sample was run to check the accuracy of the calibration standard. The QC sample is required to be within 15% of the initial calibration. A matrix spike is conducted on one sample. The matrix spike is required to be within 25% of the standard. Additional information is provided in **Appendix N**.

Appendix A

Test Log

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

BY _____

SUBJECT _____ CHK'D _____

Parameter	Start	End	Date
m26-U1-1	810	910	4/17/12
m26-U1-2	1115	1218	4/17/12
m26-U1-3	1345	1445	4/17/12
m29-U1-1	810	1015	4/17/12
m29-U1-2	1100	1306	4/17/12
m29-U1-3	1345	1555	4/17/12
m9-U1-1	840	940	4/17/12
m9-U1-2	1025	1125	4/17/12
m9-U1-3	1250	1350	4/17/12
m26-U2-1	800	900	4/18/12
m26-U2-2	1040	1140	4/18/12
m26-U2-3	1315	1415	4/18/12
m29-U2-1	800	1005	4/18/12
m29-U2-2	1040	1244	4/18/12
m29-U2-3	1315	1518	4/18/12
m23-U2-1	1015	1419	4/25/12
m23-U2-2	1503	1906	4/25/12
m23-U2-3	815	1217	4/26/12
m9-U2-1	840	940	4/17/12
m9-U2-2	1025	1125	4/17/12
m9-U2-3	1250	1350	4/17/12

A

Covanta - Hudson Valley

4/25

0630 Ray P @ office
0700 Pat W @ office
- left for plant
0920 arrived @ plant
Ray P. - safety training
Pat W - setting up MZ3 tran

1015 started MZ3-1 unit 2
1215 port change
1219 restarted MZ3-1
1235 called Dan W to see if we could do a 2nd run today
- left message for Dan to call me
- will let us know @ 1400 if we can do a second run today
1419 completed run 1
- we have permission to do a 2nd run today → start around 15:00 to allow plant time for some changes/maintenance/possibly soot blow
1503 started run 2
1703 port change
1706 restarted run 2
1906 completed run 2
1930 off-site

4/26

0710 on-site
0740 TRC ready
plant is close

0815 started run 3
1015 port change
1017 restarted run 3
1217 completed run 3
1330 off-site

Appendix B

EPA Method 5 and 29 Data

Appendix B-1

Unit 1

Unit 1 Inlet Metals

TEST	********	U1-M29-R1	U1-M29-R2	U1-M29-R3
LOCATION	********	Unit 1- IN	Unit 1- IN	Unit 1- IN
FIRM	********	Dutchess	Dutchess	Dutchess
TIME	********	0810-1015	1100-1305	1345-1555
DATE	********	04/17/12	04/17/12	04/17/12
PROJECT NO.	********			
BAROMETRIC PRESSURE	in. Hg	30.08	30.08	30.08
STACK AREA	ft^2	17.10	17.10	17.10
NOZZLE DIAMETER	in.	0.250	0.250	0.250
SAMPLING TIME	min.	120	120	120
DRY GAS METER CAL FACTOR [Y]	********	0.999	0.999	0.999
PITOT COEFFICIENT	********	0.84	0.84	0.84
AVG. SQUARE DELTA P	in. H_2O	0.7909	0.8164	0.8392
AVG. DELTA H	in. H_2O	1.27	1.36	1.50
AVG. METER TEMP.	°F	78.46	90.33	89.25
STATIC PRESSURE	in. Hg	-2.10	-2.00	-1.90
AVG. STACK TEMPERATURE	°F	426	427	431.2
SAMPLE VOLUME	ft^3	69.222	72.518	75.761
WATER COLLECTED	ml	280.0	289.0	310.0
CO 2	%	9.4	9.4	8.6
O 2	%	10.4	10.5	10.9
CO	%			
N 2	%	80.2	80.1	80.5
MERCURY FH CATCH	ug	45.3	102	359
MERCURY BH CATCH	ug	4.107	6.46	6.508
F-Factor	dscf/mmBtu			
SAMPLE VOLUME DRY	DSCF	68.38	70.11	73.41
SAMPLE VOLUME DRY	ACM	3.87	3.98	4.20
MOISTURE	%	16.2	16.2	16.6
MOLECULAR WEIGHT OF STACK GAS	lb/lb-mole	27.99	27.99	27.85
STACK VELOCITY	FPM	3503	3621	3738
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	59924	61927	63931
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	29963	30872	31619
ISOKINETIC RATIO	%	95.5	95.0	97.1
MERCURY CONCENTRATION	mg/DSCF	7.22E-04	1.55E-03	4.98E-03
MERCURY CONCENTRATION	ug/acm	1.28E+01	2.72E+01	8.69E+01
MERCURY EMISSION RATE	lb/hour	2.86E-03	6.32E-03	2.08E-02

Maxxam Analytics
6740 Campobello Road
Mississauga, Ontario, L5N 2L8
Phone (905) 817-5700 Fax (905) 817-5777

TRC Project No.: 192131-0000-0000
Date Sampled: _____
Date Analyzed: _____

	Mercury Catch (micrograms)					
Sample Fraction M29 Container Number	Front Half 1 and 2	Back Half 4	5a	5b	5c	BH Total
M29-U1-1 IN	**45.3**	1.21	0.197		2.70	**4.107**
M29-U1-2 IN	**102**	4.76	0.220		1.48	**6.46**
M29-U1-3 IN	**359**	3.7	0.0780		2.730	**6.508**

Blank 1				

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Inlet	M29	M29-U1-In-1	4/17/12	Tota IMo sture Catch : 280

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	70/65	30.08	-2.1 ✓	16	10.4 ✓	9.4 ✓	Glass 7'	Quartz	358

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
8130	2.032	0.999	7-4	0.84	✓	3-2-3	0.250	0.000	15	0.008	16.5	2.0

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
B-1	0810 ✓	0	494.106	0.76	1.52	427	242	256	63	250	NA	66	64	4.0
2		10	500.2	0.92	1.84	430	243	260	59	268		73	66	6.5
3		20	507.0	0.82	1.64	432	242	262	59	248		78	69	9.0
4		30	513.4	0.65	1.30	433	240	267	60	245		80	72	10.5
5		40	519.6	0.50	1.00	421	244	260	63	250		81	74	10.0
6		50	524.8	0.41	0.82	411	245	260	61	251		82	76	9.5
A-1	0910/0915	60	529.724	0.70	1.40	418	237	248	61	247		81	78	11.5
2		70	535.6	0.72	1.44	423	242	260	59	244		84	79	13.5
3		80	541.7	0.75	1.50	423	249	262	62	252		86	81	15.5
4		90	548.0	0.47	0.94	425	244	255	63	248		88	82	~~15.0~~ → 14.0
5		100	553.1	0.48	0.96	433	245	258	63	249		87	84	14.5
6		110	558.2	0.45	0.90	430	247	260	63	247		88	84	15.0
	1015 ✓	120	563.328											
			✓	✓	✓	✓						✓	✓	

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	69.222	0.791	1.272	425.5	78.5

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Inlet	M29	M29-U1-In-2	4/17/12	Total Moisture Catch: 289

Operators		Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type		Filter Type	Filter Number
TB/PW		56	72	30.58	-2.0 ✓	16	10.5 ✓	9.4 ✓	Glass 7'		Quartz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
8130	2.032	0.999	7-4	0.84	✓	M-2-3	0.250	0.002	16.0	0.003	17.5	2.0

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
A-1	11:00	0	563.662	0.91	1.82	434	243	248	61	249	NA	86	84	3.5
2		10	570.5	0.88	1.76	430	244	260	57	252		90	85	5.5
3		20	576.8	0.78	1.56	432	248	265	58	251		91	86	7.0
4		30	583.7	0.71	1.42	430	243	256	60	255		94	88	9.0
5		40	589.7	0.51	1.02	427	242	259	59	251		95	90	9.5
6	~~1200~~	50	595.1	0.48	0.96	422	240	260	60	253		97	92	10.0
B-1	1200/1205	60	600.379	0.86	1.72	435	240	255	62	255		94	92	14.0
2		70	607.1	0.79	1.58	430	245	258	63	250		93	91	15.5
3		80	613.6	0.61	1.22	426	248	261	62	253		92	90	16.0
4		90	619.6	0.59	1.18	424	246	256	62	254		92	89	16.0
5		100	625.3	0.51	1.12	421	241	255	61	261		90	88	17.0
6		110	630.9	0.48	0.96	418	245	252	62	259		90	89	17.0
	1305	120	636.180											
			✓	✓	✓	✓						✓	✓	

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	72.518	0.816	1.36	427.4	90.3

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Inlet	M29	M29-U1-In-3	4/17/12	Total Moisture Catch : 310

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	75	30.08	-1.9	17	10.9	8.6	7' - Glass	Q+2	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
8/30	2.032	0.999	7-4	0.84	✓	m-2-3	0.250	0.004	17.0	0.005	19.5	~~2.2~~ 2.1

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1345 ✓	0	636.601	0.84	1.77	437	241	260	56	252	NA	86	85	4.0
2		10	643.5	0.90	1.89	435	245	265	50	251		90	85	5.5
3		20	650.5	0.80	1.68	431	246	259	52	254		91	85	7.0
4		30	657.2	0.72	1.5	426	246	263	53	251		91	86	8.5
5		40	663.6	0.63	1.3	430	256	261	51	258		91	86	9.5
6		50	669.5	0.54	1.1	427	246	258	50	253		91	86	10.0
1	1445/1455	60	675.083	0.92	1.9	436	253	266	56	251		90	88	13.0
2		70	682.0	0.85	1.8	434	251	265	50	249		94	89	15.5
3		80	688.9	0.70	1.5	429	247	264	53	252		95	90	16.5
4		90	695.3	0.61	1.3	430	250	265	56	257		93	90	16.5
5		100	701.3	0.55	1.2	432	250	258	57	255		92	89	16.5
6		110	706.9	0.48	1.0	427	249	256	59	261		91	88	16.5
	1555 ✓	120	712.362											
			✓	✓	✓	✓						✓	✓	

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	75.761	0.839	1.495	431.2	89.25

TRC

9c

Unit 1 Outlet Metals

TEST	********	U1-M29-R1	U1-M29-R2	U1-M29-R3
LOCATION	********	Unit 1- OUT	Unit 1- OUT	Unit 1- OUT
FIRM	********	Dutchess	Dutchess	Dutchess
TIME	********	0810-1015	1100-1306	1345-1555
DATE	********	04/17/12	04/17/12	04/17/12
PROJECT NO.	********			
BAROMETRIC PRESSURE	in. Hg	30.08	30.08	30.08
STACK AREA	ft^2	12.57	12.57	12.57
NOZZLE DIAMETER	in.	0.218	0.218	0.218
SAMPLING TIME	min.	120	120	120
DRY GAS METER CAL FACTOR [Y]	********	1.014	1.014	1.014
PITOT COEFFICIENT	********	0.84	0.84	0.84
AVG. SQUARE DELTA P	in. H_2O	1.2303	1.2635	1.2479
AVG. DELTA H	in. H_2O	1.82	2.10	2.18
AVG. METER TEMP.	°F	70.79	82.38	86.13
STATIC PRESSURE	in. Hg	1.20	1.20	1.20
AVG. STACK TEMPERATURE	°F	356	350	351.1
SAMPLE VOLUME	ft^3	84.359	91.829	93.592
WATER COLLECTED	ml	294.0	350.0	395.0
CO 2	%	8.73	8.94	8.36
O 2	%	10.71	10.65	11.14
CO	%			
N 2	%	80.6	80.4	80.5
CADMIUM FH CATCH	ug	0.3	0.3	0.3
LEAD FH CATCH	ug	10.2	6.3	7.3
MERCURY FH CATCH	ug	0.02	0.02	0.03
MERCURY BH CATCH	ug	5.8	6.0	7.2
F-Factor	dscf/mmBtu			
SAMPLE VOLUME DRY	DSCF	85.93	91.60	92.74
SAMPLE VOLUME DRY	ACM	4.33	4.66	4.80
MOISTURE	%	13.9	15.2	16.7
MOLECULAR WEIGHT OF STACK GAS	lb/lb-mole	28.18	28.05	27.82
STACK VELOCITY	FPM	5193	5327	5286
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	65261	66942	66426
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	36668	37280	36319
ISOKINETIC RATIO	%	94.7	99.3	103.2
CADMIUM CONCENTRATION	mg/DSCF	3.61E-06	3.06E-06	2.70E-06
LEAD CONCENTRATION	mg/DSCF	1.19E-04	6.83E-05	7.84E-05
MERCURY CONCENTRATION	mg/DSCF	6.75E-05	6.57E-05	7.74E-05
CADMIUM CONCENTRATION	ug/acm	7.16E-02	6.01E-02	5.20E-02
LEAD CONCENTRATION	ug/acm	2.36E+00	1.34E+00	1.51E+00
MERCURY CONCENTRATION	ug/acm	1.34E+00	1.29E+00	1.50E+00
CADMIUM EMISSION RATE	lb/hour	1.75E-05	1.51E-05	1.29E-05
LEAD EMISSION RATE	lb/hour	5.76E-04	3.37E-04	3.77E-04
MERCURY EMISSION RATE	lb/hour	3.28E-04	3.24E-04	3.72E-04
PARTICULATE MATTER (Filter)	mg	6.1	8.2	6.7
PARTICULATE MATTER (Acetone Rinse)	mg	0.7	0.8	1.6
PARTICULATE MATTER	mg	6.8	9.0	8.3
PM CONCENTRATION	grains/dscf	0.0012	0.0015	0.0014
PM CONCENTRATION	grains/dscf @12%CO2	0.0017	0.0020	0.0020
PM CONCENTRATION	mg/dscm @7%O2	3.8	4.7	4.5
PM EMISSION RATE	pounds/hour	0.384	0.485	0.430

Method 29 Laboratory Data Summary
DUTCHESS COUNTY RESOURCE RECOVERY FACILITY

	U1 - M29 - R1		U1 - M29 - R2		U1 - M29 - R3		BLANK	
Sample Fraction	Front Half		Front Half		Front Half		Front Half	
M29 Container Number	1 and 2	BH Total	1 and 2	BH Total	1 and 2	BH Total	1 and 2	BH Total
CADMIUM	0.31		0.26		0.25			
LEAD	10.20		6.26		7.27			

Maxxam Analytics
6740 Campobello Road
Mississauga, Ontario, L5N 2L8
Phone (905) 817-5700 Fax (905) 817-5777

TRC Project No.: 192131-0000-0000
Date Sampled: 0
Date Analyzed: 0

	Mercury Catch (micrograms)					
Sample Fraction	Front Half	Back Half				
M29 Container Number	1 and 2	4	5a	5b	5c	BH Total
M29-U1-1 OUT	**0.021**	5.45			0.332	**5.782**
M29-U1-2 OUT	**0.023**	5.72			0.277	**5.997**
M29-U1-3 OUT	**0.028**	6.84			0.314	**7.154**

Blank 1				

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Outlet	M29	M29-U1-Out-R1	4/ 17 /12	Total Moisture Catch: 294

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD	48"	75	30.08	+1.2		10.7	8.73	7' glass	Quartz	357

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
M-2	1.978	1.014	7-3	0.84	✓	M-2-1	0.218	0.002	14	0.000	7"	1.2

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	810 ✓	0	616.553	1.7	2.0	359	253	254	65	N/A	N/A	69	68	3
2		10	623.9	1.7	2.0	359	255	256	54			69	68	3
3		20	631.1	1.6	1.9	362	256	255	61			72	68	3
4		30	638.4	1.6	1.9	361	257	253	58			71	68	3
5		40	644.9	1.4	1.7	353	255	256	57			73	69	3
6		50	652.7	1.3	1.6	350	249	251	56			70	69	3
1	910 / 915	60	659.0	1.5	1.8	354	259	256	61			70	69	3
2		70	665.9	1.3	1.6	352	252	255	57			71	70	3
3		80	672.5	1.4	1.7	353	258	257	57			72	71	3
4		90	679.4	1.6	1.9	355	257	258	59			74	72	3
5		100	686.6	1.5	1.8	356	256	257	60			75	72	3
6		110	693.8	1.6	1.9	359	257	258	61			76	73	3
	1015 ✓	120	700.912	—	—	—	—	—	—	—	—	—	—	—

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	84.359	1.23	1.817	356.1	70.8

JR ✓

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Outlet	M29	M29-U1-Out- 2	4/ 17 /12	Total Moisture Catch: 350

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD	48	75	30.08	+1.2		10.65	8.94	7' glass	Quartz	344

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
M-2	1.97	1.014	7-3	0.84	✓	M-21	0.218	0.000	10"			1.3/1.4

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	11:00	0	701.182	1.7	2.0	350	252	253	66	—	—	79	78	2
2		10	708.7	1.6	1.9	346	255	257	56	—	—	79	77	2
3		20	716.0	1.6	1.9	355	256	258	57	—	—	80	78	2
4		30	723.3	1.6	1.9	357	257	259	55	—	—	82	80	2
5		40	730.6	1.6	1.9	357	256	258	54	—	—	82	80	2
6		50	737.6	*1.7	2.4	360	257	256	53	—	—	85	82	2
1	12:00 ~~1306~~	60	745.8	1.7	2.4	360	258	251	53	—	—	85	83	2
2		70	754.2	1.8	2.5	363	256	252	54	—	—	85	83	3
3		80	762.5	1.5	2.1	325	258	253	58	—	—	87	86	3
4		90	770.2	1.7	2.4	334	255	253	61	—	—	86	85	3
5		100	778.6	1.5	2.1	344	255	258	63	—	—	85	83	3
6		110	786.3	1.2	1.7	352	254	253	58	—	—	84	83	3
	1306 ✓	120	793.011											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	91.829	1.263	2.1	350.25	82.4

*K Factor changed from 1.2 to 1.4

TRC

JC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Outlet	M29	M29-U1-Out-3	4/17/12	Total Moisture Catch: 395

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD	48	75	30.08	+1.2		11.14	8.34	7' glass	Quartz	

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
M-2	1.978	1.014	7-3	0.84	✓	M-2-1	0.218	0.000	9"	0.000	7"	1.64

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	13:45	0	793.308	1.5	2.1	369	252	258	61	—	—	85	84	3
2		10	801.1	1.7	2.4	351	255	256	54	—	—	87	85	3
3		20	809.2	1.5	2.1	315	256	257	58	—	—	89	86	3
4		30	817.1	1.7	2.4	335	255	257	61	—	—	89	86	3
5		40	824.9	1.7	2.4	350	254	253	63	—	—	87	85	3
6		50	833.3	1.5	2.1	357	255	256	62	—	—	87	86	3
1	~~14:45~~ 14:55	60	840.9	1.5	2.1	362	251	253	56	—	—	87	85	3
2		70	848.7	1.5	2.1	362	251	254	56	—	—	87	85	3
3		80	855.9	1.5	2.1	368	253	252	56	—	—	87	85	3
4		90	863.6	1.5	2.1	368	251	253	56	—	—	87	84	3
5		100	871.2	1.6	2.2	353	253	252	57	—	—	86	85	3
6		110	879.1	1.5	2.1	323	252	255	60	—	—	88	85	3
end	15:55	120	886.900	—	—	—	—	—	—	—	—	—	—	—
			✓	✓	✓	✓						✓	✓	

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	93.592	1.248	2.183	351.08	86.1

TRC

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M26
Sample ID	U1-Pre-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3					
Reagent	.1N H_2SO_4		MT					
Vol. Added (ml)								
Final Vol. (g)	~~987~~ 817	760	674					
Initial Vol. (g)	760	717	657					
Net Collected (g)								

Silica Gel Imp. No.	4		
Final Vol. (g)	987		
Initial Vol. (g)	967		
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

Train Type	M26a
Sample ID	U1-IN-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3		Train			
Reagent	.1N H_2SO_4		MT					
Vol. Added (ml)								
Final Vol. (g)	759	772	672			3749		
Initial Vol. (g)	756	764	666		~~3560~~	3548		
Net Collected (g)						201		

Silica Gel Imp. No.	4		
Final Vol. (g)	876		
Initial Vol. (g)	864		
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

201 ✓

Train Type	M29
Sample ID	U1-IN-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6	~~7~~	~~8~~
Reagent								
Vol. Added (ml)								
Final Vol. (g)	688	805	824	687	726	777		
Initial Vol. (g)	598	707	782	667	~~687~~ 718	776		
Net Collected (g)	90	98	42	20	8	1		

Silica Gel Imp. No.	~~8~~ 7		
Final Vol. (g)	980		
Initial Vol. (g)	959		
Net Collected (g)	21		

TOTAL MOISTURE (Impingers and Silica gel) (g)

280 ✓ ge

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M29
Sample ID	U1 - OUT - 1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent								
Vol. Added (ml)								
Final Vol. (g)	816	788	802	668	776	780		
Initial Vol. (g)	589	763	783	666	774	780		
Net Collected (g)	227	25	19	2	2	0		

Silica Gel Imp. No.	7		
Final Vol. (g)	889		
Initial Vol. (g)	870		
Net Collected (g)	19		

TOTAL MOISTURE (Impingers and Silica gel) (g)

294 ✓ JC

Train Type	M29
Sample ID	U1 - IN - 2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent								
Vol. Added (ml)								
Final Vol. (g)	693	786	759	688	779	790		
Initial Vol. (g)	608	689	705	665	767	786		
Net Collected (g)	84	97	54	23	2	4		

Silica Gel Imp. No.	7		
Final Vol. (g)	948		
Initial Vol. (g)	923		
Net Collected (g)	25		

TOTAL MOISTURE (Impingers and Silica gel) (g)

289 ✓ JC

Train Type	M26
Sample ID	U1 - Out - 1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3					
Reagent			MT					
Vol. Added (ml)								
Final Vol. (g)	915	729	667					
Initial Vol. (g)	769	705	664					
Net Collected (g)	146	24	3					

Silica Gel Imp. No.	4		
Final Vol. (g)	995		
Initial Vol. (g)	987		
Net Collected (g)	8		

TOTAL MOISTURE (Impingers and Silica gel) (g)

181 ✓ JC

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M29
Sample ID	U1-OUT-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent								
Vol. Added (ml)								
Final Vol. (g)	934	754	775	668	766	734		
Initial Vol. (g)	665	714	760	664	766	733		
Net Collected (g)	269	40	15	4	0	1		

Silica Gel Imp. No.	7		
Final Vol. (g)	934		
Initial Vol. (g)	913		
Net Collected (g)	21		

TOTAL MOISTURE (Impingers and Silica gel) (g): 350 ✓ JC

Train Type	M26
Sample ID	U1-IN-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3		Train			
Reagent								
Vol. Added (ml)								
Final Vol. (g)						3734		
Initial Vol. (g)	~~778~~	~~777~~	670		~~3548~~	3560		
Net Collected (g)						174		

Silica Gel Imp. No.	4		
Final Vol. (g)			
Initial Vol. (g)	~~872~~		
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 174 ✓

Train Type	M26
Sample ID	U1-Out-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3805							
Initial Vol. (g)	3616							
Net Collected (g)	189							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 189 ✓

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M26
Sample ID	G1-IN-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train		Train					
Reagent								
Vol. Added (ml)								
Final Vol. (g)			3735					
Initial Vol. (g)	3560		3573					
Net Collected (g)			162					

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 162 ✓

Train Type	M26
Sample ID	G1-OUT-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3732							
Initial Vol. (g)	3543							
Net Collected (g)	189							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 189 ✓

Train Type	M29
Sample ID	G1-Out-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent	MT							
Vol. Added (ml)								
Final Vol. (g)	888	828	795	665	776	783		
Initial Vol. (g)	593	763	787	664	774	782		
Net Collected (g)	295	65	08	1	2	1		

Silica Gel Imp. No.	7		
Final Vol. (g)	958		
Initial Vol. (g)	935		
Net Collected (g)	23		

TOTAL MOISTURE (Impingers and Silica gel) (g): 395 ✓

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M29
Sample ID	41-IN-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	808	768	796	675	722	778		
Initial Vol. (g)	599	707	783	671	721	778		
Net Collected (g)	209	61	13	4	1	0		

Silica Gel Imp. No.	7		
Final Vol. (g)	932		
Initial Vol. (g)	910		
Net Collected (g)	22		

TOTAL MOISTURE (Impingers and Silica gel) (g)

310 ✓

Train Type	
Sample ID	

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.								
Reagent								
Vol. Added (ml)								
Final Vol. (g)								
Initial Vol. (g)								
Net Collected (g)								

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

Train Type	
Sample ID	

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.								
Reagent								
Vol. Added (ml)								
Final Vol. (g)								
Initial Vol. (g)								
Net Collected (g)								

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

Appendix B-2

Unit 2

Unit 2 Inlet Metals

TEST	********	U2-M29-R1	U2-M29-R2	U2-M29-R3
LOCATION	********	Unit 2- IN	Unit 2- IN	Unit 2- IN
FIRM	********	Dutchess	Dutchess	Dutchess
TIME	********	0800-1008	1040-1250	1315-1520
DATE	********	04/18/12	04/18/12	04/18/12
PROJECT NO.	********			
BAROMETRIC PRESSURE	in. Hg	30.22	30.22	30.22
STACK AREA	ft^2	17.10	17.10	17.10
NOZZLE DIAMETER	in.	0.250	0.250	0.250
SAMPLING TIME	min.	120	120	120
DRY GAS METER CAL FACTOR [Y]	********	0.999	0.999	0.999
PITOT COEFFICIENT	********	0.84	0.84	0.84
AVG. SQUARE DELTA P	in. H_2O	0.7753	0.8089	0.8138
AVG. DELTA H	in. H_2O	1.33	1.44	1.46
AVG. METER TEMP.	°F	57.04	63.83	69.21
STATIC PRESSURE	in. Hg	-4.80	-4.80	-4.80
AVG. STACK TEMPERATURE	°F	411	417	418.7
SAMPLE VOLUME	ft^3	68.540	71.077	71.867
WATER COLLECTED	ml	287.0	315.0	359.0
CO 2	%	10.10	10.01	10.70
O 2	%	9.45	9.88	9.05
CO	%			
N 2	%	80.5	80.1	80.3
MERCURY FH CATCH	ug	296	133	463
MERCURY BH CATCH	ug	68.852	22.612	63.545
F-Factor	dscf/mmBtu			
SAMPLE VOLUME DRY	DSCF	70.85	72.54	72.61
SAMPLE VOLUME DRY	ACM	3.95	4.12	4.23
MOISTURE	%	16.0	17.0	18.9
MOLECULAR WEIGHT OF STACK GAS	lb/lb-mole	28.07	27.96	27.79
STACK VELOCITY	FPM	3404	3572	3607
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	58229	61091	61701
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	29599	30487	30024
ISOKINETIC RATIO	%	100.1	99.6	101.2
MERCURY CONCENTRATION	mg/DSCF	5.15E-03	2.15E-03	7.25E-03
MERCURY CONCENTRATION	ug/acm	9.24E+01	3.78E+01	1.25E+02
MERCURY EMISSION RATE	lb/hour	2.02E-02	8.65E-03	2.88E-02

Maxxam Analytics
6740 Campobello Road
Mississauga, Ontario, L5N 2L8
Phone (905) 817-5700 Fax (905) 817-5777

TRC Project No.: 192131-00000-00000
Date Sampled:
Date Analyzed:

	Mercury Catch (micrograms)					
Sample Fraction M29 Container Number	Front Half 1 and 2	Back Half 4	5a	5b	5c	BH Total
M29-U2-1 IN	**296**	65.2	0.0820	0.03	3.54	**68.852**
M29-U2-2 IN	**133**	10.9	0.2220	0.090	11.40	**22.612**
M29-U2-3 IN	**463**	45.9	0.3650	0.08	17.200	**63.545**

Blank 1				

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Inlet	M29	M29-U2-In- 1	4/ 18 /12	Total Moisture Catch: 287

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	CO2 (%)	O2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	60	30.22	-4.8	15	10.10	9.45	7' glass	Qtz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
3130	2.032	0.999	7-4	0.84	✓	M2-3	0.250	0.000	16.5	0.002	19.0	2.2

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	0800	0	712.690	0.65	1.43	408	246	245	42	245	NA	45	44	3.0
2		10	718.5	0.70	1.54	413	251	251	43	244		49	45	5.0
3		20	724.3	0.66	1.45	411	251	250	45	248		55	48	6.0
4		30	730.3	0.62	1.36	410	250	248	46	242		57	50	7.0
5		40	736.1	0.54	1.18	408	247	253	47	243		60	53	8.5
6		50	741.6	0.51	1.12	409	251	251	48	244		62	54	9.0
1	0900/0905	60	746.998	0.72	1.58	411	250	255	49	244		61	58	11.0
2		70	753.0	0.63	1.39	413	251	251	50	255		65	59	13.0
3		80	759.0	0.60	1.32	412	250	251	53	260		66	61	14.5
4		90	764.7	0.61	1.34	410	250	255	56	259		65	61	15.5
5		100	770.3	0.52	1.14	413	248	250	55	251		65	61	16.0
6		110	775.7	0.48	1.06	412	251	249	56	252		64	61	17.0
	1008	120	781.230											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	68.540	.775	1.326	410.8	57.0

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Inlet	M29	M29-U2-In-2	4/18/12	Total Moisture Catch: 315

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	60	30.22	-4.8		9.88	10.01	7'-glass	Qtz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
8130	2.032	0.999	7-4	0.84	✓	m-2-3	0.250	0.003	18.0	0.004	22.0	2.2

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1040 ✓	0	781.555	0.70	1.54	409	248	249	50	247	NA	58	57	3.0
2		10	787.8	0.74	1.63	416	248	249	51	245		60	57	5.0
3		20	794.0	0.65	1.43	415	248	253	52	244		63	58	7.0
4		30	799.8	0.62	1.36	417	248	252	52	248		66	60	9.0
5		40	805.6	0.57	1.25	418	250	254	54	251		67	62	10.0
6		50	811.173	0.52	1.14	417	249	250	54	250		68	63	11.5
1		60	816.7	0.71	1.56	422	248	253	54	249		67	63	14.0
2		70	822.8	0.69	1.52	412	251	249	57	256		68	63	15.5
3		80	828.8	0.64	1.41	418	253	255	59	251		69	64	16.5
4		90	834.7	0.70	1.54	415	252	256	54	258		68	64	18.0
5		100	840.7	0.65	1.43	420	252	254	56	260		69	64	20.0
6		110	846.7	0.68	1.50	424	252	254	57	252		69	65	21.5
	1250 ✓	120	852.632											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	71.077	0.809	1.443	416.9	63.8

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Inlet	M29	M29-U2-In-3	4/18/12	Total MoistureC atch: 230

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	CO2 (%)	O2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	50	61	30.22	-4.8	15	10.7	9.05	7' - glass	Qtz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
8130	2.032	0.999	7-4	0.84	✓	M-2-3	0.250	0.001	21.0	0.002	17.0	2.2

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1315	0	853.083	0.77	1.69	415	253	254	51	246	NA	61	61	3.5
2		10	859.4	0.70	1.54	416	252	247	50	245		63	61	4.5
3		20	865.3	0.65	1.43	422	253	254	50	244		68	62	5.5
4		30	871.0	0.64	1.41	413	252	253	50	248		69	63	6.5
5		40	876.7	0.64	1.41	416	252	252	51	252		71	64	8.0
6		50	882.5	0.57	1.25	422	252	253	48	241		73	66	9.0
1		60	888.2	0.73	1.61	421	253	256	48	246		74	67	11.5
2		70	894.5	0.71	1.56	424	254	254	51	242		76	69	13.0
3		80	900.7	0.66	1.45	418	255	257	51	243		77	70	14.0
4		90	906.9	0.67	1.47	423	256	259	52	248		77	71	15.0
5		100	913.2	0.62	1.36	417	255	256	55	240		77	72	16.0
6		110	919.2	0.60	1.32	417	255	258	55	242		77	72	16.5
	1520	120	924.950											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	71.867	0.814	1.458	418.7	69.2

TRC

Unit 2 Outlet Metals

TEST	********	U2-M29-R1	U2-M29-R2	U2-M29-R3
LOCATION	********	Unit 2- OUT	Unit 2- OUT	Unit 2- OUT
FIRM	********	Dutchess	Dutchess	Dutchess
TIME	********	0800-1005	1040-1244	1315-1518
DATE	********	04/18/12	04/18/12	04/18/12
PROJECT NO.	********			
BAROMETRIC PRESSURE	in. Hg	30.22	30.22	30.22
STACK AREA	ft^2	12.57	12.57	12.57
NOZZLE DIAMETER	in.	0.218	0.218	0.218
SAMPLING TIME	min.	120	120	120
DRY GAS METER CAL FACTOR [Y]	********	0.947	0.947	0.947
PITOT COEFFICIENT	********	0.84	0.84	0.84
AVG. SQUARE DELTA P	in. H_2O	1.1324	1.1864	1.1722
AVG. DELTA H	in. H_2O	1.68	1.83	1.79
AVG. METER TEMP.	°F	60.54	70.04	69.00
STATIC PRESSURE	in. Hg	0.70	0.70	0.70
AVG. STACK TEMPERATURE	°F	315	315	315.7
SAMPLE VOLUME	ft^3	89.067	92.688	92.386
WATER COLLECTED	ml	354.0	390.0	382.0
CO 2	%	9.02	9.33	9.50
O 2	%	10.65	10.75	10.41
CO	%			
N 2	%	80.3	79.9	80.1
CADMIUM FH CATCH	ug	0.4	0.5	0.2
LEAD FH CATCH	ug	7.3	12.8	7.0
MERCURY FH CATCH	ug	0.17	0.05	0.11
CADMIUM BH CATCH	ug	0.0	0.0	0.0
LEAD BH CATCH	ug	0.0	0.0	0.0
MERCURY BH CATCH	ug	108.0	68.1	59.9
F-Factor	dscf/mmBtu			
SAMPLE VOLUME DRY	DSCF	86.77	88.71	88.58
SAMPLE VOLUME DRY	ACM	4.25	4.40	4.38
MOISTURE	%	16.1	17.1	16.9
MOLECULAR WEIGHT OF STACK GAS	lb/lb-mole	27.96	27.88	27.92
STACK VELOCITY	FPM	4668	4899	4838
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	58663	61566	60800
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	33936	35153	34808
ISOKINETIC RATIO	%	103.4	102.0	102.9
CADMIUM CONCENTRATION	mg/DSCF	4.73E-06	5.30E-06	2.48E-06
LEAD CONCENTRATION	mg/DSCF	8.40E-05	1.44E-04	7.91E-05
MERCURY CONCENTRATION	mg/DSCF	1.25E-03	7.69E-04	6.77E-04
CADMIUM CONCENTRATION	ug/acm	9.65E-02	1.07E-01	5.02E-02
LEAD CONCENTRATION	ug/acm	1.72E+00	2.91E+00	1.60E+00
MERCURY CONCENTRATION	ug/acm	2.55E+01	1.55E+01	1.37E+01
CADMIUM EMISSION RATE	lb/hour	2.12E-05	2.46E-05	1.14E-05
LEAD EMISSION RATE	lb/hour	3.77E-04	6.71E-04	3.64E-04
MERCURY EMISSION RATE	lb/hour	5.59E-03	3.57E-03	3.12E-03
PARTICULATE MATTER (filter)	mg	5.3	2.3	2.2
PARTICULATE MATTER (acetone rinse)	mg	1.6	0.5	0.9
PARTICULATE MATTER	mg	6.9	2.8	3.1
PM CONCENTRATION	grains/dscf	0.0012	0.0005	0.0005
PM CONCENTRATION	grains/dscf @12%CO2	0.0016	0.0006	0.0007
PM CONCENTRATION	mg/dscm @7%O2	3.8	1.5	1.6
PM EMISSION RATE	pounds/hour	0.357	0.147	0.161

Method 29 Laboratory Data Summary
DUTCHESS COUNTY RESOURCE RECOVERY FACILITY

	U2 - M29 - R1		U2 - M29 - R2		U2 - M29 - R3		BLANK	
Sample Fraction	Front Half		Front Half		Front Half		Front Half	
M29 Container Number	1 and 2	BH Total	1 and 2	BH Total	1 and 2	BH Total	1 and 2	BH Total
CADMIUM	0.41		0.47		0.22			
LEAD	7.29		12.80		7.01			

Maxxam Analytics
6740 Campobello Road
Mississauga, Ontario, L5N 2L8
Phone (905) 817-5700 Fax (905) 817-5777

TRC Project No.: 192131-00000-00000
Date Sampled: 0
Date Analyzed: 0

	Mercury Catch (micrograms)					
Sample Fraction	Front Half	Back Half				
M29 Container Number	1 and 2	4	5a	5b	5c	BH Total
M29-U2-1 OUT	**0.172**	106	0.172	0.03	1.750	**107.952**
M29-U2-2 OUT	**0.051**	66.4	0.08	0.037	1.620	**68.14**
M29-U2-3 OUT	**0.108**	58.2		0.02	1.660	**59.88**

Blank 1				

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Outlet	M29	M29-U2-Out-1	4/18/12	Total Moisture Catch: 354

Operators		Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type		Filter Type	Filter Number
RL/WD		48	60	30.22	+0.7	16	10.65	9.02	7' glass		Quartz	360
DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	0.84	✓	M-2-1	0.218	0.002	12	0.001	12	1.3

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	8:00	0	412.238	1.3	1.7	315	250	249	51	—	—	52	51	2
2		10	419.6	1.2	1.6	314	250	250	47	—	—	54	52	2
3		20	426.9	1.2	1.6	316	252	250	44	—	—	58	54	2
4		30	433.4	1.2	1.6	312	251	255	47	—	—	61	55	2
5		40	441.2	1.3	1.7	315	253	252	49	—	—	63	57	2
6		50	448.9	1.3	1.7	313	251	253	51	—	—	65	58	3
1	~~9:00~~ 905	60	456.6	1.3	1.7	316	252	253	49	—	—	65	60	3
2		70	463.4	1.3	1.7	315	251	256	48	—	—	66	61	3
3		80	470.9	1.3	1.7	315	252	255	49	—	—	67	61	3
4		90	478.7	1.4	1.8	315	253	257	50	—	—	68	62	3
5		100	486.4	1.4	1.8	316	256	255	46	—	—	68	63	3
6		110	494.0	1.2	1.6	314	252	256	46	—	—	69	63	3
end	1005	120	501.305	—	—	—	—	—	—	—	—	—	—	—

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	89.067	1.132	1.683	314.7	60.54

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Outlet	M29	M29-U2-Out-2	4/ 18 /12	Total Moisture Catch: 390

Operators		Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type		Filter Type	Filter Number
RC/WD		48	65	30.22	+0.7	17	10.75	9.33	7' glass		Quartz	
DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	0.84	✓	m.2.1	0.218	0.002	12	0.001	7"	1.3

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1040	0	501.902	1.3	1.7	312	254	256	51	–	–	64	63	3
2		10	509.3	1.4	1.8	316	252	255	44	–	–	69	64	3
3		20	516.7	1.5	2.0	318	253	256	46	–	–	71	65	3
4		30	524.7	1.4	1.8	315	255	256	46	–	–	72	66	3
5		40	532.7	1.4	1.8	313	253	255	47	–	–	74	67	3
6		50	540.5	1.4	1.8	314	252	254	49	–	–	75	68	3
1	~~11:44~~ 1140	60	548.1	1.3	1.7	315	250	257	50	–	–	75	69	3
2		70	555.5	1.4	1.8	316	251	253	51	–	–	74	70	4
3		80	563.1	1.5	2.0	315	251	252	54	–	–	74	69	4
4		90	571.1	1.4	1.8	315	250	255	55	–	–	75	70	4
5		100	578.9	1.4	1.8	316	251	253	53	–	–	72	71	4
6		110	586.6	1.5	2.0	317	252	255	53	–	–	74	70	4
end	12:44	120	594.590	–	–	–	–	–	–	–	–	–	–	–

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	92.688	1.186	1.833	315.2	70.0

1.186

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Outlet	M29	M29-U2-Out-3	4/18/12	Total Moisture Catch: 382

Operators		Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type		Filter Type	Filter Number
RC/WD		48	60	30.22	+0.7	17	10.41	9.5	7' Glass		Quartz	361

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	0.84	✓	M-2-1	0.218	0.001	10	0.001	10	1.3

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1315	0	595.748	1.3	1.7	316	253	254	60	—	—	66	66	2
2		10	602.5	1.3	1.7	315	252	253	55	—	—	69	67	2
3		20	611.0	1.3	1.7	315	253	253	54	—	—	72	67	2
4		30	617.9	1.4	1.8	314	252	251	49	—	—	72	68	2
5		40	626.2	1.4	1.8	316	253	252	47	—	—	72	68	2
6	1410	50	634.0	1.5	2.0	318	255	253	48	—	—	71	67	2
1	1415	60	641.9	1.5	2.0	318	256	253	49	—	—	72	67	2
2		70	650.3	1.3	1.7	314	255	253	51	—	—	72	67	3
3		80	657.8	1.4	1.8	316	256	254	52	—	—	71	66	3
4		90	665.4	1.3	1.7	315	256	254	57	—	—	72	67	3
5		100	672.9	1.4	1.8	316	255	253	60	—	—	71	67	3
6		110	680.5	1.4	1.8	315	255	254	62	—	—	71	68	3
end	1518	120	688.134	—	—	—	—	—	—	—	—	—	—	—

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
120	92.386	1.172	1.792	315.7	69.0

TRC

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type: M29
Sample ID: U2-OUT-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	886	800	785	671	771	753		
Initial Vol. (g)	667	711	771	667	767	752		
Net Collected (g)	219	99	14	4	4	1		

Silica Gel Imp. No.	7		
Final Vol. (g)	947		
Initial Vol. (g)	934		
Net Collected (g)	13		

TOTAL MOISTURE (Impingers and Silica gel) (g): 354 ✓

Train Type: M29
Sample ID: U2-IN-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	790	766	714	670	775	762		
Initial Vol. (g)	610	698	702	667	771	761		
Net Collected (g)	180	68	12	3	4	1		

Silica Gel Imp. No.	7		
Final Vol. (g)	967		
Initial Vol. (g)	948		
Net Collected (g)	19		

TOTAL MOISTURE (Impingers and Silica gel) (g): 287 ✓

Train Type: M26
Sample ID: U2-IN-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3781							
Initial Vol. (g)	3613							
Net Collected (g)	168							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 168 ✓

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

M26
U2-Pre-1 Train 3742-3620 = 122 ✓

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M26
Sample ID	U2-IN-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3701							
Initial Vol. (g)	3528							
Net Collected (g)	173							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

173 ✓

Train Type	M26
Sample ID	U2-Out-1

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	TRAIN							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3,736							
Initial Vol. (g)	3553							
Net Collected (g)	148							

Silica Gel Imp. No			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

148 ✓

Train Type	M 26
Sample ID	U2-Out-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3675							
Initial Vol. (g)	3488							
Net Collected (g)	187							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g)

187 ✓

NA = Not Applicable

Checked By _____ (Project Manager or QA Manager - sign and date)

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type: M29
Sample ID: U2-OUT-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	882	832	809	667	779	782		
Initial Vol. (g)	593	769	790	665	777	782		
Net Collected (g)	289	63	19	2	2	0		

Silica Gel Imp. No.	7		
Final Vol. (g)	973		
Initial Vol. (g)	958		
Net Collected (g)	15		

TOTAL MOISTURE (Impingers and Silica gel) (g): 390 ✓

Train Type: M29
Sample ID: U2-IN-2

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	823	764	800	670	724	780		
Initial Vol. (g)	599	712	789	668	723	780		
Net Collected (g)	224	52	11	2	1	0		

Silica Gel Imp. No.	7		
Final Vol. (g)	921		
Initial Vol. (g)	896		
Net Collected (g)	25		

TOTAL MOISTURE (Impingers and Silica gel) (g): 315 ✓

Train Type: M26
Sample ID: U2-OUT-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3751							
Initial Vol. (g)	3577							
Net Collected (g)	174							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 174 ✓

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

SAMPLING TRAIN SET UP AND RECOVERY

Page of

		Set Up	Recovery
Project No.	Date		
Client	Set-up/Recovery Person		
Facility	Run No.		
Source	Condition		

Train Type	M26
Sample ID	U2-IN-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

Impinger No.	Train							
Reagent								
Vol. Added (ml)								
Final Vol. (g)	3735							
Initial Vol. (g)	3505							
Net Collected (g)	230							

Silica Gel Imp. No.			
Final Vol. (g)			
Initial Vol. (g)			
Net Collected (g)			

TOTAL MOISTURE (Impingers and Silica gel) (g): 230 ✓

Train Type	M29
Sample ID	U2-OUT-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

	1	2	3	4	5	6		
Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	943	800	788	668	774	734		
Initial Vol. (g)	666	720	776	667	772	733		
Net Collected (g)	277	80	2	1	2	1		

Silica Gel Imp. No.	7		
Final Vol. (g)	902		
Initial Vol. (g)	883		
Net Collected (g)	19		

TOTAL MOISTURE (Impingers and Silica gel) (g): 382 ✓

Train Type	M29
Sample ID	U2-IN-3

FRONT HALF

Filter No.			
Thimble No. (NA, unless noted)			

IMPINGERS

	1	2	3	4	5	6		
Impinger No.	1	2	3	4	5	6		
Reagent	MT			MT				
Vol. Added (ml)								
Final Vol. (g)	829	792	733	670	764	790		
Initial Vol. (g)	610	688	722	668	763	789		
Net Collected (g)	219	104	11	2	1	1		

Silica Gel Imp. No.	7		
Final Vol. (g)	917		
Initial Vol. (g)	896		
Net Collected (g)	21		

TOTAL MOISTURE (Impingers and Silica gel) (g): 359 ✓

NA = Not Applicable

Checked By: _____ (Project Manager or QA Manager - sign and date)

Appendix C

Oxygen and Carbon Dioxide Data

Project No. _____
Book No. _____ TITLE Covanta Hudson

m Page No. ____

Tedlar Bag Analyses for O_2/CO_2
with Method 3A Analyzers

Cylinder #		CO_2 %	O_2 %
XC011300B		17.72	22.01
XC012170B		9.989	9.907
4/17	Hi	17.71	22.04
	Mid	10.01	10.02

Inlet Data

4/17	M29-Unit1-1	9.4	10.4
	M29-Unit1-2	9.4	10.5
	M29-Unit1-3	8.6	10.9
4/18	Unit2-1	9.45	10.10
	Unit2-2	10.01	9.88
	Unit2-3	~~9.5~~ 9.05	~~10.41~~ 10.7

Je

Outlet Data

4/17	Unit1-1	8.73	10.71
	Unit-2	8.94	10.65
	Unit-3	8.36	11.14
4/18	Unit2-1	9.02	10.65
	Unit2-2	9.33	10.75
	Unit2-3	9.50	10.41

To Page No. ____

nessed & Understood by me, | Date 4-17-12 | Invented by: | Date

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE 4-26-12

BY KIRK LARSO

CHK'D _____

SUBJECT Covanta Hudson

O_2 / CO_2 Bags

Bag #	O_2 (%)	CO_2 (%)
1	10.3	9.3
2	10.1	9.4
3	11.0	8.9

A

Appendix D

EPA Method 23 Data

Unit 2 - OUTLET (PCDD/PCDF) Runs 1, 2 and 3

**********	**********	**********	**********	**********
TEST	********	1	2	3
LOCATION	********	U2-M23-R1	U2-M23-R2	U2-M23-R3
FIRM	********	Dutchess	Dutchess	Dutchess
TIME	********	1015 - 1419	1503 - 1906	0815 - 1217
DATE	********	04/25/12	04/25/12	04/26/12
PROJECT NO.	********	192131	192131	192131
BAROMETRIC PRESSURE	in. Hg	29.93	29.93	29.95
STACK AREA	ft2	12.57	12.57	12.57
NOZZLE DIAMETER	in.	0.218	0.218	0.218
SAMPLING TIME	min.	240	240	240
DRY GAS METER CAL FACTOR [Y]	********	0.947	0.947	0.947
PITOT COEFFICIENT	********	0.84	0.84	0.84
AVG. SQUARE DELTA P	in. H2O	0.9978	1.0983	1.0710
AVG. DELTA H	in. H2O	1.41	1.69	1.61
AVG. METER TEMP.	oF	77.6	86	75
STATIC PRESSURE	in. H2O	0.53	0.55	0.60
AVG. STACK TEMPERATURE	oF	316.9	319.7	315.5
SAMPLE VOLUME	ft3	163.043	177.244	169.772
WATER COLLECTED	ml	682.0	741.0	732.0
CO 2	%	9.30	9.40	8.90
O 2	%	10.30	10.10	11.00
	ppm			
N 2	%	80.4	80.5	80.1
TOTAL CATCH	mg			
SAMPLE VOLUME DRY	DSCF	152.232	163.095	159.600
SAMPLE VOLUME WET	ACM	7.669	8.265	8.052
MOISTURE	%	17.4	17.6	17.8
MOLECULAR WEIGHT OF STACK GA	lb/lb-mole	27.83	27.81	27.76
STACK VELOCITY	FPM	4150	4577	4454
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	52146	57516	55968
VOLUMETRIC FLOWRATE, DRY STD	DSCFM	29315	32142	31416
ISOKINETIC RATIO	%	104.96	102.6	102.7
VOLUMETRIC FLOWRATE, STD.	SCFM	35497	39016	38198
2378-TCDD		7.66	9.54	7.2
12378-PeCDD		28.3	26.9	25.1
123478-HxCDD		25.1	23	24.5
123678-HxCDD		50.3	50.3	49.1
123789-HxCDD		33.7	34.7	29.5
1234678-HpCDD		298	307	289.0
TOTAL OCDD		366	377	346.0
2378-TCDF		183	337	425
12378-PeCDF		83.5	104	110
23478-PeCDF		115	119	121
123478-HxCDF		81.5	93.8	79
123678-HxCDF		92.7	95	91.4
234678-HxCDF		96.4	105	96.7
123789-HxCDF		2.02	1.82	1.97
1234678-HpCDF		192	223	190
1234789-HpCDF		22	25.8	20
TOTAL OCDF		72.7	70.5	65
Total TCDD		579	606	555
Total PeCDD		832	802	767
Total HxCDD		1320	1340	1180
Total HpCDD		620	630	586
Total TCDF		2370	2980	3190
Total PeCDF		1590	1620	1560
Total HxCDF		829	911	789
Total HpCDF		297	347	294

Table U2 - 1

Summary of Dioxan/Furan (NY TEFs ng/dscm) Test Results

Dutchess County Resource Recovery Facility

Test No.	1	2	3
Time	1015 - 1419	1503 - 1906	0815 - 1217
Date	4/25/2012	4/25/2012	4/26/2012
Sample Volume (acf)	163.043	177.244	169.772
Sample Volume (dscm)	4.31	4.62	4.52
Volumetric Flowrate, (dscfm)	29315	32142	31416
Carbon Dioxide	9.30	9.40	8.90
Oxygen (%)	10.30	10.10	11.00

		1 pg	1 ng/dscm	1 NY TEF	1 g/dscm NY TEF	2 pg	2 ng/dscm	2 NY TEF	2 g/dscm NY TEF	3 pg	3 ng/dscm	3 NY TEF	3 g/dscm NY TEF
2378	TCDD	8	0.002	1	1.78E-03	10	0.002	1	2.07E-03	7	0.002	1	1.60E-03
OTHER	TCDD	571	0.133	0.01	1.33E-03	596	0.129	0.01	1.29E-03	548	0.121	0.01	1.21E-03
12378	PeCDD	28	0.007	1.0	6.56E-03	27	0.006	1.0	5.82E-03	25	0.006	1.0	5.55E-03
OTHER	PeCDD	804	0.186	0.010	1.86E-03	775	0.168	0.010	1.68E-03	742	0.164	0.010	1.64E-03
123478	HxCDD	25	0.006	0.03	1.75E-04	23	0.005	0.03	1.49E-04	25	0.005	0.03	1.63E-04
123678	HxCDD	50	0.012	0.03	3.50E-04	50	0.011	0.03	3.27E-04	49	0.011	0.03	3.26E-04
123789	HxCDD	34	0.008	0.03	2.35E-04	35	0.008	0.03	2.25E-04	30	0.007	0.03	1.96E-04
OTHER	HxCDD	1211	0.281	0.0003	8.43E-05	1232	0.267	0.0003	8.00E-05	1077	0.238	0.0003	7.15E-05
1234678	HpCDD	298	0.069	0.001	6.91E-05	307	0.066	0.001	6.65E-05	289	0.064	0.001	6.39E-05
OTHER	HpCDD	322	0.075	0.00001	7.47E-07	323	0.070	0.00001	6.99E-07	297	0.066	0.00001	6.57E-07
TOTAL	OCDD	366	0.085	0	0.00E+00	377	0.082	0	0.00E+00	346	0.077	0	0.00E+00
				Total CDD	0.012			Total CDD	0.012			Total CDD	0.011
				ng/dscm NY TEF @ 12% CO2	0.016			ng/dscm NY TEF @ 12% CO2	0.015			ng/dscm NY TEF @ 12% CO2	0.015
				ng/dscm NY TEF @ 7% O2	0.016			ng/dscm NY TEF @ 7% O2	0.015			ng/dscm NY TEF @ 7% O2	0.015
				lb/hour	1.37E-09			lb/hour	1.41E-09			lb/hour	1.27E-09
2378	TCDF	183	0.042	0.3	1.40E-02	337	0.073	0.3	2.41E-02	425	0.094	0.3	3.10E-02
OTHER	TCDF	2187	0.507	0.003	1.52E-03	2643	0.572	0.003	1.72E-03	2765	0.612	0.003	1.84E-03
12378	PeCDF	84	0.019	0.3	6.39E-03	104	0.023	0.3	7.43E-03	110	0.024	0.3	8.03E-03
23478	PeCDF	115	0.027	0.3	8.80E-03	119	0.026	0.3	8.50E-03	121	0.027	0.3	8.83E-03
OTHER	PeCDF	1392	0.323	0.003	9.68E-04	1397	0.302	0.003	9.07E-04	1329	0.294	0.003	8.82E-04
123478	HxCDF	82	0.019	0.01	1.89E-04	94	0.020	0.01	2.03E-04	79	0.017	0.01	1.75E-04
123678	HxCDF	93	0.022	0.01	2.15E-04	95	0.021	0.01	2.06E-04	91	0.020	0.01	2.02E-04
234678	HxCDF	96	0.022	0.01	2.24E-04	105	0.023	0.01	2.27E-04	97	0.021	0.01	2.14E-04
123789	HxCDF	2	0.000	0.01	4.69E-06	2	0.000	0.01	3.94E-06	2	0.000	0.01	4.36E-06
OTHER	HxCDF	556	0.129	0.0001	1.29E-05	615	0.133	0.0001	1.33E-05	520	0.115	0.0001	1.15E-05
1234678	HpCDF	192	0.045	0.001	4.45E-05	223	0.048	0.001	4.83E-05	190	0.042	0.001	4.20E-05
1234789	HpCDF	22	0.005	0.001	5.10E-06	26	0.006	0.001	5.59E-06	20	0.004	0.001	4.42E-06
OTHER	HpCDF	83	0.019	0.00001	1.93E-07	98	0.021	0.00001	2.13E-07	84	0.019	0.00001	1.86E-07
TOTAL	OCDF	73	0.017	0	0.00E+00	71	0.015	0	0.00E+00	65	0.014	0	0.00E+00
				Total CDD	0.032			Total CDD	0.043			Total CDD	0.051
				ng/dscm NY TEF @ 12% CO2	0.042			ng/dscm NY TEF @ 12% CO2	0.055			ng/dscm NY TEF @ 12% CO2	0.069
				ng/dscm NY TEF @ 7% O2	0.042			ng/dscm NY TEF @ 7% O2	0.056			ng/dscm NY TEF @ 7% O2	0.072
				lb/hour	3.56E-09			lb/hour	5.22E-09			lb/hour	6.03E-09

Table U2-2

Summary of Dioxan/Furan (ITEFs ng/dscm) Test Results

Dutchess County Resource Recovery Facility

Test No.		1				2				3			
Time		1015 - 1419				1503 - 1906				0815 - 1217			
Date		4/25/2012				4/25/2012				4/26/2012			
Sample Volume (acf)		163.043				177.244				169.772			
Sample Volume (dscm)		4.31				4.62				4.52			
Volumetric Flowrate, (dscfm)		29315				32142				31416			
Carbon Dioxide		9.30				9.40				8.90			
Oxygen (%)		10.30				10.10				11.00			
		pg	ng/dscm	ITEF	ng/dscm ITEF	pg	ng/dscm	ITEF	ng/dscm ITEF	pg	ng/dscm	ITEF	ng/dscm ITEF
2378	TCDD	8	0.00	1	1.78E-03	10	0.002	1	2.07E-03	7	0.002	1	1.60E-03
OTHER	TCDD	571	0.13			596	0.129			548	0.121		0.00E+00
12378	PeCDD	28	0.01	0.5	3.28E-03	27	0.006	0.5	2.91E-03	25	0.006	0.5	2.78E-03
OTHER	PeCDD	804	0.19			775	0.168		0.00E+00	742	0.164		0.00E+00
123478	HxCDD	25	0.01	0.1	5.82E-04	23	0.005	0.1	4.98E-04	25	0.005	0.1	5.42E-04
123678	HxCDD	50	0.01	0.1	1.17E-03	50	0.011	0.1	1.09E-03	49	0.011	0.1	1.09E-03
123789	HxCDD	34	0.01	0.1	7.82E-04	35	0.008	0.1	7.51E-04	30	0.007	0.1	6.53E-04
OTHER	HxCDD	1211	0.28			1232	0.267		0.00E+00	1077	0.238		0.00E+00
1234678	HpCDD	298	0.07	0.01	6.91E-04	307	0.066	0.01	6.65E-04	289	0.064	0.01	6.39E-04
OTHER	HpCDD	322	0.07			323	0.070		0.00E+00	297	0.066		0.00E+00
TOTAL	OCDD	366	0.08	0.001	8.49E-05	377	0.082	0.001	8.16E-05	346	0.077	0.001	7.65E-05
				Total CDD	**0.0084**			**Total CDD**	**0.0081**			**Total CDD**	**0.0074**
			ng/dscm ITEF @ 12% CO2		**0.0108**		**ng/dscm ITEF @ 12% CO2**		**0.0103**		**ng/dscm ITEF @ 12% CO2**		**0.0099**
			ng/dscm ITEF @ 7% O2		**0.0110**		**ng/dscm ITEF @ 7% O2**		**0.0104**		**ng/dscm ITEF @ 7% O2**		**0.0103**
				lb/hour	**9.19E-10**			**lb/hour**	**9.71E-10**			**lb/hour**	**8.67E-10**
2378	TCDF	183	0.04	0.1	4.24E-03	337	0.073	0.1	7.30E-03	425	0.094	0.1	9.40E-03
OTHER	TCDF	2187	0.51			2643	0.572			2765	0.612		
12378	PeCDF	84	0.02	0.05	9.68E-04	104	0.023	0.05	1.13E-03	110	0.024	0.05	1.22E-03
23478	PeCDF	115	0.03	0.5	1.33E-02	119	0.026	0.5	1.29E-02	121	0.027	0.5	1.34E-02
OTHER	PeCDF	1392	0.32			1397	0.302			1329	0.294		
123478	HxCDF	82	0.02	0.10	1.89E-03	94	0.020	0.10	2.03E-03	79	0.017	0.10	1.75E-03
123678	HxCDF	93	0.02	0.10	2.15E-03	95	0.021	0.10	2.06E-03	91	0.020	0.10	2.02E-03
234678	HxCDF	96	0.02	0.10	2.24E-03	105	0.023	0.10	2.27E-03	97	0.021	0.10	2.14E-03
123789	HxCDF	2	0.00	0.10	4.69E-05	2	0.000	0.10	3.94E-05	2	0.000	0.10	4.36E-05
OTHER	HxCDF	556	0.13			615	0.133			520	0.115		
1234678	HpCDF	192	0.04	0.01	4.45E-04	223	0.048	0.01	4.83E-04	190	0.042	0.01	4.20E-04
1234789	HpCDF	22	0.01	0.01	5.10E-05	26	0.006	0.01	5.59E-05	20	0.004	0.01	4.42E-05
OTHER	HpCDF	83	0.02			98	0.021			84	0.019		
TOTAL	OCDF	73	0.02	0.001	1.69E-05	71	0.015	0.001	1.53E-05	65	0.014	0.001	1.44E-05
				Total CDF	**0.0254**			**Total CDF**	**0.0283**			**Total CDF**	**0.0304**
			ng/dscm ITEF @ 12% CO2		**0.0328**		**ng/dscm ITEF @ 12% CO2**		**0.0361**		**ng/dscm ITEF @ 12% CO2**		**0.0410**
			ng/dscm ITEF @ 7% O2		**0.0333**		**ng/dscm ITEF @ 7% O2**		**0.0364**		**ng/dscm ITEF @ 7% O2**		**0.0427**
				lb/hour	**2.79E-09**			**lb/hour**	**3.40E-09**			**lb/hour**	**3.58E-09**

Table U2 - 3

Summary of Dioxan/Furan (Total ng/dscm) Test Results

Dutchess County Resource Recovery Facility

Test No		1				2				3			
Time		1015 - 1419				1503 - 1906				0815 - 1217			
Date		4/25/2012				4/25/2012				4/26/2012			
Sample Volume (acf)		163.043				177.244				169.772			
Sample Volume (dscm)		4.31				4.62				4.52			
Volumetric Flowrate, (dscfm)		29315				32142				31416			
Carbon Dioxide		9.30				9.40				8.90			
Oxygen (%)		10.30				10.10				11.00			
		pg	ng/dscm	Total	ng/dscm	pg	ng/dscm	Total	ng/dscm	pg	ng/dscm	Total	ng/dscm
2378	TCDD												
TOTAL	TCDD	579.0	0.134	1	1.34E-01	606.0	0.131	1	1.31E-01	555.0	0.12	1	1.20E-01
12378	PeCDD												
TOTAL	PeCDD	832.0	0.193	1	1.93E-01	802.0	0.174	1	1.74E-01	767.0	0.17	1	1.66E-01
123478	HxCDD												
123678	HxCDD												
123789	HxCDD												
TOTAL	HxCDD	1320.0	0.306	1	3.06E-01	1340.0	0.290	1	2.90E-01	1180.0	0.26	1	2.55E-01
1234678	HpCDD												
TOTAL	HpCDD	620.0	0.144	1	1.44E-01	630.0	0.136	1	1.36E-01	586.0	0.13	1	1.27E-01
TOTAL	OCDD	366.0	0.085	1	8.49E-02	377.0	0.082	1	8.16E-02	346.0	0.07	1	7.49E-02
				Total ng/dscm	0.862			Total ng/dscm	0.813			Total ng/dscm	0.743
				ng/dscm @ 12%CO2	1.112			ng/dscm @ 12%CO2	1.038			ng/dscm @ 12%CO2	1.002
				ng/dscm @ 7% O2	1.131			ng/dscm @ 7% O2	1.046			ng/dscm @ 7% O2	1.044
				lb/hour	9.47E-08			lb/hour	9.79E-08			lb/hour	8.75E-08
2378	TCDF												
TOTAL	TCDF	2370.0	0.550	1	5.50E-01	2980.0	0.645	1	6.45E-01	3190.0	0.71	1	7.06E-01
12378	PeCDF												
23478	PeCDF												
TOTAL	PeCDF	1590.0	0.369	1	3.69E-01	1620.0	0.351	1	3.51E-01	1560.0	0.35	1	3.45E-01
123478	HxCDF												
123678	HxCDF												
234678	HxCDF												
123789	HxCDF												
TOTAL	HxCDF	829.0	0.192	1	1.92E-01	911.0	0.197	1	1.97E-01	789.0	0.17	1	1.75E-01
1234678	HpCDF												
1234789	HpCDF												
TOTAL	HpCDF	297.0	0.069	1	6.89E-02	347.0	0.075	1	7.51E-02	294.0	0.07	1	6.50E-02
TOTAL	OCDF	72.7	0.017	1	1.69E-02	70.5	0.015	1	1.53E-02	65.0	0.01	1	1.44E-02
				Total ng/dscm	1.197			Total ng/dscm	1.284			Total ng/dscm	1.305
				ng/dscm @ 12%CO2	1.544			ng/dscm @ 12%CO2	1.639			ng/dscm @ 12%CO2	1.759
				ng/dscm @ 7% O2	1.569			ng/dscm @ 7% O2	1.652			ng/dscm @ 7% O2	1.832
				lb/hour	1.31E-07			lb/hour	1.55E-07			lb/hour	1.54E-07

Table U2 - 4

Summary of Dioxan/Furan (TCDD ng/dscm@7%O2) Test Results

Dutchess County Resource Recovery Facility

Test No.	1	2	3
Time	1015 - 1419	1503 - 1906	0815 - 1217
Date	4/25/2012	4/25/2012	4/26/2012
Sample Volume (acf)	163.043	177.244	169.772
Sample Volume (dscm)	4.31	4.62	4.52
Volumetric Flowrate, (dscfm)	29315	32142	31416
Carbon Dioxide	9.30	9.40	8.90
Oxygen (%)	10.30	10.10	11.00

		pg	ng/dscm		ng/dscm	pg	ng/dscm		ng/dscm	pg	ng/dscm		ng/dscm
2378	TCDD	8	0.002	1	1.78E-03	10	0.002	1	2.07E-03	7	0.002	1	1.60E-03
				Total CDD	0.0018			Total CDD	0.0021			Total CDD	0.0016
				ng/dscm @ 7% O2	0.0023			ng/dscm @ 7% O2	0.0027			ng/dscm @ 7% O2	0.0022
				lb/hour	1.95E-10			lb/hour	2.49E-10			lb/hour	1.88E-10
TOTAL	TCDD	579	0.134	1.0	1.34E-01	606	0.131	1.0	1.31E-01	555	0.123	1.0	1.23E-01
				Total CDF	0.1343			Total CDF	0.1312			Total CDF	0.1228
				ng/dscm @ 7% O2	0.1761			ng/dscm @ 7% O2	0.1689			ng/dscm @ 7% O2	0.1724
				lb/hour	1.47E-08			lb/hour	1.58E-08			lb/hour	1.45E-08

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Outlet	M23	M23-U2-Out- 1	4/ 25 /12	Total Moisture Catch:

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
PW, RP	48		29.93	+.53		10.3	9.3	glass	Qz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	.84	✓	M-2-1	.218	0.03	10"	0.02	9"	1.4

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1015	0	688.390	0.7	0.98	318	242	249	52		40	65	63	3
1		10	694.3	0.7	0.98	318	249	262	47		41	68	63	4.5
2		20	700.1	0.9	1.26	319	250	259	51		46	72	66	5
2		30	706.4	0.9	1.26	319	253	252	54		47	74	68	5
3		40	712.7	0.8	1.12	315	251	260	56		47	76	71	5
3		50	718.8	0.8	1.12	316	251	262	57		47	77	72	5
4		60	724.8	0.7	0.98	314	251	259	59		51	78	74	5
4		70	730.8	0.7	0.98	316	249	260	60		51	78	75	5
5		80	736.7	0.7	0.98	318	246	258	60		55	80	76	5
5		90	742.3	0.8	1.12	316	248	259	60		47	81	77	5
6		100	748.8	0.9	1.26	318	254	261	60		45	81	78	5
6		110	755.5	1.1	1.54	318	245	268	55		44	80	77	5
1	~~1215~~	120	762.814	1.2	1.68	316	251	254	59		44	78	77	6
1	1219	130	770.1	1.2	1.68	322	254	263	57		46	81	77	6
2		140	777.3	1.3	1.82	318	247	254	59		47	82	77	6
2		150	784.8	1.2	1.68	315	251	264	61		55	83	77	6
3		160	792.2	1.2	1.68	315	246	259	61		42	83	78	6
3		170	799.6	1.1	1.54	316	251	260	57		41	84	79	6
4		180	806.8	1.2	1.68	316	252	259	55		41	85	80	6
4		190	814.1	1.3	1.82	317	248	261	57		41	86	80	6
5		200	821.6	1.3	1.82	318	248	261	57		41	86	81	6
5		210	829.2	1.2	1.68	317	250	262	58		44	86	80	6
6		220	836.7	1.2	1.68	316	248	256	59		49	86	80	6
6		230	844.1	1.1	1.54	316	251	262	61		55	86	81	6
	1419	240	851.433											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
240	163.043	.9978	1.4117	316.9	77.56

TRC

TRC SAMPLING TRAIN SETUP AND RECOVERY SHEET

Project Number	192131.0000.0000	Date	
Client	Covanta	Run Number	M23-1
Facility	Hudson Valley	Train Type	PCDD/PCDF
Source	Unit 2	Recovery Person	R Potter

FRONT HALF

Filter Number		
Thimble Number		

XAD Trap Number	T1343 003
Final Weight [g]	347
Initial Weight [g]	328
Net Collected [g]	19

BACK HALF

Impingers Number	1	2	3	4	5	6	7
Reagent	MT	100ml	DI	MT			
Final Volume [g]	1118		2696				
Initial Volume [g]	496		2693				
Net Collected [g]	622		3				

Silica Gel Impinger	Sigel
Final Weight [g]	890
Initial Weight [g]	852
Net Collected [g]	38

COMMENTS/NOTES

TOTAL MOISTURE
Impingers and Silica Gel [g] 682

* imp 1 - no utubes
* imp 2-4 w/ utubes
* S6 imp no utubes

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Outlet	M23	M23-U2-Out- 2	4/ 25 /12	Total Moisture Catch:

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
PW, RP	48		29.93	+.55		10.1	9.4	Glass	Qz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	.84	✓	M-2-1	.218	0.02	10"	0.01	9"	1.4

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1503	0	851.854	1.1	1.54	315	242	258	55		35	78	77	3
1		10	858.7	1.0	1.40	318	246	260	47		38	82	78	4
2		20	865.5	1.2	1.68	319	252	262	52		42	85	79	4
2		30	872.8	1.2	1.68	318	250	263	54		47	87	80	4
3		40	880.2	1.3	1.82	318	248	262	57		52	89	82	4
3		50	887.7	1.2	1.68	320	250	261	59		46	90	83	4
4		60	895.0	1.1	1.54	316	250	261	57		44	90	84	4
4		70	902.2	1.1	1.54	319	251	260	57		47	90	84	4
5		80	909.4	1.3	1.82	318	252	259	59		52	90	84	5
5		90	916.9	1.3	1.82	318	248	260	62		57	90	84	5
6		100	924.6	1.3	1.82	318	250	259	59		45	90	84	5
6		110	932.3	1.2	1.68	321	248	259	56		40	90	84	5
1	1703/1706	120	939.7	1.2	1.68	321	244	260	54		43	90	84	5
1		130	947.1	1.1	1.54	319	248	249	55		46	90	85	5
2		140	954.2	1.3	1.82	321	251	260	58		51	90	85	5
2		150	961.8	1.4	1.96	322	252	263	63		56	90	85	5
3		160	969.8	1.4	1.96	322	251	261	56		43	89	84	5
3		170	977.7	1.2	1.68	323	249	262	55		44	89	84	5
4		180	986	1.2	1.68	321	249	259	55		45	89	84	5
4		190	993	1.3	1.82	320	250	259	57		47	89	84	5
5		200	1000.1	1.2	1.68	322	249	264	60		51	90	84	5
5		210	1007.5	1.2	1.68	321	253	262	63		57	90	84	5
6		220	1014.9	1.1	1.54	322	248	258	59		40	90	84	5
6		230	1022.0	1.1	1.54	320	249	261	55		39	89	84	5
	1906	240	1029.098											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
240	177.244	1.098	1.69	319.7	85.8

TRC

TRC SAMPLING TRAIN SETUP AND RECOVERY SHEET

Project Number	192131.0000.0000	Date	
Client	Covanta	Run Number	M23-2
Facility	Hudson Valley	Train Type	PCDD/PCDF
Source	Unit 2	Recovery Person	R Potter

FRONT HALF

Filter Number		
Thimble Number		

XAD Trap Number	T343 001
Final Weight [g]	349
Initial Weight [g]	327
Net Collected [g]	22

BACK HALF

Impingers Number	1	2	3	4	5	6	7
Reagent	MT	100 ml	DI	MT			
Final Volume [g]	1165	19.38					
Initial Volume [g]	508	19.10					
Net Collected [g]	652	2	2				

Silica Gel Impinger	Sigel
Final Weight [g]	879
Initial Weight [g]	837
Net Collected [g]	42

COMMENTS/NOTES

TOTAL MOISTURE

Impingers and Silica Gel [g] 738

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Outlet	M23	M23-U2-Out-3	4/ 26 /12	Total Moisture Catch:

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
PW, RP	48		29.95	+.60		11.0	8.9	Glass Qtz	Qtz	–

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	.84	✓	M-21	.218	0.007	10"	0.003	8"	1.4

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	815	0	30.356	1.1	1.54	313	248	260	58		47	57	54	4
1		10	37.2	1.1	1.54	315	250	259	46		44	64	57	4
2		20	44.0	1.0	1.4	318	251	261	49		44	68	60	5
2		30	50.5	1.0	1.4	316	247	259	51		45	70	62	5
3		40	57.1	1.1	1.54	317	251	260	52		49	72	65	5
3		50	64.0	1.1	1.54	317	250	262	55		51	74	68	5
4		60	71.0	1.2	1.68	318	247	259	57		51	75	69	5
4		70	78.0	1.2	1.68	314	251	259	61		53	77	71	5
5		80	85.2	1.3	1.82	314	251	260	61		48	78	72	5
5		90	92.5	1.3	1.82	312	255	260	62		52	79	74	5
6		100	99.5	1.3	1.82	314	250	260	63		54	80	74	5
6	[illegible]	110	107.5	1.3	1.82	314	252	262	59		39	80	75	5
1	1015/1017	120	115.0	1.1	1.54	315	252	260	57		37	81	76	5
1		130	122.5	1.3	1.82	316	249	260	55		39	81	77	5
2		140	129.4	1.2	1.68	316	248	261	57		49	83	77	5
2		150	136.5	1.2	1.68	315	250	260	60		51	83	78	5
3		160	143.7	1.3	1.82	316	245	255	64		53	83	79	5
3		170	151.2	1.2	1.68	315	252	260	60		40	82	78	5
4		180	158.7	1.2	1.68	314	252	260	55		50	81	77	5
4		190	166.1	1.1	1.54	316	249	262	55		51	81	77	5
5		200	173.2	1.1	1.54	316	250	262	56		52	81	77	5
5		210	180.4	1.0	1.4	318	249	259	58		53	81	77	5
6		220	187.2	1.0	1.4	318	250	261	58		52	80	76	5
6		230	193.8	0.9	1.26	316	248	260	60		53	80	76	5
	1217	240	200.128											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
240	169.772	1.071	1.60	315.5	74.5

TRC

TRC SAMPLING TRAIN SETUP AND RECOVERY SHEET

Project Number	192131.0000.0000	Date	
Client	Covanta	Run Number	M23-3
Facility	Hudson Valley	Train Type	PCDD/PCDF
Source	Unit 2	Recovery Person	R Potter

FRONT HALF

Filter Number		
Thimble Number		

XAD Trap Number	T1343 004
Final Weight [g]	354
Initial Weight [g]	340
Net Collected [g]	14

BACK HALF

Impingers Number	1	2	3	4	5	6	7
Reagent	MT	100ml	DI	MT			
Final Volume [g]	1158		2711				
Initial Volume [g]	500		2696				
Net Collected [g]	658		15				

Silica Gel Impinger	Sigel
Final Weight [g]	955
Initial Weight [g]	910
Net Collected [g]	45

COMMENTS/NOTES

TOTAL MOISTURE

Impingers and Silica Gel [g] 732

Appendix E
Method 26 Data

Appendix E-1

Unit 1

Unit 1 Inlet HCl 2011 Compliance Test

********** ********** ********** **********

TEST	M26A-U1-1-IN	M26A-U1-2-IN	M26A-U1-3-IN
LOCATION	Unit 1	Unit 1	Unit 1
FIRM	Dutchess	Dutchess	Dutchess
TIME	0810-0910	1115-1218	1345-1445
DATE	04/17/12	04/17/12	04/17/12
PROJECT NO.			
BAROMETRIC PRESSURE, (in. Hg)	30.08	30.08	30.08
STACK AREA, (ft^2)	17.10	17.10	17.10
NOZZLE DIAMETER, (in.)			
SAMPLING TIME, min.	60.0	60.0	60.0
DRY GAS METER CAL FACTOR [Y]	0.987	0.987	0.987
PITOT COEFFICIENT	0.84	0.84	0.84
AVG. SQUARE DELTA P, (in. H_2O)	0.784	0.890	0.917
AVG. DELTA H, (in. H_2O)	1.80	1.82	1.80
AVG. METER TEMP., (^oF)	68.8	85.8	84.9
STATIC PRESSURE, (in. H_2O)	-2.10	-2.00	-1.90
AVG. STACK TEMPERATURE, (^oF)	425	429	424
SAMPLE VOLUME, (ft^3)	44.262	44.435	43.717
WATER COLLECTED, (ml)	201.0	174.0	162.0
CO 2, (%)	9.40	9.40	8.60
O 2, (%)	10.40	10.50	10.90
N 2, (%)	80.2	80.1	80.5
TOTAL HCl CATCH, (mg)	680.00	720.00	780.00
TOTAL HF CATCH			
SAMPLE VOLUME DRY, (DSCF)	44.05	42.85	42.22
MOISTURE, (%)	17.7	16.0	15.3
MW OF STACK GAS, (lb/lb-mole)	27.81	28.01	28.00
STACK VELOCITY, (FPM)	3484	3947	4055
VOLUMETRIC FLOW, actual, (ACFM)	59595	67510	69354
VOLUMETRIC FLOW, dry std. (DSCFM)	29291	33682	35111
ISOKINETIC RATIO, (%)	#DIV/0!	#DIV/0!	#DIV/0!
HCl CONCENTRATION, (ppmd)	359.7	391.6	430.5
HCl CONCENTRATION, (gr./dscf)	0.23819	0.25928	0.28508
HCl CONCENTRATION, (ppmd@7%O_2)	476.2	523.4	598.4
HCl EMISSION RATE, (lb/hr)	59.80	74.85	85.79
VOLUMETRIC FLOWRATE, (SCFM)	35582	40121	41452

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Inlet	M26	M26-U1-In-1	4/17/12	Total Moisture Catch: 3449 3548 201

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	65	30.08	-2.1 ✓	18	10.4	8.4	3' glass	Qtz	–

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
80819	1.820	0.987	3-2	0.84	✓	NA	NA	0.000	14	0.000	5.5	–

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
A-1	0810 ✓	0	441.117	0.66	1.8	~~376~~ 423	248	261	59	250	NA	63	61	1.5
2		10	448.5	0.65	1.8	430	249	256	61	262		68	61	1.5
3		20	455.9	0.65	1.8	432	254	257	56	249		73	64	1.5
4		30	463.1	0.64	1.8	431	248	255	54	251		76	65	1.5
5		40	470.6	0.60	1.8	421	252	257	56	252		78	67	1.5
6	0910 ✓	50	478.0	0.50	1.8	410	258	252	54	255		80	69	1.5
		60	485.379											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	44.262	0.784	1.8	424.5	68.8

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Inlet	M26	M26-U1-In- 2	4/ 17 /12	Total Moisture Catch: 3734 3560 174

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	50	75	30.08	-2.0	16	10.5	9.4	3'-glass	Q+2	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
80817	1.820	0.987	3-2	0.84	✓	NA	NA	0.001	10	0.001	7.0	—

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
B 1	1115 ✓	0	519.337	0.75	1.82	430	263	258	61	253	NA	83	81	2.0
2		10	526.8	0.80	1.82	437	264	261	59	270		87	81	3.0
3		20	534.3	0.80	1.82	431	264	262	61	266		89	82	3.0
4		30	~~540~~ 541.8	0.80	1.82	425	267	261	56	270		91	83	3.0
5		40	549.2	0.80	1.82	420	262	260	58	268		92	85	3.5
6		50	556.5	0.80	1.82	430	264	261	56	265		90	85	3.5
	1218 ✓	60	563.772											
			✓	✓	✓	✓						✓	✓	

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	44.435	0.89	1.82	428.8	85.8

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Inlet	M26	M26-U1-In- 3	4/ 17 /12	Total Moisture Catch: 3735 3573 162

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	75	30.08	-1.9	15	10.9	8.6	3'-glass	Quartz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
80819	1.820	0.987	3-2	0.84	✓	NA	NA	0.004	13.5	0.004	14.5	—

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1345	0	607.767	0.84	1.82	425	258	256	55	250	NA	86	82	3.5
2		10	614.9	0.84	1.8	425	263	260	59	253		88	82	5.0
3		20	622.2	0.84	1.8	424	260	261	61	258		89	82	7.5
4		30	629.5	0.84	1.8	426	260	260	62	254		89	82	10.0
5		40	636.7	0.84	1.8	424	266	262	53	261		88	82	12.0
6		50	644.1	0.84	1.8	420	265	262	53	258		89	82	14.0
	1445	60	651.484											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	43.717	0.917	1.80	424.0	84.9

TRC

Unit 1 Outlet HCl 2012 Compliance Test

**********	**********	**********	**********
TEST	M26A-U1-R1	M26A-U1-R2	M26A-U1-R3
LOCATION	Unit 1	Unit 1	Unit 1
FIRM	Dutchess	Dutchess	Dutchess
TIME	0810-0910	1115-1218	1345-1445
DATE	04/17/12	04/17/12	04/17/12
PROJECT NO.			
BAROMETRIC PRESSURE, (in. Hg)	30.08	30.08	30.08
STACK AREA, (ft^2)	12.57	12.57	12.57
NOZZLE DIAMETER, (in.)			
SAMPLING TIME, min.	60.0	60.0	60.0
DRY GAS METER CAL FACTOR [Y]	0.947	0.947	0.947
PITOT COEFFICIENT	0.84	0.84	0.84
AVG. SQUARE DELTA P, (in. H_2O)	1.229	1.278	1.303
AVG. DELTA H, (in. H_2O)	1.80	1.80	1.80
AVG. METER TEMP., (^oF)	73	85	93
STATIC PRESSURE, (in. H_2O)	1.20	1.20	1.20
AVG. STACK TEMPERATURE, (^oF)	354	349	341
SAMPLE VOLUME, (ft^3)	46.739	46.715	47.290
WATER COLLECTED, (ml)	181.0	189.0	189.0
CO 2, (%)	8.70	8.94	8.36
O 2, (%)	10.70	10.65	11.14
N 2, (%)	80.6	80.41	80.5
TOTAL HCl CATCH, (mg)	15.00	11.00	7.90
SAMPLE VOLUME DRY, (DSCF)	44.32	43.24	43.18
MOISTURE, (%)	16.1	17.1	17.1
MW OF STACK GAS, (lb/lb-mole)	27.91	27.83	27.77
STACK VELOCITY, (FPM)	5206	5403	5490
VOLUMETRIC FLOW, actual, (ACFM)	65421	67901	68996
VOLUMETRIC FLOW, dry std. (DSCFM)	35910	37075	38015
ISOKINETIC RATIO, (%)	#DIV/0!	#DIV/0!	#DIV/0!
HCl CONCENTRATION, (ppmd)	7.9	5.9	4.3
HCl CONCENTRATION, (gr./dscf)	0.00522	0.00392	0.00282
HCl CONCENTRATION, (ppmd@7%O_2)	10.7	8.0	6.1
HCl EMISSION RATE, (lb/hr)	1.61	1.25	0.92
VOLUMETRIC FLOWRATE, (SCFM)	42814	44702	45848

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Out	M26	M26-U1-Out- 1	4/ 17 /12	Total Moisture Catch:

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD	48	75	30.08	+1.2	16	10.7	8.7	7' glass	N/A	N/A

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.947	7-2	0.84	✓	N/A	N/A	0.001	15	0.001	10	N/A

Total Moisture Catch:

915	729	667	995
769	705	664	987
146	24	3	8

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Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	810	0	233.824	1.2	1.8	353	252	251	65	N/A	N/A	70	69	3
2		10	241.5	1.7	1.8	352	251	254	47			71	69	3
3		20	249.5	1.7	1.8	358	252	253	50			75	71	4
4		30	257.3	1.6	1.8	359	253	256	50			75	71	4
5		40	264.7	1.5	1.8	352	254	255	49			77	72	4
6		50	272.3	1.4	1.8	342	255	256	51			77	73	4
	910	60	280.563											

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	46.739	1.229	1.80	353.5	72.5

M3A Calibration

	O_2	CO_2
O	0.05	0.02
mid	10.07	10.05
span	22.01	17.

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ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Out	M26	M26-U1-Out-2	4/ 17 /12	Total Moisture Catch: 3805 3616 189

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD		75	30.08	+1.2	17	10.65	8.94	7' glass	N/A	N/A

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
40610	1.833	0.947	7-2	0.84	✓	N/A	N/A	0.002	12	0.002	10	N/A

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	11:15	0	280.715	1.6	1.8	355	253	255	65	—	—	80	80	4
2		10	288.7	1.7	1.8	355	252	251	50	—	—	86	81	4
3		20	296.6	1.6	1.8	359	254	252	52	—	—	88	83	4
4		30	304.2	1.6	1.8	358	253	254	56	—	—	90	86	4
5		40	311.9	1.6	1.8	352	254	255	59	—	—	89	85	4
6		50	319.7	1.7	1.8	313	255	255	61	—	—	91	86	4
	1218	60	327.430							—	—			

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	46.715	1.278	1.80	348.7	85.4

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ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 1 Out	M26	M26-U1-Out- 3	4/ 17 /12	Total Moisture Catch: 3732 3543 189

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD		75	30.08 ✓	1.2 ✓	17	11.14 ✓	8.36 ✓	4' glass	N/A	N/A

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
90610	1.833	0.997	7-2	0.84	✓	N/A	N/A	0.000	10"	0.001	11	N/A

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	13:45	0	332.623	1.6	1.8	347	252	253	60	—	—	87	86	3
2		10	340.6	1.8	1.8	314	251	253	61	—	—	92	87	3
3		20	348.3	1.8	1.8	330	255	252	58	—	—	96	91	3
4		30	356.1	1.8	1.8	344	255	253	58	—	—	99	94	3
5		40	364.2	1.5	1.8	354	251	255	59	—	—	97	96	3
6		50	372.1	1.7	1.8	358	252	256	61	—	—	96	95	3
end	1445	60	379.913											
			✓	✓	✓	✓						✓	✓	

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	47.290	1.303	1.80	341.2	93.0

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Appendix E-2

Unit 2

Unit 2 Inlet HCl 2012 Compliance Test

TEST	M26A-U2-1-IN	M26A-U2-2-IN	M26A-U2-3-IN
LOCATION	Unit 2	Unit 2	Unit 2
FIRM	Dutchess	Dutchess	Dutchess
TIME	0800-0907	1040-1148	1315-1420
DATE	04/18/12	04/18/12	04/18/12
PROJECT NO.			
BAROMETRIC PRESSURE, (in. Hg)	30.22	30.22	30.22
STACK AREA, (ft^2)	17.10	17.10	17.10
NOZZLE DIAMETER, (in.)			
SAMPLING TIME, min.	60.0	60.0	60.0
DRY GAS METER CAL FACTOR [Y]	0.987	0.987	0.987
PITOT COEFFICIENT	0.84	0.84	0.84
AVG. SQUARE DELTA P, (in. H_2O)	0.806	0.812	0.822
AVG. DELTA H, (in. H_2O)	1.81	1.78	1.80
AVG. METER TEMP., (^oF)	48.8	56.3	60.5
STATIC PRESSURE, (in. H_2O)	-4.80	-4.80	-4.80
AVG. STACK TEMPERATURE, (^oF)	410	416	419
SAMPLE VOLUME, (ft^3)	40.063	40.148	40.856
WATER COLLECTED, (ml)	168.0	173.0	230.0
CO 2, (%)	9.45	10.01	9.05
O 2, (%)	10.10	9.99	10.70
N 2, (%)	80.45	80	80.25
TOTAL HCl CATCH, (mg)	840.00	910.00	790.00
TOTAL HF CATCH			
SAMPLE VOLUME DRY, (DSCF)	41.63	41.11	41.50
MOISTURE, (%)	16.0	16.5	20.7
MW OF STACK GAS, (lb/lb-mole)	28.01	28.02	27.42
STACK VELOCITY, (FPM)	3542	3582	3666
VOLUMETRIC FLOW, actual, (ACFM)	60582	61268	62710
VOLUMETRIC FLOW, dry std. (DSCFM)	30849	30757	29839
ISOKINETIC RATIO, (%)	#DIV/0!	#DIV/0!	#DIV/0!
HCl CONCENTRATION, (ppmd)	470.2	515.8	443.6
HCl CONCENTRATION, (gr./dscf)	0.31133	0.34154	0.29375
HCl CONCENTRATION, (ppmd@7%O_2)	605.1	657.2	604.5
HCl EMISSION RATE, (lb/hr)	82.32	90.04	75.13
VOLUMETRIC FLOWRATE, (SCFM)	36709	36850	37623

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Inlet	M26	M26-U2-In- 1	4/ 18 /12	Total Moisture Catch: 3781 3613 168

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56"	60	30.22	-4.8 ✓	15	10.10 ✓	9.45 ✓	3' - glass	Qtz	—

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
80819	1.820	0.987	7-2	0.84	✓		~~0.250~~	0.001	16.0	0.002	17.0	--

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	0800	0	~~615.744~~ 651.744	0.65	1.82	408	256	257	42	262	NA	44	42	6.0
2		10	658.4	0.65	1.82	413	259	253	45	263		47	43	11.0
3		20	664.9	0.65	1.8	411	254	258	52	270		50	44	15.0
4	0832/0837	30	671.723/671.928	0.65	1.8	408	253	255	51	269		53	46	4.0
5		40	678.7	0.65	1.8	409	258	259	53	258		57	49	9.0
6		50	685.4	0.65	1.8 ↓	410	259	256	57	255		60	50	16.0
	0907	60	692.012											

← Filter Change @ 1/2-way point.

Leak Checks: pre filter change: 0.002 @ 15" Hg

Post filter Change: 0.00 @ 15" Hg

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	40.063	0.806	1.81	409.8	48.8

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ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Inlet	M26	M26-U2-In-2	4/18/12	Total Moisture Catch: 3701 3528 173

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TS / BW	56	65	30.22	-4.8	15	21.22	10.01	3' glass	Q	

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
23489	1.820	0.987	3-2	0.84	✓		—	0.004	19.0	0.002	18.5	—

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1040	0	692.344	0.67	1.8	415	255	260	49	261	NA	53	51	4.0
2		10	699.0	0.67	1.8	411	252	253	53	262		56	51	8.0
3		20	705.7	0.67	1.7↓	420	256	251	61	260		58	52	17.0
4		30	712.044 / 712.209	0.65	1.8	419	258	262	53	261		61	55	4.5
5		40	719.1 (712.344)	0.65	1.8	420	256	255	50	267		63	55	8.0
6		50	725.9	0.65	1.8	413	253	259	54	267		64	56	12.5
		60	732.740											

← Filter change @ 1/2 way point

Pre-Lk. Ck.: 0.006 @ 19" Hg

Post-Lk.Ck.: 0.002 @ 20" Hg

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	40.148	.812	1.78	416.3	56.3

TRC

Note: ΔH "↓" indicates that ΔH could not be maintained & was gradually reduced due to significant PM loading on filter.

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Inlet	M26	M26-U2-In-3	4/18/12	Total Moisture Catch: 3735 3505 230

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
TB/PW	56	61		-4.8	15	10.~~70~~	9.05	3' - glass	Q	

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
80819	1.820	0.987	3-2	0.84	✓		—	0.002	18.0	0.001	16.5	—

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	~~Filter Exit or~~ Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1315	0	732.971	0.70	1.82	415	257	263	50	262	NA	59	57	4.5
2		10	739.7	0.68	1.8	415	257	262	51	255		59	56	8
3		20	746.4	0.66	1.8	418	255	256	59	257		62	57	12
4		30	753.070/753.298	0.67	1.8	421	253	265	68	260		63	58	15/3.0
5		40	760.2	0.67	1.8	421	257	271	55	254		64	58	6.0
6		50	767.1	0.67	1.8	421	257	260	62	255		71	62	10.0
	1420	60	774.055											

Filter change @ 1/2 way point. Pre ~~Post~~ filter lk ck. 0.002 @ 18" Hg

Post filter change lk ck. 0.001 @ 18" Hg

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	40.856	0.822	1.80	418.5	60.5

TRC

Unit 2 Outlet HCl 2012 Compliance Test

TEST	M26A-U2-R1	M26A-U2-R2	M26A-U2-R3
LOCATION	Unit 2	Unit 2	Unit 2
FIRM	Dutchess	Dutchess	Dutchess
TIME	0800-0900	1040-1140	1315-1415
DATE	04/18/12	04/18/12	04/18/12
PROJECT NO.			
BAROMETRIC PRESSURE, (in. Hg)	30.22	30.22	30.22
STACK AREA, (ft^2)	12.57	12.57	12.57
NOZZLE DIAMETER, (in.)			
SAMPLING TIME, min.	60.0	60.0	60.0
DRY GAS METER CAL FACTOR [Y]	1.0140	1.0140	1.0140
PITOT COEFFICIENT	0.84	0.84	0.84
AVG. SQUARE DELTA P, (in. H_2O)	1.118	1.132	1.140
AVG. DELTA H, (in. H_2O)	1.80	1.80	1.80
AVG. METER TEMP., (^oF)	53	61	63
STATIC PRESSURE, (in. H_2O)	0.70	0.70	0.70
AVG. STACK TEMPERATURE, (^oF)	317	316	320
SAMPLE VOLUME, (ft^3)	41.229	40.924	39.349
WATER COLLECTED, (ml)	148.0	187.0	174.0
CO 2, (%)	9.02	9.33	9.50
O 2, (%)	10.65	10.75	10.41
N 2, (%)	80.33	79.92	80.09
TOTAL HCl CATCH, (mg)	3.60	3.90	3.00
SAMPLE VOLUME DRY, (DSCF)	43.67	42.63	40.83
MOISTURE, (%)	13.8	17.1	16.7
MW OF STACK GAS, (lb/lb-mole)	28.24	27.88	27.94
STACK VELOCITY, (FPM)	4593	4676	4716
VOLUMETRIC FLOW, actual, (ACFM)	57711	58761	59260
VOLUMETRIC FLOW, dry std. (DSCFM)	34212	33529	33798
ISOKINETIC RATIO, (%)	#DIV/0!	#DIV/0!	#DIV/0!
HCl CONCENTRATION, (ppmd)	1.9	2.1	1.7
HCl CONCENTRATION, (gr./dscf)	0.00127	0.00141	0.00113
HCl CONCENTRATION, (ppmd@7%O_2)	2.6	2.9	2.3
HCl EMISSION RATE, (lb/hr)	0.37	0.41	0.33
VOLUMETRIC FLOWRATE, (SCFM)	39669	40451	40577

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Out 9.02 10.65	M26	M26-U2-Out- 1	4/ 18 /12	Total Moisture Catch: 3736 3553 148

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD		65	30.22	+0.7		~~[illegible]~~	~~[illegible]~~	7' glass	N/A	N/A

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
M-2	1.978	1.014	7-3	0.84	✓	N/A	N/A	0.001	12	0.001	10	N/A

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	8:00	0	887.090	1.3	1.8	314	257	256	53	—	—	52	51	2
2		10	894.0	1.3	1.8	317	254	257	47	—	—	51	49	2
3		20	901.0	1.2	1.8	317	257	256	52	—	—	53	50	2
4		30	907.9	1.2	1.8	319	255	255	57	—	—	55	52	2
5		40	914.7	1.2	1.8	317	253	254	58	—	—	56	53	2
6		50	921.6	1.3	1.8	319	252	254	59	—	—	57	54	3
end	9:00	60	928.319	—	—	—	—	—	—	—	—	—	—	—

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	41.229	1.118	1.80	317.2	52.8

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Out	M26	M26-U2-Out- 2	4/ 18 /12	Total Moisture Catch: 3675 3488 187

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WD	48	65	30.20	+0.7		10.75	9.33	7' 91.55	N/A	N/A

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
M-2	1.987	1.014	7-3	0.84	✓	N/A	N/A	0.002	10	0.000	10"	N/A

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1040	0	928.537	1.1	1.8	318	256	255	47	–	–	62	60	2
2		10	935.4	1.2	1.8	317	253	252	44	–	–	60	58	2
3		20	942.3	1.3	1.8	317	253	252	48	–	–	63	60	2
4		30	949.1	1.3	1.8	318	254	256	45	–	–	61	63	2
5		40	955.9	1.4	1.8	313	255	256	50	–	–	62	61	2
6		50	962.7	1.4	1.8	313	255	256	51	–	–	64	62	2
end	1140	60	969.461	–	–	–	–	–	–	–	–	–	–	–

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	40.924	1.132	1.80	316	61.3

TRC

ISOKINETIC SAMPLING DATA

Plant Name, City, State, Project Number	Sampling Location	Method No.	Run Number	Test Date	Notes
Covanta Hudson Valley TRC Project No. 192131	Unit 2 Out	M26	M26-U2-Out-3	4/ 18 /12	Total Moisture Catch:

Operators	Stack I.D. (in.)	Ambient T. (°F)	Barometric (in. Hg)	Static Pressure	Assumed Moist. %	O2 (%)	CO2 (%)	Probe Length and Liner Type	Filter Type	Filter Number
RC/WP	48	65	30.22	+0.7		10.41	9.5	7' Glass	NA	NA

DGM No.	DGM Delta H@	DGM CAL Y	Pitot No.	Pitot Tube Cp	Pitot Leak Check	Nozzle Number	Nozzle Diameter	Leak Check (Initial) cfm	Leak Check (Initial) (in Hg)	Leak Check (Final) cfm	Leak Check (Final) (in Hg)	K Factor
A-2	1.987	1.014	7-3	0.84	✓	NA	NA	0.000	10"	0.002	10	NA

Total Moisture Catch: 3751 / 3577 = 174

Point Number	Clock Time (24-hour)	Elapsed Test Time (min)	Dry Gas Meter Reading (Cubic Feet)	ΔP Velocity (in H2O)	ΔH Orifice (in H2O)	Stack Temp. (°F)	Probe Temp. (°F)	Filter Oven Temp. (°F)	Impinger Temp. (°F)	Filter Exit or Heated Line Temp. (°F)	XAD Trap Temp. (°F)	DGM Temp. (°F) DGM In	DGM Temp. (°F) DGM Out	Sample Train Vacuum (in Hg)
1	1315 ✓	0	969.667	1.2	1.8	319	253	256	57	—	—	64	62	2
2		10	976.3	1.3	1.8	322	256	254	54	—	—	64	62	2
3		20	983.0	1.3	1.8	320	255	255	61	—	—	64	62	2
4		30	989.6	1.4	1.8	319	256	253	59	—	—	64	63	2
5		40	996.1	1.2	1.8	322	255	255	55	—	—	65	63	2
6		50	1002.6	1.4	1.8	319	256	256	57	—	—	65	63	2
end	1415 ✓	60	1009.016	—	—	—	—	—	—	—	—	—	—	—

Total Run Time	DGM Volume	Ave. SQRT ΔP	Average ΔH	Stack Temp	Ave. DGM Temp.
60	39.349	1.140	1.8	320.2	63.4

TRC

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Appendix F

Opacity Emissions Data

Appendix F-1

Unit 1

TRC EPA Method 9

Record of Visual Determination of Opacity

Company	Covanta	Hours of Observation	1
Location	Poughkeepsie, NY	Observer	LS
Test Number	1	Observer Certification Date	03-29-12
Date	4-17-12	Obsever Affiliation	TRC
Type Facility	Waste to Energy	Point of Emissions	Stack unit 1

	Initial	Final
CLOCK TIME	0840	0940
OBSERVER LOCATION	visitor lot	visitor lot
Distance to discharge		
Direction from discharge	SE	SE
Height of Obseration Point	150 ft	150 ft
STACK HEIGHT	200 ft	200 ft
WEATHER CONDITIONS		
Wind Direction	NNE	NNE
Wind Speed	500 FPM	500 FPM
Ambient Temperature	64°F	64°F
Relative Humidity - %	46%	46%
SKY CONDITIONS (Clear, overcast, partly cloudy, etc.)	clear	clear
PLUME DESCRIPTION		
Color	none	none
Distance Visible	none	none
BACKROUND DESCRIPTION	—	—
	blue sky	blue sky

Opacity	0-20	21-30	31-40	41-60	61-80	81-100	Total
No. of Readings	240						
Frequency %	100						

Reading over _____% Average Opacity = 0 %

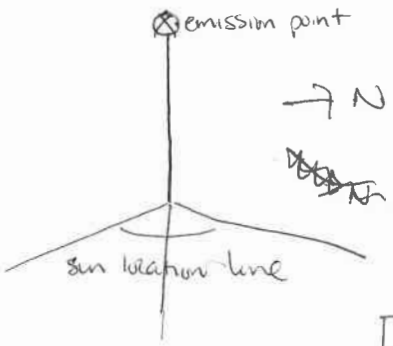
Readings Ranged from 0 to 0 % opacity.

Opacity Exceeded 0 % for — mins — secs.

Regulation:

	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Diagram of Observer Location



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Comments

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Observer's Signiture

TRC EPA Method 9

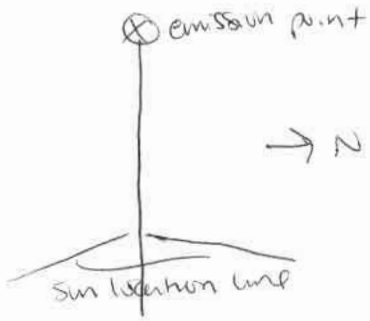
Record of Visual Determination of Opacity

Company	Covanta	Hours of Observation	1
Location	Poughkeepsie, NY	Observer	LS
Test Number	2	Observer Certification Date	03-29-12
Date	4-17-12	Obsever Affiliation	TRC
Type Facility	Waste to Energy	Point of Emissions	Stack unit 1

	Initial	Final
CLOCK TIME	1025	1125
OBSERVER LOCATION	visitor lot	same
Distance to discharge	S	
Direction from discharge	SE	SE
Height of Obseration Point	150ft	150ft
STACK HEIGHT	200ft	200ft
WEATHER CONDITIONS	NNE	
Wind Direction	157 FPM	
Wind Speed	NNE	
Ambient Temperature	64°F	
Relative Humidity - %	46%	
SKY CONDITIONS (Clear,	clear	clear
overcast, partly cloudy, etc.)		
PLUME DESCRIPTION	none	same
Color	none	same
Distance Visible		
BACKROUND DESCRIPTION	blue sky	same

	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Diagram of Observer Location



Comments

Opacity	0-20	21-30	31-40	41-60	61-80	81-100	Total
No. of Readings	240						
Frequency %	100						

Reading over _____% Average Opacity = ____%

Readings Ranged from ___ to ___ % opacity.

Opacity Exceeded ____% for ___ mins ___ secs.

Regulation: _____

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Observer's Signiture

TRC EPA Method 9

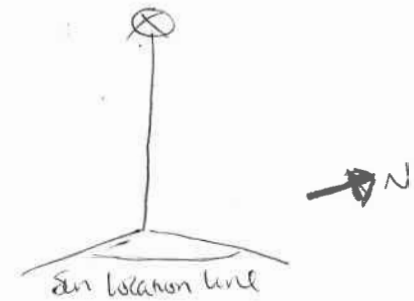
Record of Visual Determination of Opacity

Company	Covanta	Hours of Observation	1
Location	Poughkeepsie, NY	Observer	LS - Leah Stevens
Test Number	3	Observer Certification Date	03-29-12
Date	04-17-12	Obsever Affiliation	TRC
Type Facility	Waste to Energy	Point of Emissions	Stack unit 1

	Initial	Final
CLOCK TIME	1250	1350
OBSERVER LOCATION	dirt lot	dirt lot
Distance to discharge	500 ft	500 ft
Direction from discharge	SE	SE
Height of Obseration Point	150 ft	150 ft
STACK HEIGHT	200 ft	200 ft
WEATHER CONDITIONS		
Wind Direction	ENE	ENE
Wind Speed	5mph	5mph
Ambient Temperature	72°F	72°F
Relative Humidity - %	32%	32%
SKY CONDITIONS (Clear, overcast, partly cloudy, etc.)	partly cloudy	same
PLUME DESCRIPTION	none	none
Color	—	—
Distance Visible	—	—
BACKROUND DESCRIPTION	blue sky	blue sky

	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Diagram of Observer Location



Comments

Opacity	0-20	21-30	31-40	41-60	61-80	81-100	Total
No. of Readings	240						
Frequency %	100						

Reading over _____% Average Opacity = 0 %

Readings Ranged from 0 to 0 % opacity.

Opacity Exceeded 0 % for 0 mins 0 secs.

Regulation: _____

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Observer's Signiture

Appendix F-2

Unit 2

TRC EPA Method 9

Record of Visual Determination of Opacity

Company	Covanta	Hours of Observation	1
Location	Poughkeepsie, NY	Observer	Leah Stevens
Test Number	1	Observer Certification Date	03-29-12
Date	04-17-12	Obsever Affiliation	TRC
Type Facility	Waste to Energy	Point of Emissions	Stack Unit 2

	Initial	Final
CLOCK TIME	0840	0940
OBSERVER LOCATION	visitor lot	visitor lot
Distance to discharge	500 ft	500 ft
Direction from discharge	SE	SE
Height of Obseration Point	150 ft	150 ft
STACK HEIGHT	200 ft	200 ft
WEATHER CONDITIONS		
Wind Direction	NNE	NNE
Wind Speed	500 FPM	500 FPM
Ambient Temperature	64°F	64°F
Relative Humidity - %	46%	46%
SKY CONDITIONS (Clear, overcast, partly cloudy, etc.)	clear	clear
PLUME DESCRIPTION	none	none
Color	none	none
Distance Visible	—	—
BACKROUND DESCRIPTION	blue sky	blue sky

Opacity	0-20	21-30	31-40	41-60	61-80	81-100	Total
No. of Readings	240						
Frequency %	100						

Reading over _____% Average Opacity = 0 %

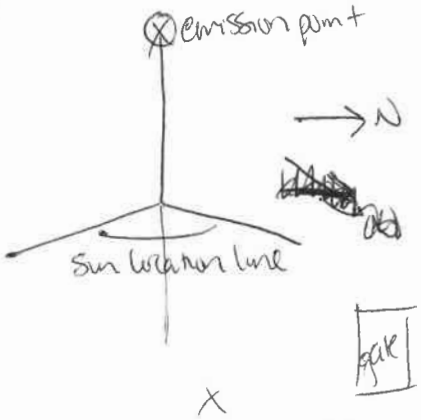
Readings Ranged from 0 to 0 % opacity.

Opacity Exceeded 0 % for 0 mins 0 secs.

Regulation: _____

	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Diagram of Observer Location



Comments

Rev. 4 2/9/98

Observer's Signiture

TRC EPA Method 9

Record of Visual Determination of Opacity

Company	Covanta	Hours of Observation	1
Location	Poughkeepsie, NY	Observer	Leah Stevens
Test Number	2	Observer Certification Date	03-29-12
Date	04-17-12	Obsever Affiliation	TRC
Type Facility	Waste to Energy	Point of Emissions	Stack Unit 2

	Initial	Final
CLOCK TIME	~~[illegible]~~ 1025	~~[illegible]~~ 1125
OBSERVER LOCATION	visitor lot	same
Distance to discharge	500 ft	500 ft
Direction from discharge	SE	SE
Height of Obseration Point	150 ft	150 ft
STACK HEIGHT	200 ft	200 ft
WEATHER CONDITIONS		
Wind Direction	NNE	
Wind Speed	157 FPM	
Ambient Temperature	64° F	
Relative Humidity - %	46%	
SKY CONDITIONS (Clear, overcast, partly cloudy, etc.)	clear	clear
PLUME DESCRIPTION	—	—
Color	none	none
Distance Visible	—	—
BACKROUND DESCRIPTION	blue sky	same

Opacity	0-20	21-30	31-40	41-60	61-80	81-100	Total
No. of Readings	240						
Frequency %	100						

Reading over _____% Average Opacity = ____%

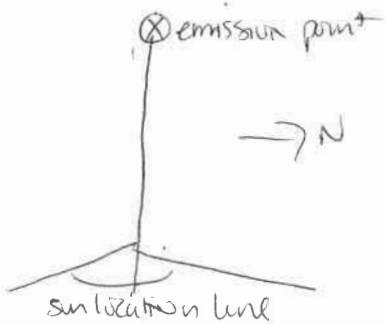
Readings Ranged from ___ to ___ % opacity.

Opacity Exceeded ____% for ___ mins ___ secs.

Regulation: _____

	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Diagram of Observer Location



Comments

Rev. 4 2/9/98

Observer's Signiture [signature]

TRC EPA Method 9

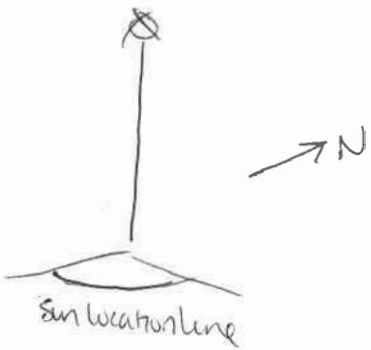
Record of Visual Determination of Opacity

Company	Covanta	Hours of Observation	1
Location	Poughkeepsie, NY	Observer	Sean Stevens
Test Number	3	Observer Certification Date	03-29-12
Date	04-17-12	Obsever Affiliation	TRC
Type Facility	Waste to Energy	Point of Emissions	Stack unit 2

	Initial	Final
CLOCK TIME	1250	1350
OBSERVER LOCATION	dirt lot	dirt lot
Distance to discharge	500 ft	500 ft
Direction from discharge	SE	SE
Height of Obseration Point	150 ft	150 ft
STACK HEIGHT	200 ft	200 ft
WEATHER CONDITIONS		
Wind Direction	ENE	ENE
Wind Speed	5mph	5mph
Ambient Temperature	72F	72F
Relative Humidity - %	52%	52%
SKY CONDITIONS (Clear, overcast, partly cloudy, etc.)	mostly clear partly cloudy	Sunnl
PLUME DESCRIPTION	none	none
Color	—	—
Distance Visible	—	—
BACKROUND DESCRIPTION	Blue Sky	Blue Sky

	0	15	30	45		0	15	30	45
0	0	0	0	0	30	0	0	0	0
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0

Diagram of Observer Location



Comments

Opacity	0-20	21-30	31-40	41-60	61-80	81-100	Total
No. of Readings	240						
Frequency %	100						

Reading over _____% Average Opacity = 0 %

Readings Ranged from 0 to 0 % opacity.

Opacity Exceeded 0 % for 0 mins 0 secs.

Regulation: _____

Rev. 4 2/9/98

Observer's Signiture Sean S

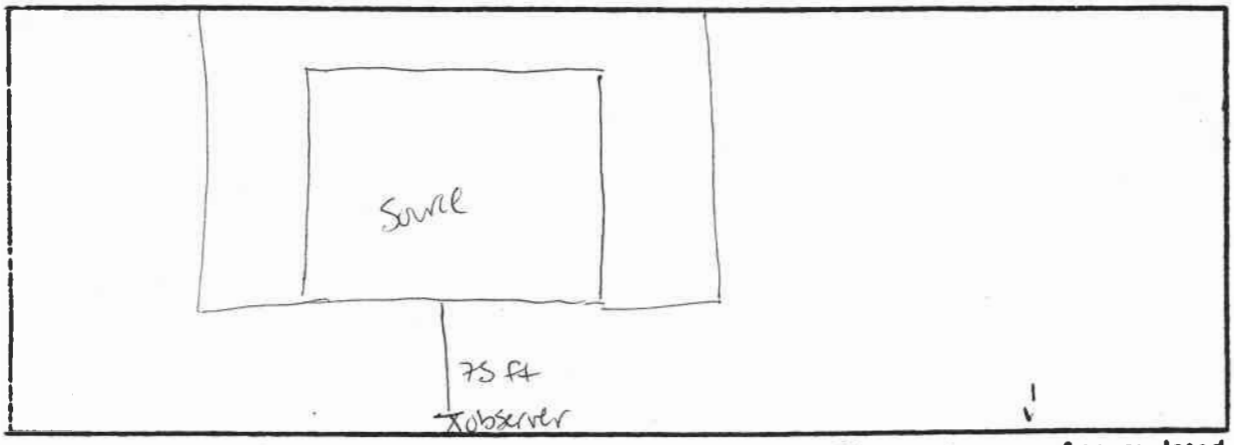
Appendix G

Fugitive Emissions Data

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Company Covanta	**Observer** Leah Stevens
Location Poughkeepsie, NY	**Affiliation** TRC
Company representative	**Date** 04-17-12, 4-18-12
Sky Conditions partly cloudy	**Wind direction**
Precipitation none	**Wind speed** 15 mph
Industry Waste to Energy	**Process unit:** Ash handling system

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS

Test 1 – Rear (NW door) 4/17/12

Begin Observation Clock time (m:sc)	observation period	Accumulated emission time
1350	20:00	0:00
1420	20:00	0:00
1445	20:00	0:00

Test 2 – Rear (NW door) 4/17/12

time	observation period	Accumulated emission time
~~1450~~ 1510	20:00	0:00
1535	20:00	0:00
1600	20:00	0:00

End observation

Test 3 – Rear (NW door) 4/18/12

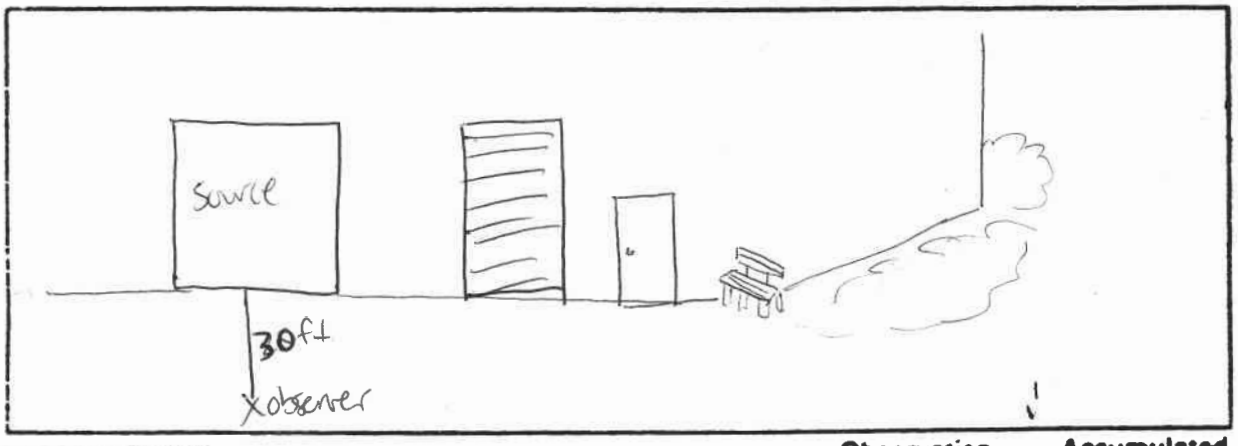
Clock time	Observation period duration, min:sec	Accumulated emission time, min:sec
~~1350~~ 1135	20:00	0:00
12:00	20:00	0:00
12:25	20:00	0:00

Figure 22-1

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Company Covanta	**Observer** Leah Stevens
Location Poughkeepsie NY	**Affiliation** TRC
Company representative	**Date** 04-18-12
Sky Conditions partly cloudy	**Wind direction**
Precipitation none	**Wind speed**
Industry Waste to Energy	**Process unit** Ash handling system

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS

Test 1 - front (SE door) 04/18/12

Begin Observation Clock time	observation period	Accumulated emission time	Clock time	Observation period duration, min:sec	Accumulated emission time, min:sec
0750	20:00	0:00	10:20	20:00	0:00
0815	20:00	0:00	10:45	20:00	0:00
0840	20:00	0:00	11:10	20:00	0:00
Test 2 - 04/18/12					
0905	20:00	0:00			
0930	20:00	0:30			
0955	20:00	0:00			
End observation					

Test 3 - SE door 04/18/12

Figure 22-1

Appendix H

Equations and Sample Calculations/ Sampling Location Schematic

Example Calculation Method 2 Data Sheet
TRC Environmental Corporation

Plant	Covanta Hudson Valley	Date	April 17, 2012
Location	Unit 1 - M29 - Run 1	Time	8:10-10:15

Stack Diameter	48	"	Area, A	12.57	ft^2
Barometric Pressure, P_b	30.08	"Hg	Meter Temp, T_M	70.8	°F
% Moisture	13.87	$\%H_2O$	Stack O_2	10.71	%
Static Pressure, P_g	1.20	$"H_2O$	Stack CO_2	8.73	%
Pitot Coefficient, C_p	0.84		MW (wet)	28.18	lb/lb-mole

Port	Point	ΔP	$\sqrt{\Delta P}$	T_S (°F)	+ θ clockwise - θ counter-clockwise	$\sqrt{\Delta P}\cos\theta$	
A	1	1.700	1.304	359			
	2	1.700	1.304	359			
	3	1.600	1.265	362			
	4	1.600	1.265	361			
	5	1.400	1.183	353			
	6	1.300	1.140	350			
B	1	1.500	1.225	354			
	2	1.300	1.140	352			
	3	1.400	1.183	353			
	4	1.600	1.265	355			
	5	1.500	1.225	356			
	6	1.600	1.265	359			
	Average	1.517	1.230	356.1	0		
			Average Absolute Temp.	816			

Absolute Gas Temperature, $T_{ST} = T_S + 460°$

Absolute Gas Pressure, $P_S = P_b + P_g/13.6$ — 30.17 "Hg

Gas Velocity, $Vs = (85.49)\ Cp\ \sqrt{\Delta P}\,avg\ \sqrt{\frac{T_{ST}\,avg}{P_S\ M_W}}$ — 86.55 ft/sec

Actual Gas Flowrate, $Qa = (V_s)\ (60)\ (A)$ — 65261 ACFM

Standard Gas Flow, $Q_{std} = \left[\frac{528°R}{T_{ST}}\right]\left[\frac{P_S}{29.92}\right]\left[\frac{100 - \%H_2O}{100}\right] Qa$ — 36668 DSCFM

Optimum Nozzle Diameter, D_N — 0.22 "

Inputs

DGM DH =	1.82	"H2O
DGM Volume, V_{mTOTAL} =	84.359	ft^3
DGM Y =	1.014	
Moisture Gain, Vi + Vsg =	294	mg/ml
Nozzle Diameter, Dn	0.218	"
Time	120	minutes
Mercury Catch, mg	0.0058	mg

Calculations

Volume of Sample Measured by Dry Gas Meter

$V_{Mtotal(STD)} = V_{Mtotal} \times Y \times (528/(Tm + 460) \times (Pb + \Delta H/13.6)/29.92$ **85.926** DSCF

Moisture of Stack Gas

$\%H2O = 0.04707\ (Vi + Vsg) / (V_{Mtotal(STD)} + 0.04707 \times (Vi + Vsg))$ **13.87** %H2O

Molecular Weight Stack Gas, dry basis

$MW_{DRY} = [(0.44 \times \%CO2) + (0.28 \times \%N) + (0.32 \times \%O2)$ **29.83** lb/lb-mole

Molecular Weight Stack Gas, wet basis

$MW_{WET} = MW_{DRY} \times (1-\%H2O/100) + 0.18(\%H2O)$ **28.18** lb/lb-mole

% Isokinetics

$\%I = (5.67 \times (Ts + 460) \times V_{Mtotal\ STD})/(Vs \times 60 \times Time \times (Pb + (Ps/13.6)) \times (1 - \%H2O))\times(((Dn^2) \times 0.7854)/144))$

94.7 %

Actual Volume of Sample Measured by Dry Gas Meter

$V_{Mtotal(ACT)} = Vm_{total(STD)} \times (Ts + 460)/528 \times 29.92/(Pb + Ps/13.6)*(100/(100-\%H2O)/35.31$

4.33 acm

Mercury Concentration, ug/acm

$Cs_{ACT} = Mn \times 1000 / VM_{Total(ACT)}$ **1.34** ug/acm

Mercury Emission Rate, pounds per hour

$ER = 0.008571 \times Cs \times Qstd$ **0.0003** lb/hr

Mercury Concentration, milligram per dry standard cubic meters corrected to 7% Oxygen

$Cs@7\%O_2 = Mn / V_{Mtotal(STD)}) \times 35.51 \times (20.9-7)/(20.9-\%O_2)$ **0.0033** mg/dscm@7%O_2

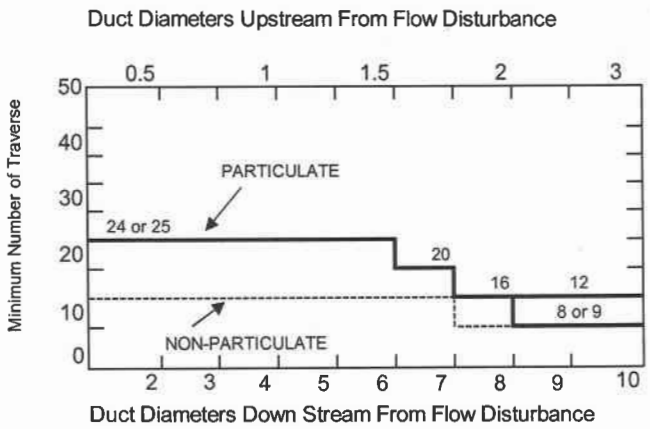
Figure 4-1

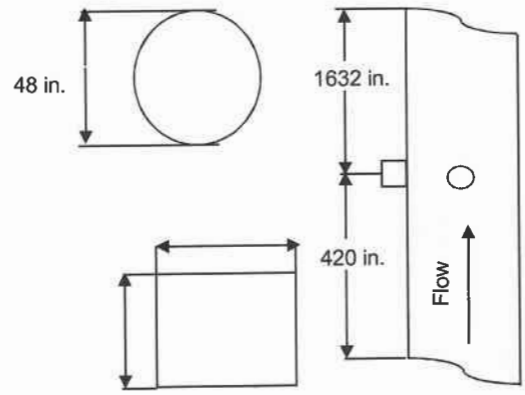
TRC Environmental Corporation
EPA Method 1 Data Sheet

Firm	Dutchess
Location	Unit Nos. 1, 2 Outlets
Diameters Upstream	34.0
Diameters Downstream	8.8
Nipple Size (in.)	27

Total Traverse Points Required	12
Number of Ports	2
Points Per Port	6
Traverse (Horizontal or Vertical)	Horizontal

Minimum Number of Traverse Points For Particulate and Non-Particulate Traverses





Cross-Sectional Layout For Rectangular Stacks Total	
Total Traverse Points	Matrix
9	3x3
12	4x3
16	4x4
20	5x4
25	5x5

Point Number On a Diameter	(Percent of Stack Diameter from Inside Wall to Traverse Point) (No of Traverse Points on a Dia)				
	4	6	8	10	12
1	6 7	4 4	3 2	2 6	2.1
2	25.0	14 6	10 5	8.2	6 7
3	75 0	29.6	19.4	14.6	11 8
4	93.3	70 4	32 3	22 6	17 7
5		85 4	67.7	34.2	25 0
6		95.6	80.6	65 8	35 6
7			89 5	77 4	64.4
8			96.8	85 4	75 0
9				91 8	82.3
10				97.4	88 2
11					93.3
12					97 9

Traverse Point Location

Point Number	Distance From Wall	Nipple Size	Total Distance
1	2 1	27.0	29.1
2	7 0	27.0	34.0
3	14.2	27 0	41.2
4	33 8	27.0	60.8
5	41.0	27 0	68.0
6	45.9	27.0	72.9
7			
8			
9			
10			
11			
12			

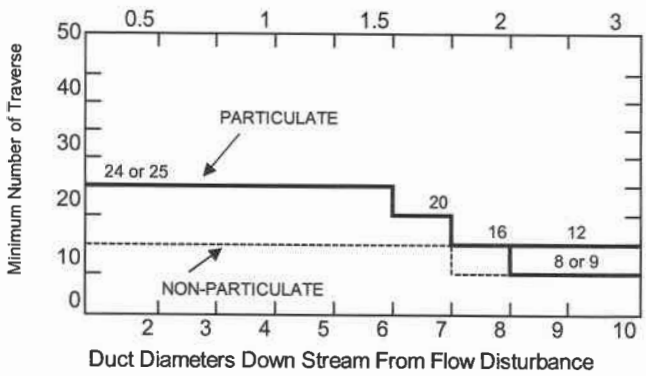
Figure 4-2

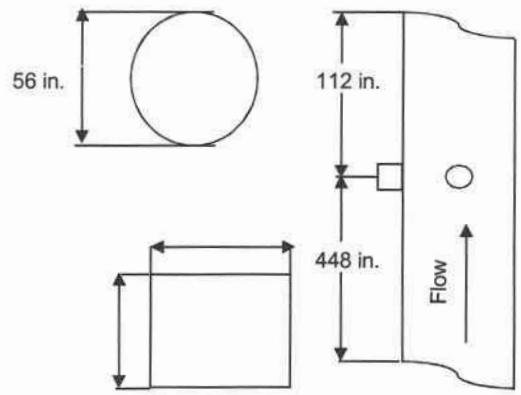
TRC Environmental Corporation
EPA Method 1 Data Sheet

Firm	Dutchess
Location	Unit Nos. 1, 2 Inlet
Diameters Upstream	2.0
Diameters Downstream	8.0
Nipple Size (in.)	6

Total Traverse Points Required	12
Number of Ports	2
Points Per Port	6
Traverse (Horizontal or Vertical)	Horizontal

Minimum Number of Traverse Points For Particulate and Non-Particulate Traverses





Cross-Sectional Layout For Rectangular Stacks Total	
Total Traverse Points	Matrix
9	3x3
12	4x3
16	4x4
20	5x4
25	5x5

Point Number On a Diameter	(Percent of Stack Diameter from Inside Wall to Traverse Point) (No. of Traverse Points on a Dia.) 4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

Traverse Point Location

Point Number	Distance From Wall	Nipple Size	Total Distance
1	2.5	6.0	8.5
2	8.2	6.0	14.2
3	16.6	6.0	22.6
4	39.4	6.0	45.4
5	47.8	6.0	53.8
6	53.5	6.0	59.5
7			
8			
9			
10			
11			
12			

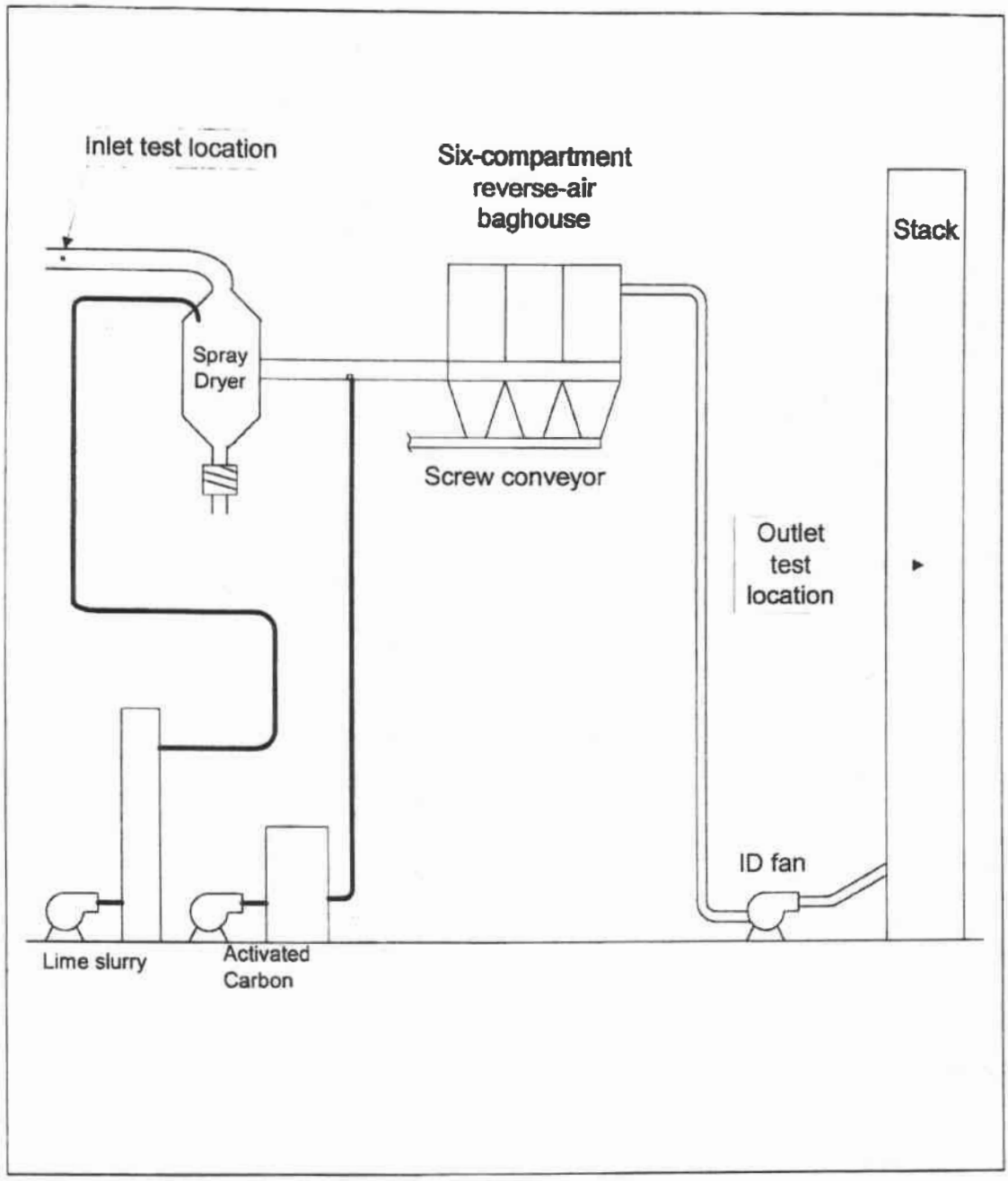


Figure 1 - Schematic of Emissions Control System at DCRRF

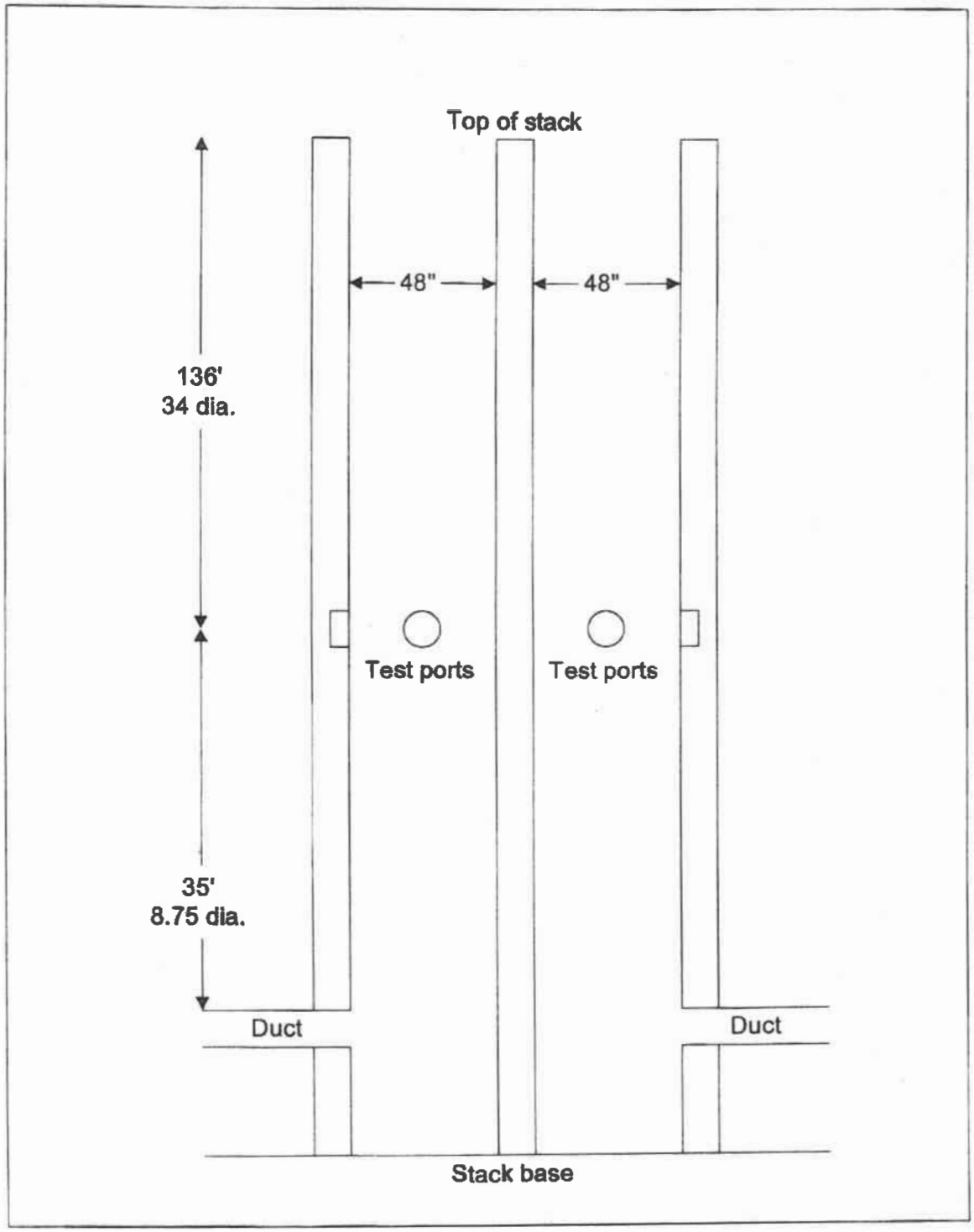


Figure 2 - Schematic of Identical Outlets Sampling Locations

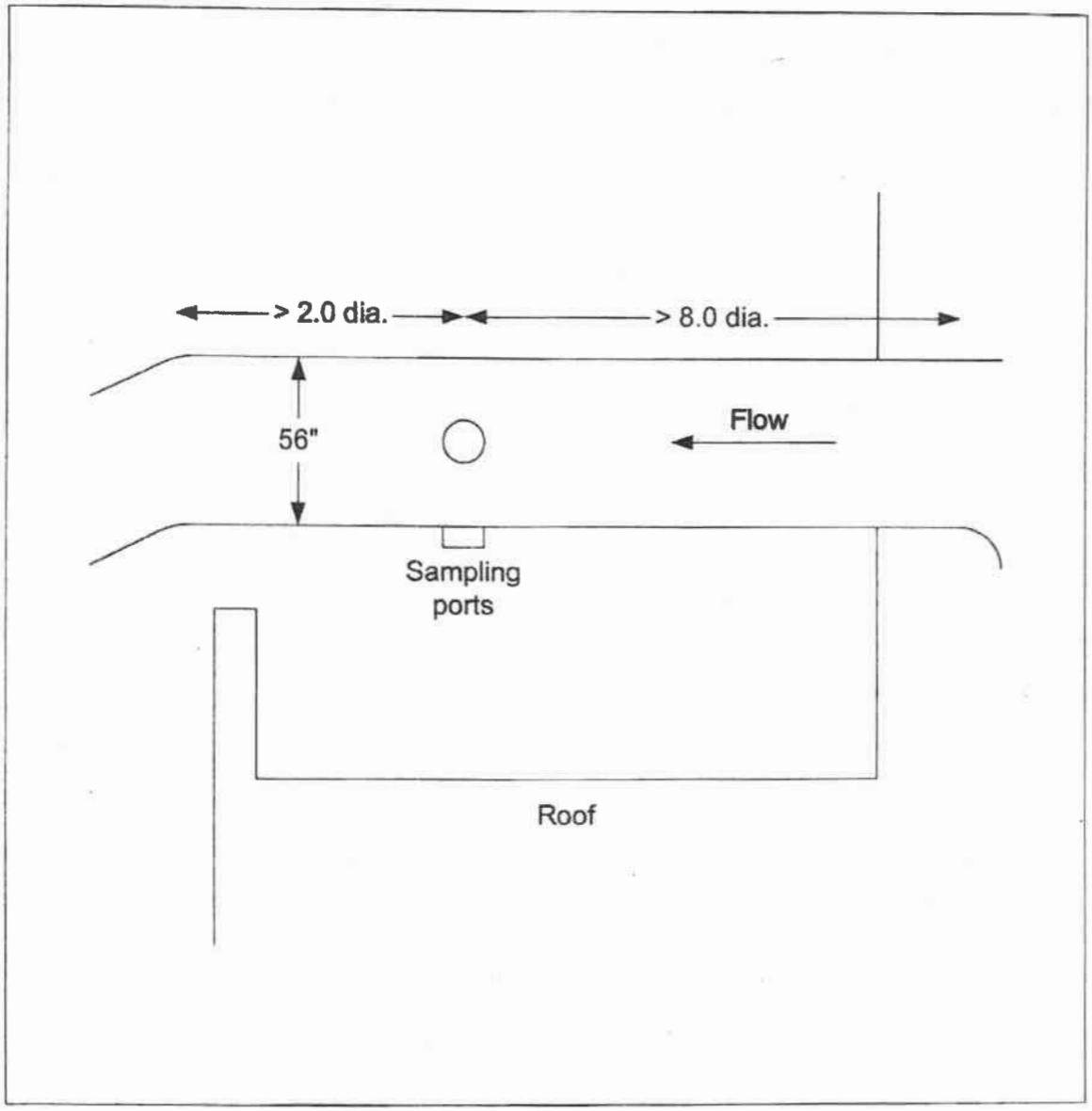


Figure 3 - Schematic of Identical Inlets Sampling Locations

Appendix I

Laboratory Results
EPA Method 5

21 Griffin Road North
Windsor, CT 06095
(860) 298-6308
AIHA ACCREDITATION # 259 ID# 100122
Connecticut Certification No. PH-0426

METHOD 5

CLIENT: Covanta Hudson

Lab. Log No.: 40632
TRC Proj. No.: 192131.0000.0000
Lab Proj. No.: 185217.0000.0000
Date Sampled: 04/17/2012 & 04/18/12
Date Complete: 04/20/2012

Results

Sample Number	Media	Particulate (mg)
M29-U1-1-1 (out)	F# 357	ND<0.5
M29-U1-1-2 (out)	TB# 97	6.1
M29-U1-2-1 (out)	F# 344	ND<0.5
M29-U1-2-2 (out)	TB# 190	8.2
M29-U1-3-1 (out)	F# 359	ND<0.5
M29-U1-3-2 (out)	TB# 122	6.7
M29-U2-1-1 (out)	F# 360	ND<0.5
M29-U2-1-2 (out)	TB# 367	5.3
M29-U2-2-1 (out)	F# 362	ND<0.5
M29-U2-2-2 (out)	TB# 60	2.3
M29-U2-3-1 (out)	F# 361	ND<0.5
M29-U2-3-2 (out)	TB# 582	2.2

Limit of detection = 0.5 mg

These test results meet all the requirements of NELAC. Results relate only to the samples tested as received by the laboratory.

Analyzed by _____
Kathleen Williamson, Laboratory Manager

Reviewed by Helen Remsa
Kathleen Williamson, Laboratory Manager
or other approved signatory

Date Issued: 4/23/12

Sample # M202 Blank Test	Filter/ Tin #	First Weight	Second Weight	Average Weights	Initial Weight	mg Particulate
M29-U1-1-1 (out)	F# 357	0.3342	0.3342	0.3342	0.33495	-0.8
M29-U1-1-2 (out)	TB# 97	3.3252	3.3249	3.32505	3.319	6.1
M29-U1-2-1 (out)	F# 344	0.3255	0.3255	0.3255	0.32875	-3.2
M29-U1-2-2 (out)	TB# 190	3.1824	3.1824	3.1824	3.1742	8.2
M29-U1-3-1 (out)	F# 359	0.3309	0.3309	0.3309	0.3315	-0.6
M29-U1-3-2 (out)	TB# 122	3.319	3.3189	3.31895	3.3123	6.7
M29-U2-1-1 (out)	F# 360	0.3251	0.3251	0.3251	0.32715	-2.1
M29-U2-1-2 (out)	TB# 367	3.3417	3.3415	3.3416	3.3363	5.3
M29-U2-2-1 (out)	F# 362	0.3295	0.3295	0.3295	0.33185	-2.3
M29-U2-2-2 (out)	TB# 60	3.2986	3.2986	3.2986	3.2963	2.3
M29-U2-3-1 (out)	F# 361	0.3226	0.3226	0.3226	0.32415	-1.6
M29-U2-3-2 (out)	TB# 582	3.3204	3.3206	3.3205	3.3183	2.2

TRC - CHAIN OF CUSTODY RECORD

40632

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 19-Apr-12
Laboratory: TRC
Laboratory P.O.:
Shipping Date(s): 19-Apr-12
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Description		ANALYSIS: Particulate - EPA 5/29
M29-U1-1-1 (out)	4/17/2012					X				Quartz Filter		X
M29-U1-1-2 (out)	4/17/2012				X					Probe Rinse - acetone	97	X
M29-U1-2-1 (out)	4/17/2012					X				Quartz Filter		X
M29-U1-2-2 (out)	4/17/2012				X					Probe Rinse - acetone	190	X
M29-U1-3-1 (out)	4/17/2012					X				Quartz Filter		X
M29-U1-3-2 (out)	4/17/2012				X					Probe Rinse - acetone	122	X
M29-U2-1-1 (out)	4/18/2012					X				Quartz Filter		X
M29-U2-1-2 (out)	4/18/2012				X					Probe Rinse - acetone	367	X
M29-U2-2-1 (out)	4/18/2012					X				Quartz Filter		X
M29-U2-2-2 (out)	4/18/2012				X					Probe Rinse - acetone	60	X
M29-U2-3-1 (out)	4/18/2012					X				Quartz Filter		X
M29-U2-3-2 (out)	4/18/2012				X					Probe Rinse - acetone	582	X

Relinquished by:	**Date/Time:** 4/19/12 10:30	**Relinquished by:**	**Date/Time:**
Received by:	**Date/Time:** 4/19/12 1030	**Received by:**	**Date/Time:**

Please analyze samples prior to Monday, April 23. Filters and probe rinse residues will be picked up by Maxxam Analytical for metals analyses.

TRC

Appendix J

Laboratory Results
EPA Method 23 (PCDD/PCDF)

ANALYTICAL PERSPECTIVES

8 May 2012

Richard Kopacz
TRC Environmental
21 Griffin Road North
Windsor, CT 06095

Ph.: 860-298-6265

Email: RKopacz@TRCsolutions.com

Subject: Certificate of Results

Dear Rich;

Attached to this narrative are the analytical results you requested on the samples submitted for the determination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans. The insert below summarizes the relevant information pertaining to your project. In particular, QC annotations bring to your attention specific analytical observations and assessments made during the sample handling and data interpretation phases. A brief description of the report's components is provided. Results reported relate only to the items tested.

Project Information Summary	When applicable, see QC Annotations for details
Client Project No.	192131
AP Project #	**A4212**
Analytical Protocol	Method 23
No. Samples Submitted	4
No. Samples Analyzed	4
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
No. Outstanding Samples	0
Date Received	28-Apr-2012
Condition Received	good
Temperature upon Receipt (C)	3-17
Extraction within Holding Time	yes
Analysis within Holding Time	yes
Data meet QA/QC Requirements	yes
E xceptions	see below
Analytical Difficulties	none

2714 Exchange Drive
Wilmington, NC 28405
Ph.: 910-794-1613

ANALYTICAL PERSPECTIVES

QC Annotations:

1. Please see Appendix A & B for data qualifier, data attribute, and lab identifier information.

Analytical Perspectives Certification IDs:

SOUTH CAROLINA	99054
ARKANSAS	88-0628
NEW JERSEY-NELAP SECONDARY	NC005
FLORIDA-NELAP PRIMARY	E87608
LOUISIANA	4024
NORTH CAROLINA	37783
WASHINGTON	C2027
NEW YORK	11988
VIRGINIA	460180
MINNESOTA	037-999-448
OREGON	pending
TEXAS	T104704484-10-1
PENNSYLVANIA-NELAP SECONDARY	68-01849

Analytical Perspectives remains committed to serving you in the most effective manner. Should you have any questions or need additional information and technical support, please do not hesitate to contact us.

The management and staff of Analytical Perspectives welcome customer feedback, both positive and negative, as we continually improve our services. Please visit our web site at www.ultratrace.com and click on the 'Leave Your Feedback Here!' link on the Home Page. Thank you for choosing Analytical Perspectives.

Sincerely,

Heather Steele

Heather Steele, Ph.D.
Project Scientist
AK/ak

2714 Exchange Drive
Wilmington, NC 28405
Ph: 910-794-1613

APPENDIX A: DATA QUALIFIERS / DATA ATTRIBUTES	
*	The reported concentration exceeds the calibration range (upper point of the calibration curve).[1]
>	Indicates high recoveries. Shown with the numeric value at the top of the range.[1]
B	The analyte is found in the method blank, at a level that is <=10x the sample concentration.
C	Two or more congeners co-elute. In EDDs C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve).
EMPC	Represents an Estimated Maximum Possible Concentration. EMPC's arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), where there is a co-eluting interference, or where a single ion is utilized for quantitation due to PFK interference.
ETH	Indicates the presence of a diphenyl ether that appears to interfere with the quantitation of a furan. The reported concentration is the maximum.
H/h	If the standard recovery is below the method or SOP specified value "H" is assigned. If the obtained value is less than half the specified value "h" is assigned.[1]
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve).
ND	Indicates a non-detect.
NR	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
Ra	The new ratio – [Ra] -- for 2,3,7,8-TCDD following the $^{37}Cl_4$-2,3,7,8-TCDD correction is shown between squared brackets in the DL column.[1]
SI	Denotes "Single Ion Mode" and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.[1]
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.
X	Indicates results reported from reinjection, refractionation, or repeat analyses.
APPENDIX B: LAB ID IDENTIFIERS	
AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

[1]Denotes data qualifiers/attributes whose use will be phased out over time

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A4212 - TEQ

Project ID: 192131

Sample Summary Part 1

ANALYTICAL PERSPECTIVES

Method 23

Analyte	MB1_9721_DF_SDS	HV-U2-26APR12-BL-CB-OUT-CP	HV-U2-25APR12-R1-CB-OUT-CP	HV-U2-25APR12-R2-CB-OUT-CP	HV-U2-26APR12-R3-CB-OUT-CP
	pg	pg	pg	pg	pg
2,3,7,8-TCDD	[1.85]	1.47	7.66	9.54	[7.22]
1,2,3,7,8-PeCDD	(1.7)	(1.62)	28.3	26.9	25.1
1,2,3,4,7,8-HxCDD	(1.61)	(1.31)	25.1	23	24.5
1,2,3,6,7,8-HxCDD	(1.68)	(1.3)	50.3	50.3	49.1
1,2,3,7,8,9-HxCDD	[1.12]	[1.17]	33.7	34.7	29.5
1,2,3,4,6,7,8-HpCDD	(1.33)	6.16	298	307	289
OCDD	(2.62)	38.8	366	377	346
2,3,7,8-TCDF	(1.33)	198	183	337	425
1,2,3,7,8-PeCDF	(1.31)	21.6	83.5	104	110
2,3,4,7,8-PeCDF	(1.11)	5.67	115	119	121
1,2,3,4,7,8-HxCDF	(1.34)	[1.53]	81.5	93.8	79
1,2,3,6,7,8-HxCDF	(1.22)	0.503	92.7	95	91.4
2,3,4,6,7,8-HxCDF	(1.17)	(0.832)	96.4	105	96.7
1,2,3,7,8,9-HxCDF	(1.57)	(1.06)	(2.02)	(1.82)	(1.97)
1,2,3,4,6,7,8-HpCDF	(0.861)	[1.3]	192	223	190
1,2,3,4,7,8,9-HpCDF	(1.16)	(0.913)	22	25.8	20
OCDF	(2.43)	[1.71]	72.7	70.5	65
ITEF TEQ (ND=0; EMPC=0)	**0.00**	**25.4**	**145**	**168**	**163**
ITEF TEQ (ND=0; EMPC=EMPC)	**1.97**	**25.6**	**145**	**168**	**171**
ITEF TEQ (ND=DL/2; EMPC=0)	**2.14**	**26.1**	**146**	**168**	**164**
ITEF TEQ (ND=DL/2; EMPC=EMPC)	**3.22**	**26.3**	**146**	**168**	**171**
ITEF TEQ (ND=DL; EMPC=EMPC)	**4.47**	**26.9**	**146**	**168**	**171**
Checkcode	387-301-DHY	047-002-JNT	965-932-GJR	201-940-ZBT	479-898-BCF
Lab ID	MB1_9721_DF_SDS	A4212_9721_DF_001	A4212_9721_DF_002	A4212_9721_DF_003	A4212_9721_DF_004

( ) = DL
[ ] = EMPC

A4212 - WHO-2005-TEQ

Project ID: 192131

Sample Summary Part 1

ANALYTICAL PERSPECTIVES

Method 23

Analyte	MB1_9721_DF_SDS	HV-U2-26APR12-BL-CB-OUT-CP	HV-U2-25APR12-R1-CB-OUT-CP	HV-U2-25APR12-R2-CB-OUT-CP	HV-U2-26APR12-R3-CB-OUT-CP
	pg	pg	pg	pg	pg
2,3,7,8-TCDD	[1.85]	1.47	7.66	9.54	[7.22]
1,2,3,7,8-PeCDD	(1.7)	(1.62)	28.3	26.9	25.1
1,2,3,4,7,8-HxCDD	(1.61)	(1.31)	25.1	23	24.5
1,2,3,6,7,8-HxCDD	(1.68)	(1.3)	50.3	50.3	49.1
1,2,3,7,8,9-HxCDD	[1.12]	[1.17]	33.7	34.7	29.5
1,2,3,4,6,7,8-HpCDD	(1.33)	6.16	298	307	289
OCDD	(2.62)	38.8	366	377	346
2,3,7,8-TCDF	(1.33)	198	183	337	425
1,2,3,7,8-PeCDF	(1.31)	21.6	83.5	104	110
2,3,4,7,8-PeCDF	(1.11)	5.67	115	119	121
1,2,3,4,7,8-HxCDF	(1.34)	[1.53]	81.5	93.8	79
1,2,3,6,7,8-HxCDF	(1.22)	0.503	92.7	95	91.4
2,3,4,6,7,8-HxCDF	(1.17)	(0.832)	96.4	105	96.7
1,2,3,7,8,9-HxCDF	(1.57)	(1.06)	(2.02)	(1.82)	(1.97)
1,2,3,4,6,7,8-HpCDF	(0.861)	[1.3]	192	223	190
1,2,3,4,7,8,9-HpCDF	(1.16)	(0.913)	22	25.8	20
OCDF	(2.43)	[1.71]	72.7	70.5	65
WHO-2005 TEQ (ND=0; EMPC=0)	**0.00**	**23.8**	**135**	**155**	**149**
WHO-2005 TEQ (ND=0; EMPC=EMPC)	**1.97**	**24.1**	**135**	**155**	**157**
WHO-2005 TEQ (ND=DL/2; EMPC=0)	**2.44**	**24.9**	**135**	**155**	**150**
WHO-2005 TEQ (ND=DL/2; EMPC=EMPC)	**3.51**	**25.1**	**135**	**155**	**157**
WHO-2005 TEQ (ND=DL; EMPC=EMPC)	**5.06**	**26.1**	**135**	**155**	**157**
Checkcode	387-301-DHY	047-002-JNT	965-932-GJR	201-940-ZBT	479-898-BCF
Lab ID	MB1_9721_DF_SDS	A4212_9721_DF_001	A4212_9721_DF_002	A4212_9721_DF_003	A4212_9721_DF_004

( ) = DL
[ ] = EMPC

A4212 - Totals

Project ID: 192131

Sample Summary Part 2

ANALYTICAL PERSPECTIVES

Method 23

Analyte	MB1_9721_DF_SDS	HV-U2-26APR12-BL-CB-OUT-CP	HV-U2-25APR12-R1-CB-OUT-CP	HV-U2-25APR12-R2-CB-OUT-CP	HV-U2-26APR12-R3-CB-OUT-CP
	pg	pg	pg	pg	pg
Totals					
TCDDs	1.63	8.93	579	606	555
PeCDDs	0	0	832	802	767
HxCDDs	0	0	1320	1340	1180
HpCDDs	0	6.16	620	630	586
OCDD	0	38.8	366	377	346
TCDFs	0	569	2370	2980	3190
PeCDFs	0	27.3	1590	1620	1560
HxCDFs	0	0.503	829	911	789
HpCDFs	0	0	297	347	294
OCDF	0	0	72.7	70.5	65
Total PCDD/Fs (ND=0; EMPC=0)	**1.63**	**651**	**8,880**	**9,670**	**9,330**
Total PCDD/Fs (ND=0; EMPC=EMPC)	**4.60**	**700**	**8,900**	**9,740**	**9,400**
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	**27.1**	**707**	**8,900**	**9,740**	**9,400**
Total 2378s (ND=0; EMPC=0)	**0.00**	**273**	**1,750**	**2,000**	**1,960**
Total 2378s (ND=0.5; EMPC=0)	**12.9**	**278**	**1,750**	**2,000**	**1,960**
Total 2378s (ND=1; EMPC=0)	**25.8**	**284**	**1,750**	**2,000**	**1,960**
Total 2378s (ND=0; EMPC=1)	**2.97**	**278**	**1,750**	**2,000**	**1,970**
Total 2378s (ND=0.5; EMPC=1)	**14.2**	**282**	**1,750**	**2,000**	**1,970**
Total 2378s (ND=1; EMPC=1)	**25.4**	**285**	**1,750**	**2,000**	**1,970**
Checkcode	387-301-DHY	047-002-JNT	965-932-GJR	201-940-ZBT	479-898-BCF
Lab ID	MB1_9721_DF_SDS	A4212_9721_DF_001	A4212_9721_DF_002	A4212_9721_DF_003	A4212_9721_DF_004

( ) = DL
[ ] = EMPC

A4212 - Others
Project ID: 192131

Sample Summary Part 3 — ANALYTICAL PERSPECTIVES — **Method 23**

Analyte	MB1_9721_DF_SDS	HV-U2-26APR12-BL-CB-OUT-CP	HV-U2-25APR12-R1-CB-OUT-CP	HV-U2-25APR12-R2-CB-OUT-CP	HV-U2-26APR12-R3-CB-OUT-CP
	pg	pg	pg	pg	pg
Other PCDD/Fs (ND=0, EMPC=0)					
Other TCDD	1.63	7.46	571	597	555
Other PeCDD	0	0	804	775	742
Other HxCDD	0	0	1210	1230	1070
Other HpCDD	0	0	322	323	297
Other TCDF	0	371	2190	2640	2770
Other PeCDF	0	0	1390	1390	1330
Other HxCDF	0	0	558	617	522
Other HpCDF	0	0	82.9	98.1	84.1
Other PCDD/Fs (ND=0, EMPC=EMPC)					
Other TCDD	1.63	7.46	579	597	581
Other PeCDD	0	0	804	775	742
Other HxCDD	0	6.18	1210	1270	1070
Other HpCDD	0	5.07	322	323	297
Other TCDF	0	390	2190	2640	2780
Other PeCDF	0	12.7	1390	1390	1340
Other HxCDF	0	1.2	578	637	540
Other HpCDF	0	0	82.9	98.1	84.1
Checkcode	387-301-DHY	047-002-JNT	965-932-GJR	201-940-ZBT	479-898-BCF
Lab ID	MB1_9721_DF_SDS	A4212_9721_DF_001	A4212_9721_DF_002	A4212_9721_DF_003	A4212_9721_DF_004

( ) = DL
[ ] = EMPC

A4212 - DLs

Project ID: 192131

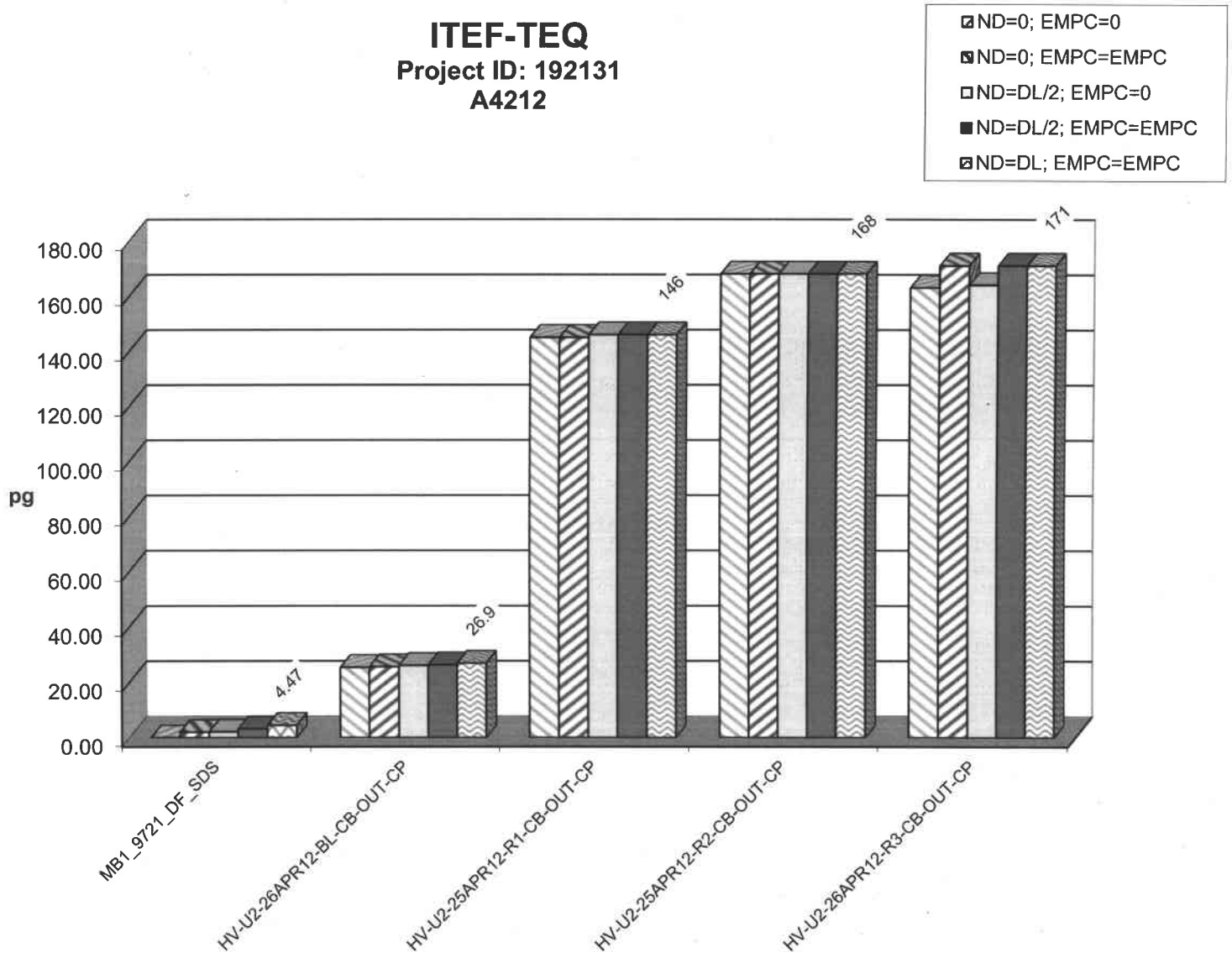
Sample Summary
Part 5 (DLs)

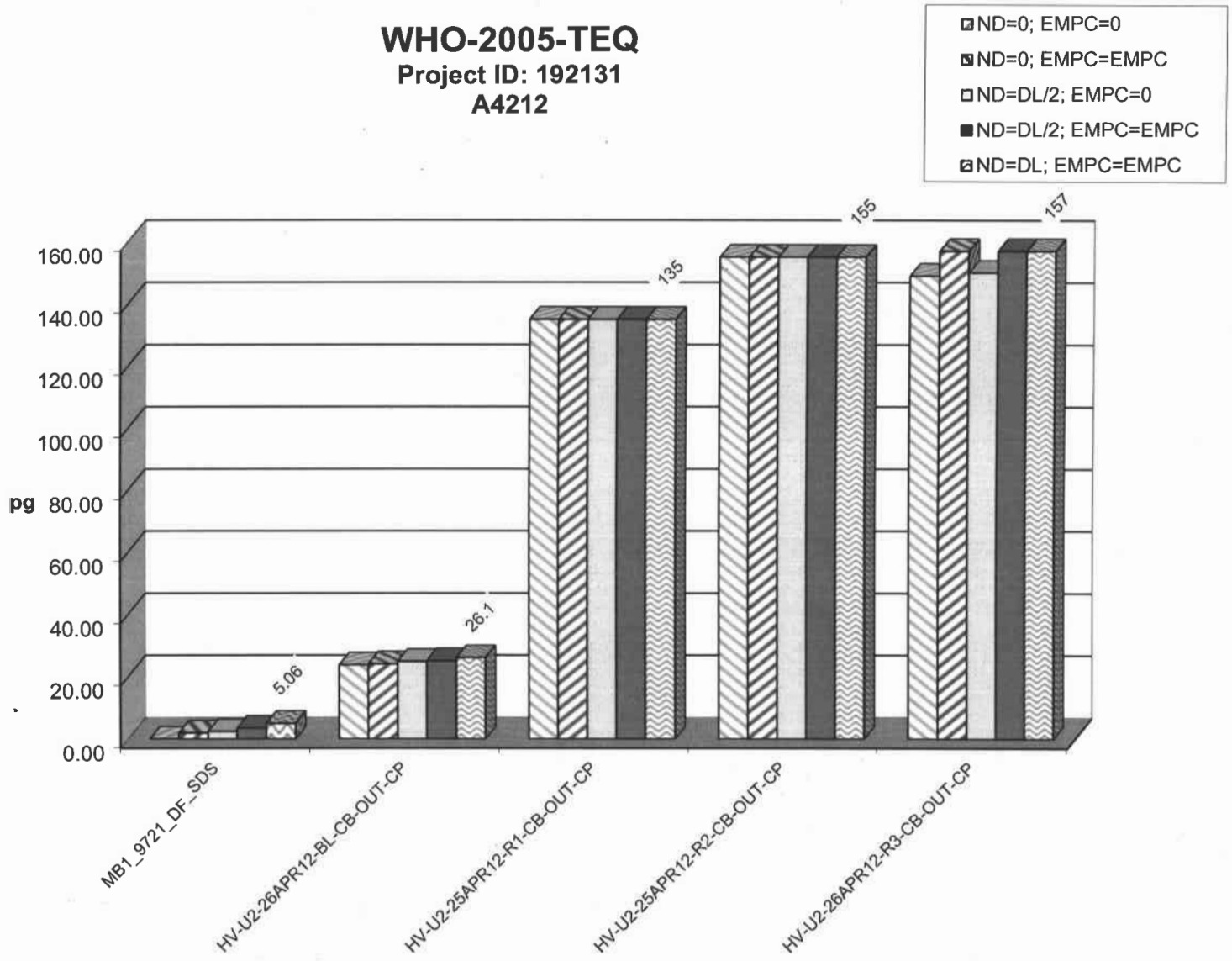
ANALYTICAL PERSPECTIVES

Method 23

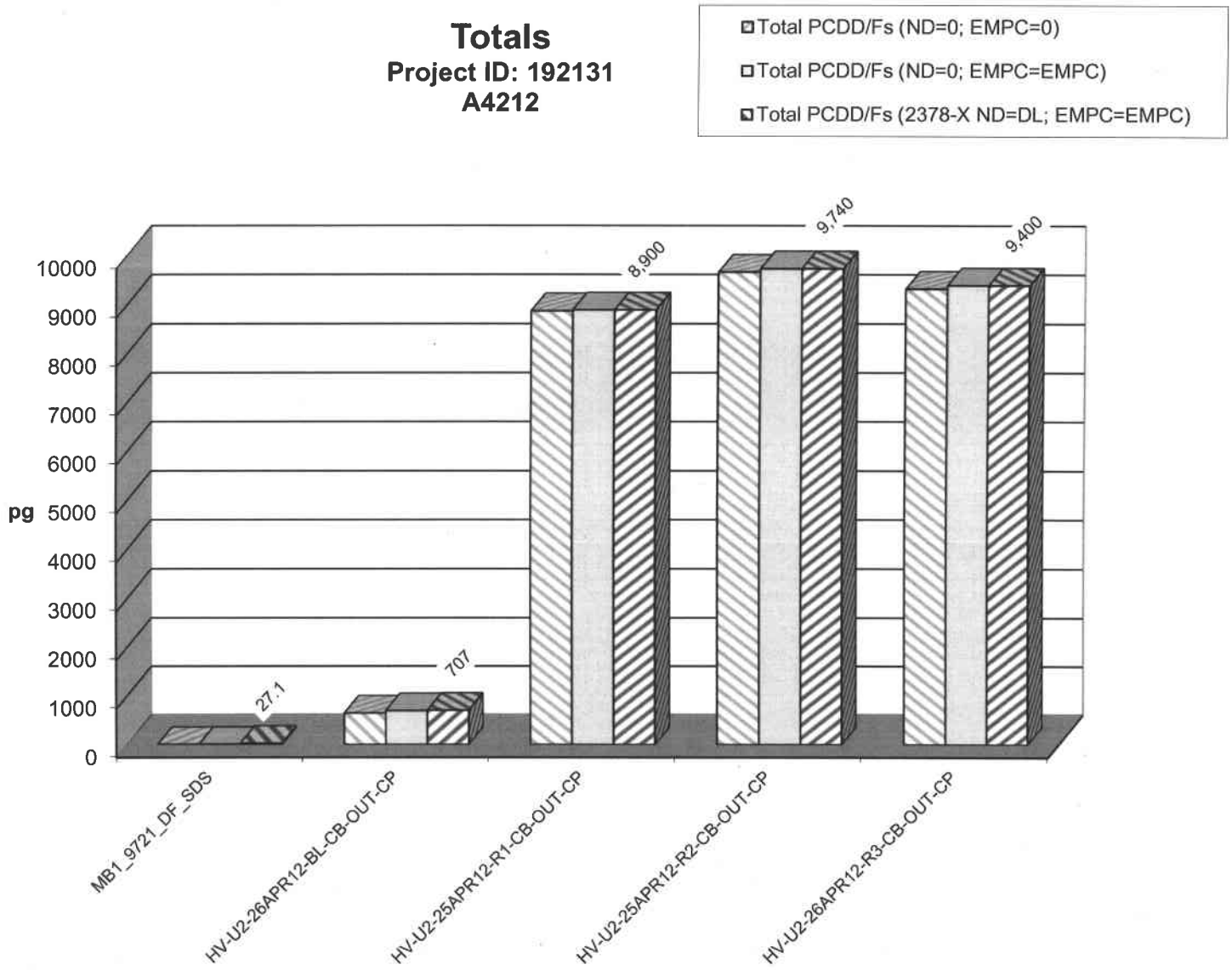
Analyte	MB1_9721_DF_SDS	HV-U2-26APR12-BL-CB-OUT-CP	HV-U2-25APR12-R1-CB-OUT-CP	HV-U2-25APR12-R2-CB-OUT-CP	HV-U2-26APR12-R3-CB-OUT-CP
	pg	pg	pg	pg	pg
2,3,7,8-TCDD	1.61	1.39	1.57	1.36	1.6
1,2,3,7,8-PeCDD	1.7	1.62	2.31	2.24	2.2
1,2,3,4,7,8-HxCDD	1.61	1.31	2.22	1.22	2.12
1,2,3,6,7,8-HxCDD	1.68	1.3	2.27	1.23	2.03
1,2,3,7,8,9-HxCDD	1.72	1.33	2.19	1.22	2.06
1,2,3,4,6,7,8-HpCDD	1.33	1.32	2.47	1.96	2.7
OCDD	2.62	2.08	2.39	1.75	2.29
2,3,7,8-TCDF	1.33	1.22	2.17	1.96	2.37
1,2,3,7,8-PeCDF	1.31	0.93	3.72	2.2	2.1
2,3,4,7,8-PeCDF	1.11	0.862	3.21	1.96	2
1,2,3,4,7,8-HxCDF	1.34	0.872	1.74	1.56	1.69
1,2,3,6,7,8-HxCDF	1.22	0.839	1.65	1.5	1.57
2,3,4,6,7,8-HxCDF	1.17	0.832	1.65	1.47	1.56
1,2,3,7,8,9-HxCDF	1.57	1.06	2.02	1.82	1.97
1,2,3,4,6,7,8-HpCDF	0.861	0.671	1.75	1.1	1.2
1,2,3,4,7,8,9-HpCDF	1.16	0.913	2.35	1.39	1.53
OCDF	2.43	1.53	2.51	1.41	2.08
Total TCDD	1.61	1.39	1.57	1.36	1.6
Total PeCDD	1.7	1.62	2.31	2.24	2.2
Total HxCDD	1.66	1.31	2.22	1.22	2.06
Total HpCDD	1.33	1.32	2.47	1.96	2.7
Total TCDF	1.33	1.22	2.17	1.96	2.37
Total PeCDF	1.21	0.895	3.45	2.08	2.05
Total HxCDF	1.31	0.893	1.75	1.58	1.69
Total HpCDF	0.998	0.78	2.02	1.23	1.35
Checkcode	387-301-DHY	047-002-JNT	965-932-GJR	201-940-ZBT	479-898-BCF
Lab ID	MB1_9721_DF_SDS	A4212_9721_DF_001	A4212_9721_DF_002	A4212_9721_DF_003	A4212_9721_DF_004

ITEF-TEQ
Project ID: 192131
A4212

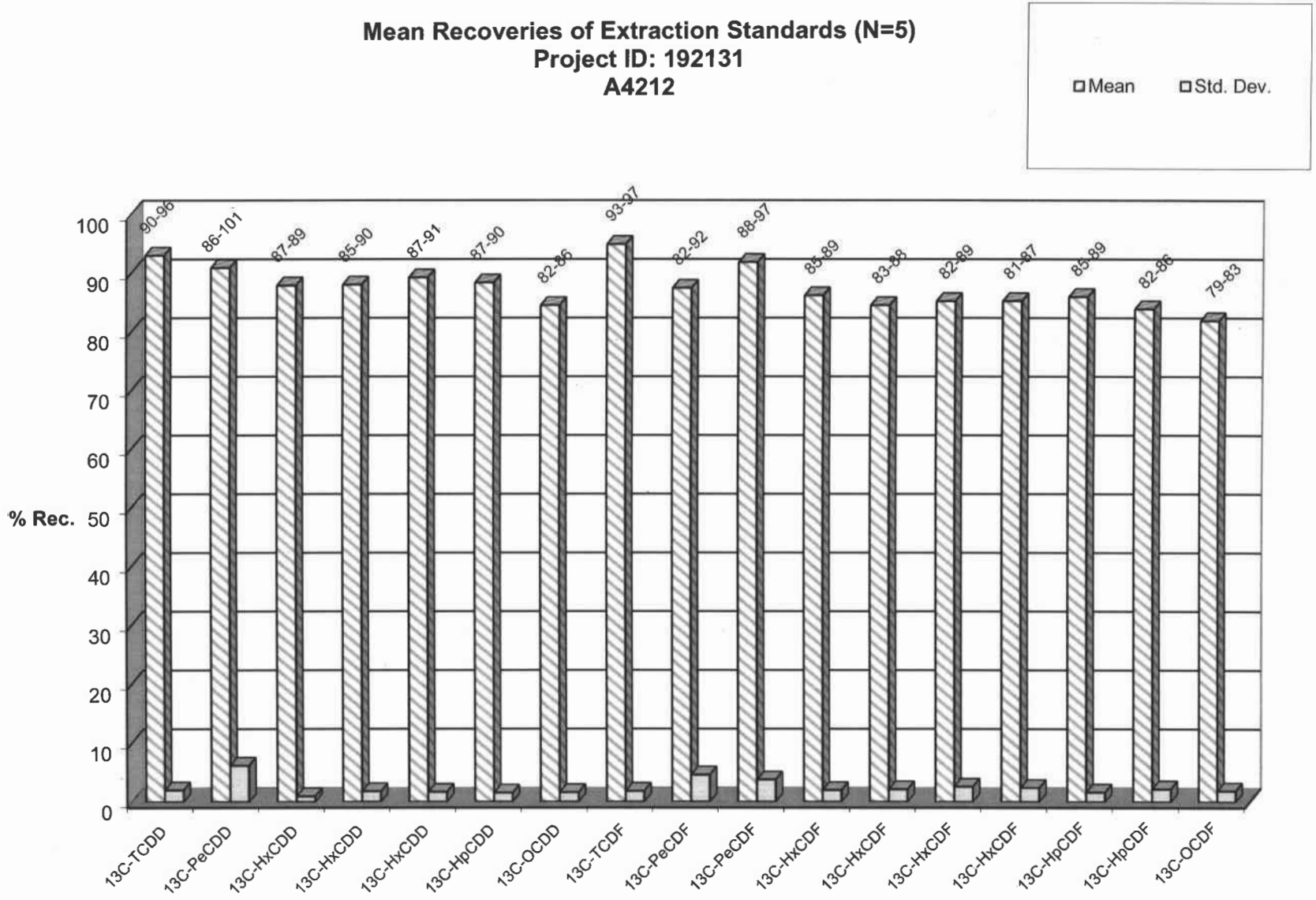



WHO-2005-TEQ
Project ID: 192131
A4212
ND=0; EMPC=0
ND=0; EMPC=EMPC
ND=DL/2; EMPC=0
ND=DL/2; EMPC=EMPC
ND=DL; EMPC=EMPC
pg
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
5.06
26.1
135
155
157
MB1_9721_DF_SDS
HV-U2-26APR12-BL-CB-OUT-CP
HV-U2-25APR12-R1-CB-OUT-CP
HV-U2-25APR12-R2-CB-OUT-CP
HV-U2-26APR12-R3-CB-OUT-CP

Totals
Project ID: 192131
A4212

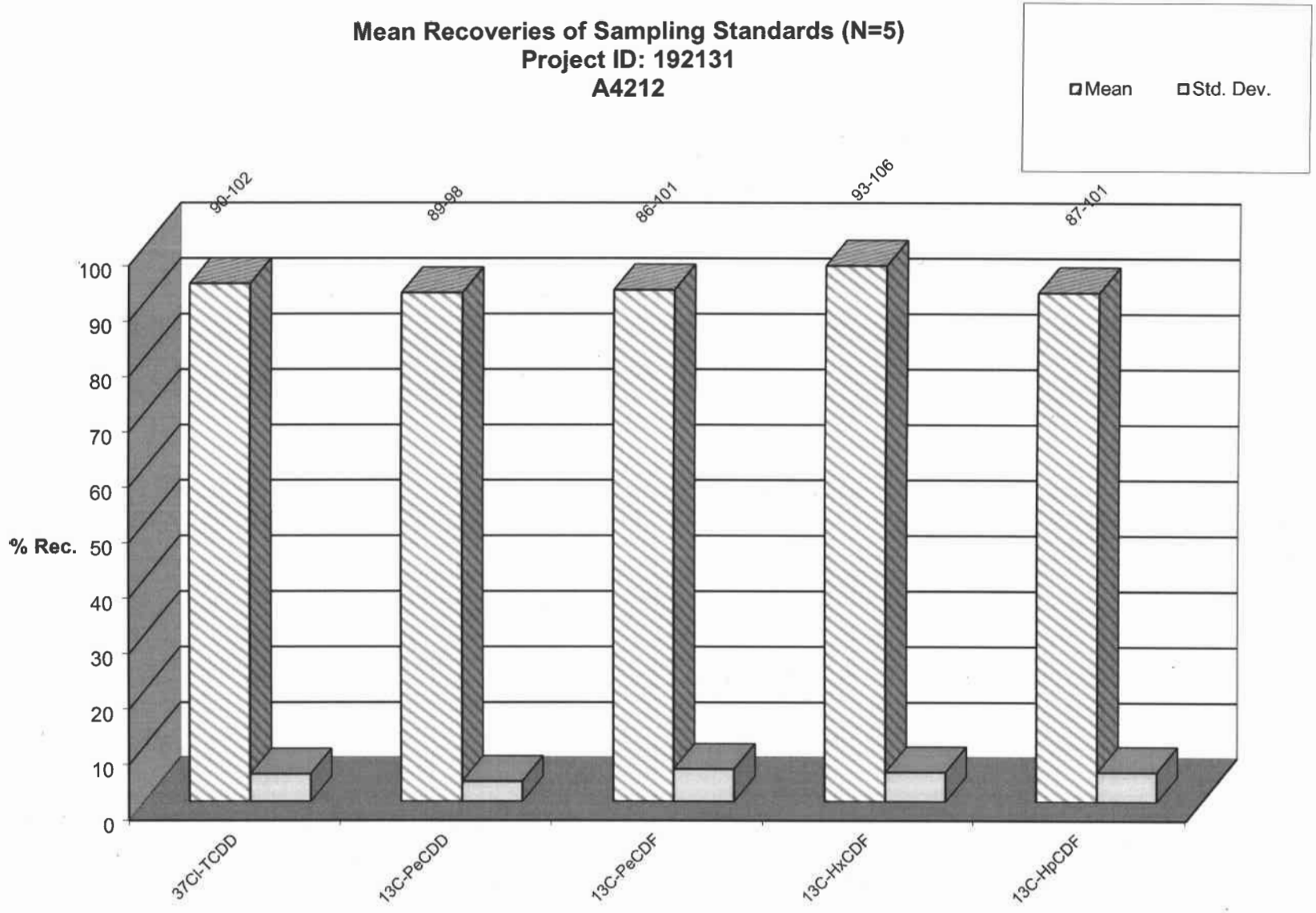


Mean Recoveries of Extraction Standards (N=5)
Project ID: 192131
A4212

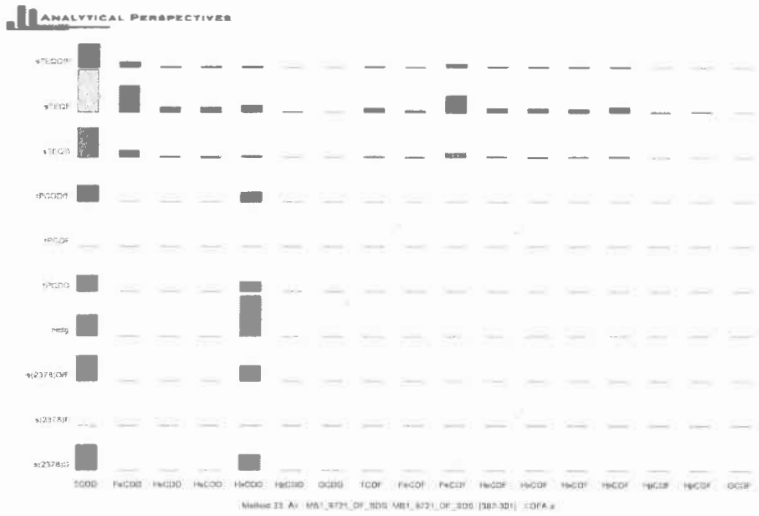


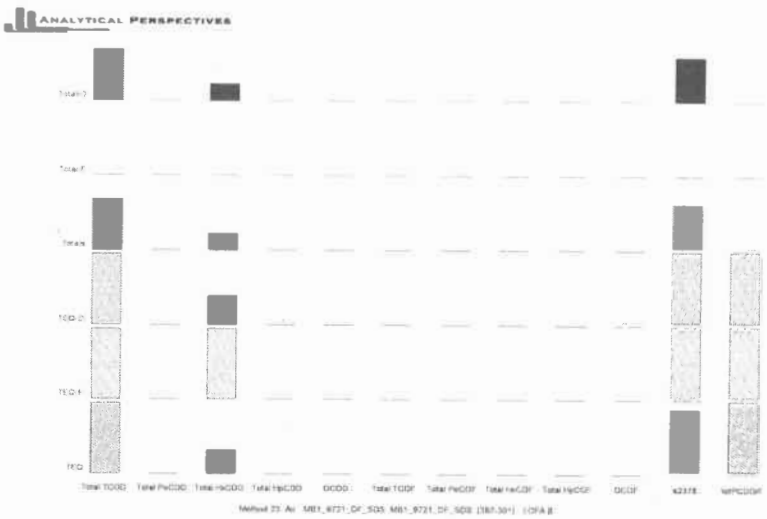
Method Specification Limits: Tetra-Hexa ES: 40-130%, Hepta-Octa ES: 25-130% (F = fail)

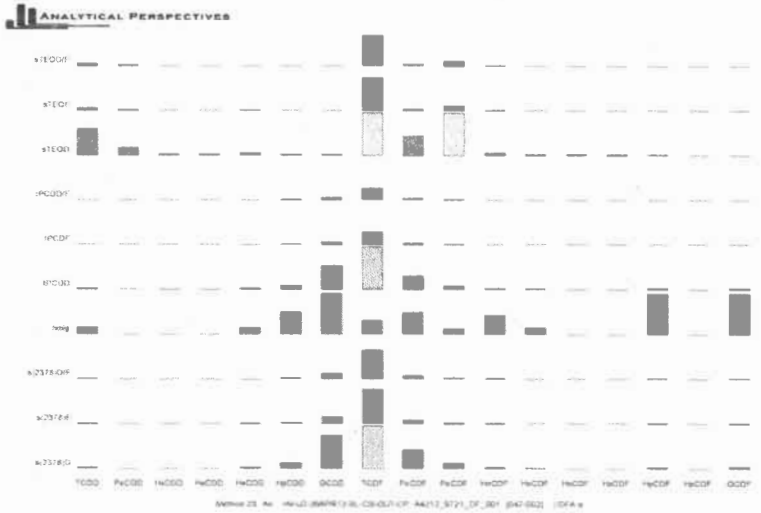
Mean Recoveries of Sampling Standards (N=5)
Project ID: 192131
A4212

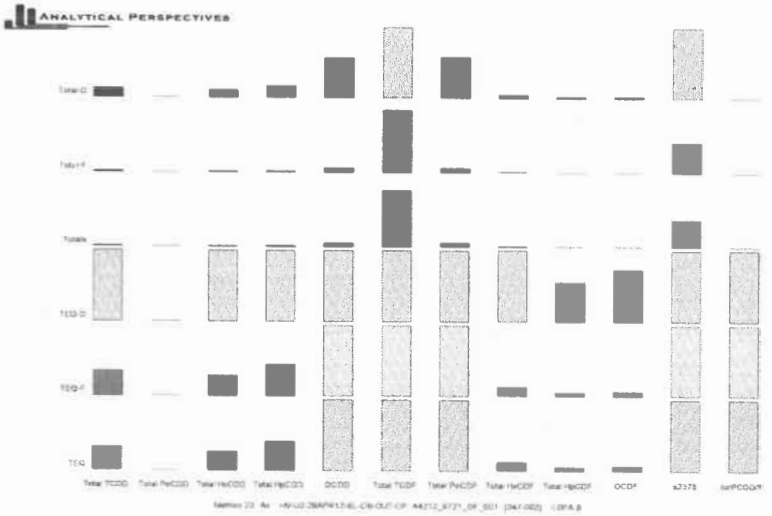


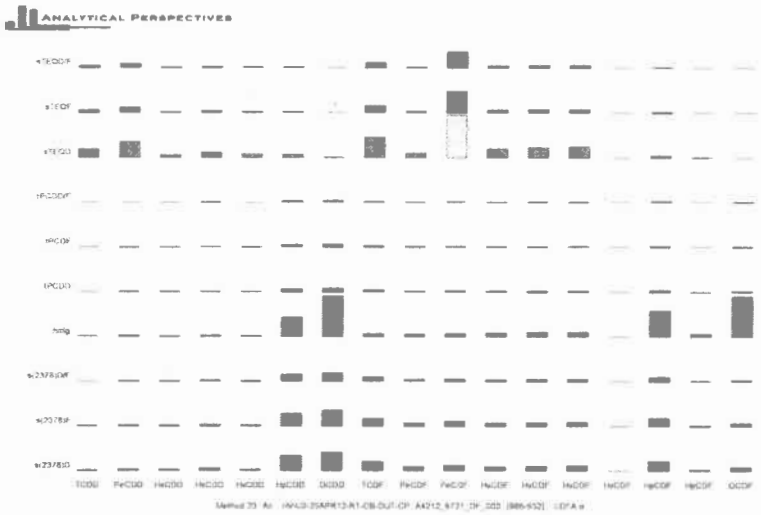
Method Specification Limits: Tetra-Octa SS: 70-130% (F = fail)

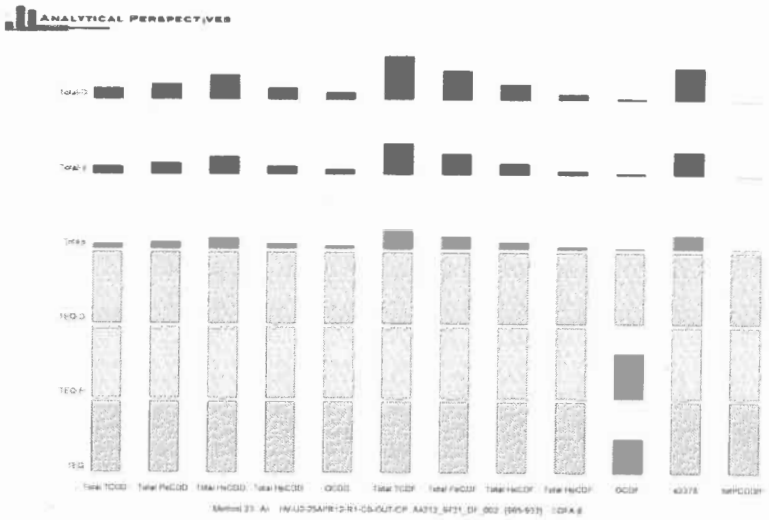

ANALYTICAL PERSPECTIVES

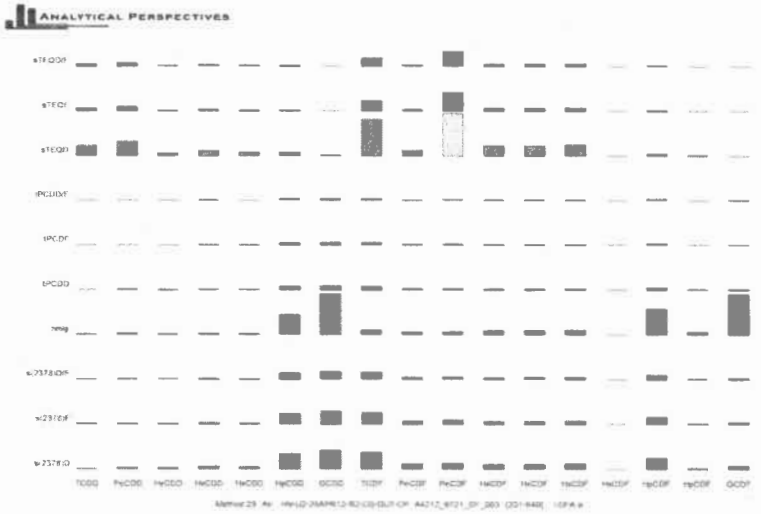

ANALYTICAL PERSPECTIVES

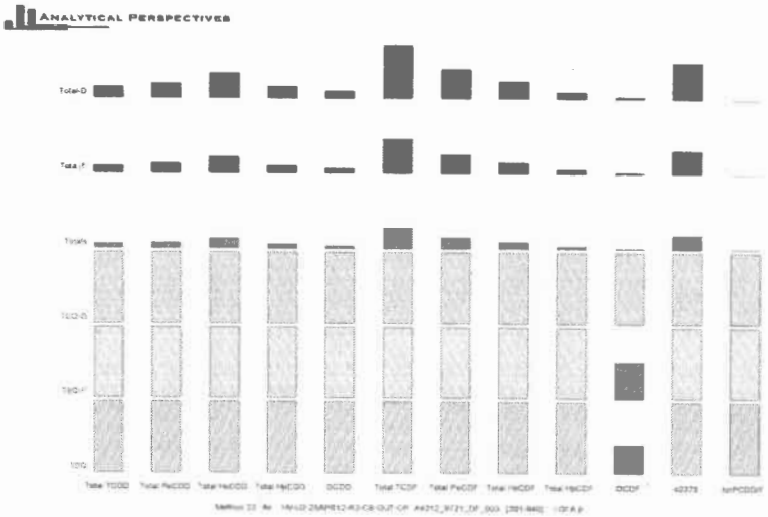

ANALYTICAL PERSPECTIVES

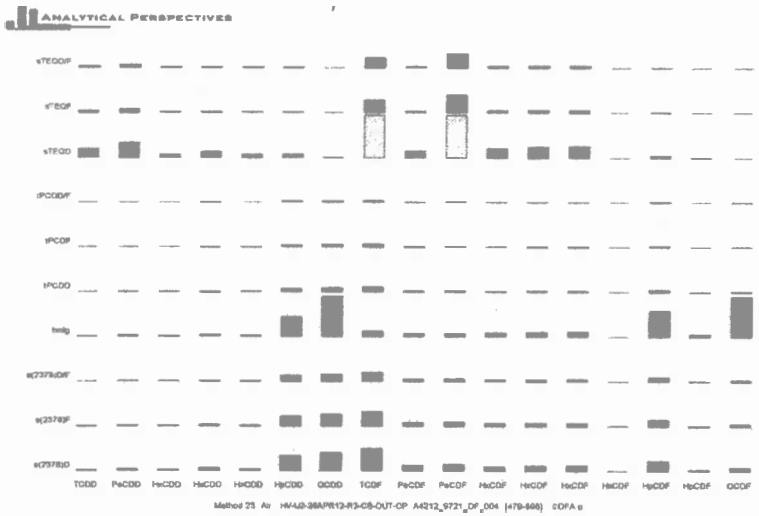

ANALYTICAL PERSPECTIVES

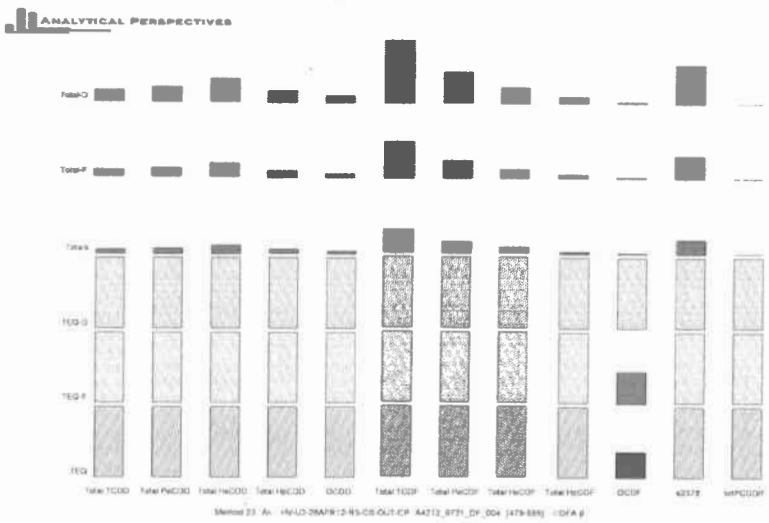

ANALYTICAL PERSPECTIVES


ANALYTICAL PERSPECTIVES


ANALYTICAL PERSPECTIVES


ANALYTICAL PERSPECTIVES


ANALYTICAL PERSPECTIVES
TCDD
PeCDD
HxCDD
HxCDD
HxCDD
HpCDD
OCDD
TCDF
PeCDF
PeCDF
HxCDF
HxCDF
HxCDF
HpCDF
HpCDF
OCDF


ANALYTICAL PERSPECTIVES
OCDD
OCDF

Sample ID: MB1_9721_DF_SDS

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	TRC	Matrix:	Air	Lab Project ID:	A4212	Date Received:	n/a
Project ID:	192131	Weight/Volume:	1	Lab Sample ID	MB1_9721_DF_SDS	Date Extracted:	01-May-2012
Date Collected:	n/a			QC Batch No:	9721	Date Analyzed:	05-May-2012
		Split:	2	Dilution:	-	Time Analyzed:	09:25:21

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		1.85	J	ES 2378-TCDD	93	
12378-PeCDD	ND	1.7			ES 12378-PeCDD	88.9	
123478-HxCDD	ND	1.61			ES 123478-HxCDD	89.4	
123678-HxCDD	ND	1.68			ES 123678-HxCDD	89.5	
123789-HxCDD	EMPC		1.12	J	ES 123789-HxCDD	90.9	
1234678-HpCDD	ND	1.33			ES 1234678-HpCDD	90.2	
OCDD	ND	2.62			ES OCDD	85.5	
2378-TCDF	ND	1.33			ES 2378-TCDF	94.4	
12378-PeCDF	ND	1.31			ES 12378-PeCDF	86.5	
23478-PeCDF	ND	1.11			ES 23478-PeCDF	89.6	
123478-HxCDF	ND	1.34			ES 123478-HxCDF	89.4	
123678-HxCDF	ND	1.22			ES 123678-HxCDF	88	
234678-HxCDF	ND	1.17			ES 234678-HxCDF	88.7	
123789-HxCDF	ND	1.57			ES 123789-HxCDF	87	
1234678-HpCDF	ND	0.861			ES 1234678-HpCDF	88.8	
1234789-HpCDF	ND	1.16			ES 1234789-HpCDF	86.3	
OCDF	ND	2.43			ES OCDF	82.7	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	102	
Total TCDD	1.63		3.48		SS 12347-PeCDD	98	
Total PeCDD	ND	1.7	ND		SS 12346-PeCDF	101	
Total HxCDD	ND		1.12		SS 123469-HxCDF	106	
Total HpCDD	ND	1.33	ND		SS 1234689-HpCDF	101	
					AS 1368-TCDD	92.5	
Total TCDF	ND	1.33	ND		AS 1368-TCDF	91.1	
Total PeCDF	ND	1.21	ND				
Total HxCDF	ND	1.31	ND				
Total HpCDF	ND	0.998	ND				
Total PCDD/Fs	**1.63**		**4.6**				
ITEF TEQs							
TEQ: ND=0	0		1.97				
TEQ: ND=DL/2	2.14	2.14	3.22				
TEQ: ND=DL	4.28	4.28	4.47				

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www.ultratrace.com

Sample ID: HV-U2-26APR12-BL-CB-OUT-CP

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	TRC	Matrix:	Air	Lab Project ID:	A4212	Date Received:	27-Apr-2012
Project ID:	192131	Weight/Volume:	1	Lab Sample ID	A4212_9721_DF_001	Date Extracted:	01-May-2012
Date Collected:	26-Apr-2012			QC Batch No:	9721	Date Analyzed:	05-May-2012
		Split:	2	Dilution:	-	Time Analyzed:	10:13:27

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	1.47			J B	ES 2378-TCDD	92.2	
12378-PeCDD	ND	1.62			ES 12378-PeCDD	86.5	
123478-HxCDD	ND	1.31			ES 123478-HxCDD	86.9	
123678-HxCDD	ND	1.3			ES 123678-HxCDD	87.5	
123789-HxCDD	EMPC		1.17	J B	ES 123789-HxCDD	87.8	
1234678-HpCDD	6.16			J	ES 1234678-HpCDD	88.2	
OCDD	38.8			J	ES OCDD	82.2	
2378-TCDF	198				ES 2378-TCDF	92.7	
12378-PeCDF	21.6			J	ES 12378-PeCDF	85.1	
23478-PeCDF	5.67			J	ES 23478-PeCDF	88.4	
123478-HxCDF	EMPC		1.53	J	ES 123478-HxCDF	85.5	
123678-HxCDF	0.503			J	ES 123678-HxCDF	83.5	
234678-HxCDF	ND	0.832			ES 234678-HxCDF	83.8	
123789-HxCDF	ND	1.06			ES 123789-HxCDF	81.2	
1234678-HpCDF	EMPC		1.3	J	ES 1234678-HpCDF	84.9	
1234789-HpCDF	ND	0.913			ES 1234789-HpCDF	82.2	
OCDF	EMPC		1.71	J	ES OCDF	79	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	91.7	
Total TCDD	8.93		8.93		SS 12347-PeCDD	91.4	
Total PeCDD	ND	1.62	ND		SS 12346-PeCDF	94	
Total HxCDD	ND		7.35		SS 123469-HxCDF	93.5	
Total HpCDD	6.16		11.2		SS 1234689-HpCDF	89.2	
					AS 1368-TCDD	91	
Total TCDF	569		588		AS 1368-TCDF	91.5	
Total PeCDF	27.3		40				
Total HxCDF	0.503		3.23				
Total HpCDF	ND		1.3				
Total PCDD/Fs	**651**		**700**				
ITEF TEQs							
TEQ: ND=0	25.4		25.6				
TEQ: ND=DL/2	26.1	1.8	26.3				
TEQ: ND=DL	26.9	3.59	26.9				

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www.ultratrace.com

Sample ID: HV-U2-25APR12-R1-CB-OUT-CP

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	TRC	Matrix:	Air	Lab Project ID:	A4212	Date Received:	27-Apr-2012
Project ID:	192131	Weight/Volume:	1	Lab Sample ID	A4212_9721_DF_002	Date Extracted:	01-May-2012
Date Collected:	25-Apr-2012			QC Batch No:	9721	Date Analyzed:	05-May-2012
		Split:	2	Dilution:	-	Time Analyzed:	11:01:35

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	7.66			J B	ES 2378-TCDD	93.7	
12378-PeCDD	28.3			J	ES 12378-PeCDD	86	
123478-HxCDD	25.1			J	ES 123478-HxCDD	87.9	
123678-HxCDD	50.3				ES 123678-HxCDD	88.6	
123789-HxCDD	33.7			J	ES 123789-HxCDD	90	
1234678-HpCDD	298				ES 1234678-HpCDD	87.2	
OCDD	366				ES OCDD	83.8	
2378-TCDF	183				ES 2378-TCDF	94	
12378-PeCDF	83.5				ES 12378-PeCDF	81.5	
23478-PeCDF	115				ES 23478-PeCDF	89.5	
123478-HxCDF	81.5				ES 123478-HxCDF	86.6	
123678-HxCDF	92.7				ES 123678-HxCDF	84.9	
234678-HxCDF	96.4				ES 234678-HxCDF	87	
123789-HxCDF	ND	2.02			ES 123789-HxCDF	86.2	
1234678-HpCDF	192				ES 1234678-HpCDF	85.3	
1234789-HpCDF	22			J	ES 1234789-HpCDF	82.6	
OCDF	72.7			J	ES OCDF	83.2	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	90.3	
Total TCDD	579		586		SS 12347-PeCDD	89.5	
Total PeCDD	832		832		SS 12346-PeCDF	92.6	
Total HxCDD	1320		1320		SS 123469-HxCDF	94.9	
Total HpCDD	620		620		SS 1234689-HpCDF	89.9	
					AS 1368-TCDD	92.6	
Total TCDF	2370		2370		AS 1368-TCDF	89	
Total PeCDF	1590		1590				
Total HxCDF	829		849				
Total HpCDF	297		297				
Total PCDD/Fs	**8880**		**8900**				
ITEF TEQs							
TEQ: ND=0	145		145				
TEQ: ND=DL/2	146	3.09	146				
TEQ: ND=DL	146	6.18	146				

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www.ultratrace.com

Sample ID: HV-U2-25APR12-R2-CB-OUT-CP

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	TRC	Matrix:	Air	Lab Project ID:	A4212	Date Received:	27-Apr-2012
Project ID:	192131	Weight/Volume:	1	Lab Sample ID	A4212_9721_DF_003	Date Extracted:	01-May-2012
Date Collected:	25-Apr-2012			QC Batch No:	9721	Date Analyzed:	05-May-2012
		Split:	2	Dilution:	-	Time Analyzed:	11:49:37

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	9.54			J B	ES 2378-TCDD	90.3	
12378-PeCDD	26.9			J	ES 12378-PeCDD	91.9	
123478-HxCDD	23			J	ES 123478-HxCDD	87.5	
123678-HxCDD	50.3				ES 123678-HxCDD	85.2	
123789-HxCDD	34.7			J	ES 123789-HxCDD	87.1	
1234678-HpCDD	307				ES 1234678-HpCDD	89.5	
OCDD	377				ES OCDD	86.3	
2378-TCDF	337				ES 2378-TCDF	95.8	
12378-PeCDF	104				ES 12378-PeCDF	92.1	
23478-PeCDF	119				ES 23478-PeCDF	94.8	
123478-HxCDF	93.8				ES 123478-HxCDF	84.6	
123678-HxCDF	95				ES 123678-HxCDF	82.9	
234678-HxCDF	105				ES 234678-HxCDF	82.5	
123789-HxCDF	ND	1.82			ES 123789-HxCDF	85.1	
1234678-HpCDF	223				ES 1234678-HpCDF	85.4	
1234789-HpCDF	25.8			J	ES 1234789-HpCDF	86.2	
OCDF	70.5			J	ES OCDF	83.4	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	93.3	
Total TCDD	606		606		SS 12347-PeCDD	91.1	
Total PeCDD	802		802		SS 12346-PeCDF	87.5	
Total HxCDD	1340		1380		SS 123469-HxCDF	95.5	
Total HpCDD	630		630		SS 1234689-HpCDF	91.5	
					AS 1368-TCDD	93.2	
Total TCDF	2980		2980		AS 1368-TCDF	89.5	
Total PeCDF	1620		1620				
Total HxCDF	911		931				
Total HpCDF	347		347				
Total PCDD/Fs	**9670**		**9740**				
ITEF TEQs							
TEQ: ND=0	168		168				
TEQ: ND=DL/2	168	2.41	168				
TEQ: ND=DL	168	4.82	168				

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www.ultratrace.com

Sample ID: HV-U2-26APR12-R3-CB-OUT-CP

Method 23

Client Data		Sample Data		Laboratory Data			
Name:	TRC	Matrix:	Air	Lab Project ID:	A4212	Date Received:	27-Apr-2012
Project ID:	192131	Weight/Volume:	1	Lab Sample ID	A4212_9721_DF_004	Date Extracted:	01-May-2012
Date Collected:	26-Apr-2012			QC Batch No:	9721	Date Analyzed:	05-May-2012
		Split:	2	Dilution:	-	Time Analyzed:	12:37:45

Analyte	Conc. (pg)	DL (pg)	EMPC (pg)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		7.22	J B	ES 2378-TCDD	95.7	
12378-PeCDD	25.1			J	ES 12378-PeCDD	101	
123478-HxCDD	24.5			J	ES 123478-HxCDD	87.7	
123678-HxCDD	49.1			J	ES 123678-HxCDD	89.3	
123789-HxCDD	29.5			J	ES 123789-HxCDD	90.3	
1234678-HpCDD	289				ES 1234678-HpCDD	86.6	
OCDD	346				ES OCDD	84.6	
2378-TCDF	425				ES 2378-TCDF	97.4	
12378-PeCDF	110				ES 12378-PeCDF	91.9	
23478-PeCDF	121				ES 23478-PeCDF	96.8	
123478-HxCDF	79				ES 123478-HxCDF	84.8	
123678-HxCDF	91.4				ES 123678-HxCDF	83.2	
234678-HxCDF	96.7				ES 234678-HxCDF	84	
123789-HxCDF	ND	1.97			ES 123789-HxCDF	86.6	
1234678-HpCDF	190				ES 1234678-HpCDF	85.3	
1234789-HpCDF	20			J	ES 1234789-HpCDF	82.1	
OCDF	65			J	ES OCDF	81.1	
Totals					**Standard**	**SS/AS Recoveries**	
					SS 37Cl-2378-TCDD	89.8	
Total TCDD	555		588		SS 12347-PeCDD	88.8	
Total PeCDD	767		767		SS 12346-PeCDF	86.3	
Total HxCDD	1180		1180		SS 123469-HxCDF	93.3	
Total HpCDD	586		586		SS 1234689-HpCDF	87.4	
					AS 1368-TCDD	94.8	
Total TCDF	3190		3200		AS 1368-TCDF	89.4	
Total PeCDF	1560		1570				
Total HxCDF	789		807				
Total HpCDF	294		294				
Total PCDD/Fs	**9330**		**9400**				
ITEF TEQs							
TEQ: ND=0	163		171				
TEQ: ND=DL/2	164	2.7	171				
TEQ: ND=DL	165	5.41	171				

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For Method 23
FH & BH rinses are combined
No Condensates

ANALYTICAL PERSPECTIVES

Page ___ of ___

CHAIN-OF-CUSTODY RECORD

Project ID: 192131 P.O. No.: 43552 Sampler: Rich Kopacz (printed name) (signature)

Relinquished by: (signature & printed name)	Date:	Time:	Received by: (signature & printed name)	Date:	Time:
	4/26/12	17:00			
Relinquished by: (signature & printed name)	Date:	Time:	Received by: (signature & printed name)	Date:	Time:

Shipment ID: Covanta Hudson Valley

SAMPLING TRAIN VERSION

Requested TAT: 14 Days

Ship to: Analytical Perspectives
2714 Exchange Drive
Wilmington, NC 28405
Ph.: 910-794-1613

Attn: Dr. Yves Tondeur

Sample ID	Time	Filter	Field/Lab QC	XAD-2 Resin	Field/Lab QC	FH Ac./MC	Field/Lab QC	FH Toluene	Field/Lab QC	BH Ac./MC	Field/Lab QC	BH Toluene	Field/Lab QC	Condensates	Field/Lab QC
HV-U2-25APR12-R1-CB-Out-CP		6000		6001		6002		6003							
HV-U2-25APR12-R2-CB-Out-CP		6100		6101		6102		6103							
HV-U2-26APR12-R3-CB-Out-CP		6200		6201		6202		6203							
HV-U2-26APR12-BL-CB-Out-CP		6300		6201		6302		6303							

Special Instructions/Comments: (circle all that apply)

M23 M0023A ANALYZE SOLVENT BLANK
"Dioxins/Furans only" "D/F - PCB"
"D/F - PCB - PAH" "D/F – USVOST"
"D/F – PCB – PAH – USVOST" "Tri – Octa"

Please specify TEFs:

"ITEFs" "WHO TEFs" "CT TEFs" "MA TEFs"

Send Documentation & Results to:
Name: Rich Kopacz
Company: TRC
Address: 21 Griffin Road North
City: Windsor
State: CT Zip: 06095
Ph.: 860-298-6265
E-mail: RKopacz@TRCsolutions.com

Bill to: ✓ (Check if same)
Name:
Company:
Address:
City:
State: Zip:
Ph.:

AP Laboratory Check: Prep lab personnel, please circle check marks to indicate the inclusion of sample components during extraction Circle = (initial here)

Sampling Module Request Form

AP Project #: T1342

Type & Quantity of Sampling Modules

Qty. XAD: 5

Resin Batch No.: 51527

Qty. PUF: N/A

PUF Batch No.: —

Filter Size: 82.6mm

Qty. Filters: 7

Filter Batch#: 04032012

Qty. Petri Dishes: 5

Jars and/or Bottles: N/A

Client Specific Instructions

USE AP RENTAL TRAPS

Spike Profile

* # 0F MB / BCS_3 NEEDED: 1 OF EACH*

Vol. PCDD/F: 40 µL

Solution ID: 033120106 D/F CS/ST ; 1.6-4 ng
Vial ID: SIL11-93-2 Expiration: 11/22/12

Vol. HR_PAH: 80 µL (40 ng)

Solution ID: N/A ; 0.5 ng/ µL
Vial ID: Expiration:

Vol. HR_PCB: 40 µL (4 ng)

Solution ID: N/A ; 0.1 ng/ µL
Vial ID: Expiration:

Following sample recovery, please return this form with the field samples to:

2714 Exchange Drive
Wilmington, NC 28405
Ph.: 910-794-1613
Fax: 910-794-3919

Please be aware of your trap batch #

QC begins when we prep your traps. The Method Blank and a BCS_3 are prepared simultaneously with the trap and are properly stored until the trap batch returns for analysis.

We recommend keeping trap batches together and if a set of traps is to be split into multiple projects, please let us know so we can prepare extra Method Blanks/BCS_3

Thank you.

Initial Below

Prep By: [signature]
Spike By: [signature]
Witness: [signature] Date: 4/12/12

CLIENT INFORMATION

Company/Org.: TRC
Contact: Rich Kopacz
Client Project ID: 192131
Client PO #: 43552

Date of Request: 29 MAR 2012

Arrival Date: 13 APR 2012

Ship To:

TRC
Attn. Rich Kopacz
21 Griffin Road North
Windsor, CT 06095

Ph.: 860-298-6265
Email: RKopacz@trcsolutions.com

ALL PROJECTS ARE SHIPPED PRIORITY OVERNIGHT VIA FEDEX

ADDITIONAL NOTES

COVANTA-HUDSON
14 DAY TAT

Airway Bill #:

Date Shipped:

AP Invoice #

AP Rental Traps: Y / N
Qty.: 5

Appendix K

Laboratory Results
EPA Method 26

Prepared for: TRC Environmental Inc.

Project: 192131

Analytical Data Package

Analysis: Method 26A

Maxxam Job #: B258455

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

2012.05.14 14:39:58 -04'00'

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Glossary of Terms

- ***MDL*** represents the Minimum Detection Limit below which the laboratory cannot confirm the presence of the analyte to the 95% confidence level.
- ***RDL*** represents the Reportable Detection Limit and is usually set at a value equivalent to the lowest calibration standard.
- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.
- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.
- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.
- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid
- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.
- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variablity.
- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.
- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.
- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.
- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.
- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.
- ***RSD*** is the relative standard deviation.
- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.
- ***Window Definng Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.
- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.
- ***EMPC/NDR*** – Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

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PROJECT NARRATIVE

Maxxam Analytics
Maxxam Job #: B258455

Client: TRC Environmental Corporation
Client Project: 192131 COVANTA HUDSON

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run
Hydrogen Halides in H2SO4 Imp.					
NF5278	BLANK-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03
NF5279	R1-U1-IN-M26A	2012/04/17	2012/04/25	2012/05/03	2012/05/03
NF5280	R2-U1-IN-M26A	2012/04/17	2012/04/25	2012/05/03	2012/05/03
NF5281	R3-U1-IN-M26A	2012/04/17	2012/04/25	2012/05/03	2012/05/03
NF5282	R1-U1-OUT-M26A	2012/04/17	2012/04/25	2012/05/03	2012/05/03
NF5283	R2-U1-OUT-M26A	2012/04/17	2012/04/25	2012/05/03	2012/05/03
NF5284	R3-U1-OUT-M26A	2012/04/17	2012/04/25	2012/05/03	2012/05/03
NF5285	R1-U2-IN-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03
NF5286	R2-U2-IN-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03
NF5287	R3-U2-IN-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03
NF5288	R1-U2-OUT-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03
NF5289	R2-U2-OUT-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03
NF5290	R3-U2-OUT-M26A	2012/04/18	2012/04/25	2012/05/03	2012/05/03

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Mike Challis, Customer Service Manager

2012/05/14
Date

2.0 Summary Report

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Your P.O. #: 43121
Your Project #: 192131
Site Location: COVANTA HUDSON
Your C.O.C. #: 0624

Attention: Richard Kopacz
TRC Environmental Corporation
21 Griffin Rd. North
Windsor, CT
USA 6095

Report Date: 2012/05/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B258455
Received: 2012/04/25, 12:35

Sample Matrix: Stack Sampling Train
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hydrogen Halides in H2SO4 Imp.	13	2012/05/03	2012/05/03	BRL SOP-00108	EPA Method 26A
Volume of Sulfuric Acid Impinger	13	N/A	2012/05/03		

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MIKE CHALLIS, CET, B.Sc, C.Chem, Customer Service Manager, US Air Toxics
Email: MChallis@maxxam.ca
Phone# (905) 817-5790

==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

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Maxxam Job #: B258455
Report Date: 2012/05/10

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		NF5278		NF5279		NF5280	NF5280		
Sampling Date		2012/04/18		2012/04/17		2012/04/17	2012/04/17		
COC Number		0624		0624		0624	0624		
	Units	BLANK-M26A	RDL	R1-U1-IN-M26A	RDL	R2-U1-IN-M26A	R2-U1-IN-M26A Lab-Dup	RDL	QC Batch
Sulfuric Acid Volume	ml	278	1	442	1	452	N/A	1	2838163
Hydrochloric Acid	ug	<200	200	680000	5000	720000	710000	10000	2838180

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NF5281		NF5282	NF5283	NF5284		
Sampling Date		2012/04/17		2012/04/17	2012/04/17	2012/04/17		
COC Number		0624		0624	0624	0624		
	Units	R3-U1-IN-M26A	RDL	R1-U1-OUT-M26A	R2-U1-OUT-M26A	R3-U1-OUT-M26A	RDL	QC Batch
Sulfuric Acid Volume	ml	428	1	426	498	434	1	2838163
Hydrochloric Acid	ug	780000	5000	15000	11000	7900	200	2838180

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NF5285	NF5286	NF5287		NF5288	NF5289		
Sampling Date		2012/04/18	2012/04/18	2012/04/18		2012/04/18	2012/04/18		
COC Number		0624	0624	0624		0624	0624		
	Units	R1-U2-IN-M26A	R2-U2-IN-M26A	R3-U2-IN-M26A	RDL	R1-U2-OUT-M26A	R2-U2-OUT-M26A	RDL	QC Batch
Sulfuric Acid Volume	ml	418	414	413	1	415	432	1	2838163
Hydrochloric Acid	ug	840000	910000	790000	5000	3600	3900	200	2838180

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NF5290		
Sampling Date		2012/04/18		
COC Number		0624		
	Units	R3-U2-OUT-M26A	RDL	QC Batch
Sulfuric Acid Volume	ml	414	1	2838163
Hydrochloric Acid	ug	3000	200	2838180

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2012/05/10

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

Test Summary

Maxxam ID NF5278 **Collected** 2012/04/18
Sample ID BLANK-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5279 **Collected** 2012/04/17
Sample ID R1-U1-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5280 **Collected** 2012/04/17
Sample ID R2-U1-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5280 Dup **Collected** 2012/04/17
Sample ID R2-U1-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5281 **Collected** 2012/04/17
Sample ID R3-U1-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5282 **Collected** 2012/04/17
Sample ID R1-U1-OUT-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

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Your P.O. #: 43121

Test Summary

Maxxam ID NF5283 **Collected** 2012/04/17
Sample ID R2-U1-OUT-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5284 **Collected** 2012/04/17
Sample ID R3-U1-OUT-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5285 **Collected** 2012/04/18
Sample ID R1-U2-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5286 **Collected** 2012/04/18
Sample ID R2-U2-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5287 **Collected** 2012/04/18
Sample ID R3-U2-IN-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5288 **Collected** 2012/04/18
Sample ID R1-U2-OUT-M26A **Shipped**
Matrix Stack Sampling Train **Received** 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

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Your P.O. #: 43121

Test Summary

Maxxam ID NF5289
Sample ID R2-U2-OUT-M26A
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

Maxxam ID NF5290
Sample ID R3-U2-OUT-M26A
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	2838180	2012/05/03	2012/05/03	ANN-MARIE STERN
Volume of Sulfuric Acid Impinger		2838163	N/A	2012/05/03	ANN-MARIE STERN

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Maxxam Job #: B258455
Report Date: 2012/05/10

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

GENERAL COMMENTS

Results relate only to the items tested.

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TRC Environmental Corporation
Attention: Richard Kopacz
Client Project #: 192131
P.O. #: 43121
Site Location: COVANTA HUDSON

Quality Assurance Report

Maxxam Job Number: GB258455

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2838180 A_S	Matrix Spike (NF5280)	Hydrochloric Acid	2012/05/03		105	%	80 - 120
	Spiked Blank	Hydrochloric Acid	2012/05/03		102	%	90 - 110
	Method Blank	Hydrochloric Acid	2012/05/03	<200		ug	
	RPD - Sample/Sample Dup	Hydrochloric Acid	2012/05/03	2.1		%	20

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Validation Signature Page

Maxxam Job #: B258455

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

FRANK MO, B.Sc., Inorganic Lab. Manager

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3.0 Sample Custody

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CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 4/17/12 and 4/18/12
Laboratory: Maxxam
Laboratory P.O.:
Shipping Date(s): 23-Apr-12
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*	Ammonia				Total Sample Volume (mls)
M26-U1-Out-1	4/17/2012		P				X			0			X											426
M26-U1-Out-2	4/17/2012		P				X			0			X											498
M26-U1-Out-3	4/17/2012		P				X			0			X											434
M26-U1-In-1	4/17/2012		P				X			0			X											442
M26-U1-In-2	4/17/2012		P				X			0			X											452
M26-U1-In-3	4/17/2012		P				X			0			X											428
M26-U2-Out-1	4/18/2012		P				X			0			X											415
M26-U2-Out-2	4/18/2012		P				X			0			X											432
M26-U2-Out-3	4/18/2012		P				X			0			X											414
M26-U2-In-1	4/18/2012		P				X			0			X											418
M26-U2-In-2	4/18/2012		P				X			0			X											414
M26-U2-In-3	4/18/2012		P				X			0			X											413
M26-Blank	4/18/2012		P				X			0			X											

Relinquished by:	Date/Time: 4/23/12 12:00	Relinquished by:	Date/Time:
Received by:	Date/Time: 12/04/25 12:35	Received by:	Date/Time:

Remarks (*): Initial charge for all samples was 200 mls of 0.1 N H2SO4.

Maxxam Analytics

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TRC

4.0 Sample Chromatograms

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Method 26A – Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method

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Inorganic Analysis Action / Comment Form

* Please note any action or anomalies impacting this set of samples

Client ID: TRC

Maxxam Job #: B258455

Autosampler Index

Analysis	Worksheet	Run Date	Run #	Start Lab ID	End Lab ID	START	END	Analyst ID
Hydrogen Chloride	2838180	2012/05/03		NF5278	NF5290	32	65	AMS

Actions:

*Impacted Sample ID's

Bottle discrepancies

Interferences observed

Reintegrations performed

Dilutions performed YES

Field / Trip blanks missing

Other

Explanation/comments:

Samples diluted to be within calibration range.

Maxxam Analytics
CAM FCD-00817/1
Data Package
Page 1of 10

Hydrogen Chloride

COMPONENT	Hydrogen Chloride
RUN DATE	2012/05/03
ANALYST	AM Williams
INSTRUMENT	DX-300
TESTCODES	HYDIC-IP
	HYDICMG-IP

Spike (mg/L)	3
Units factor	1.028

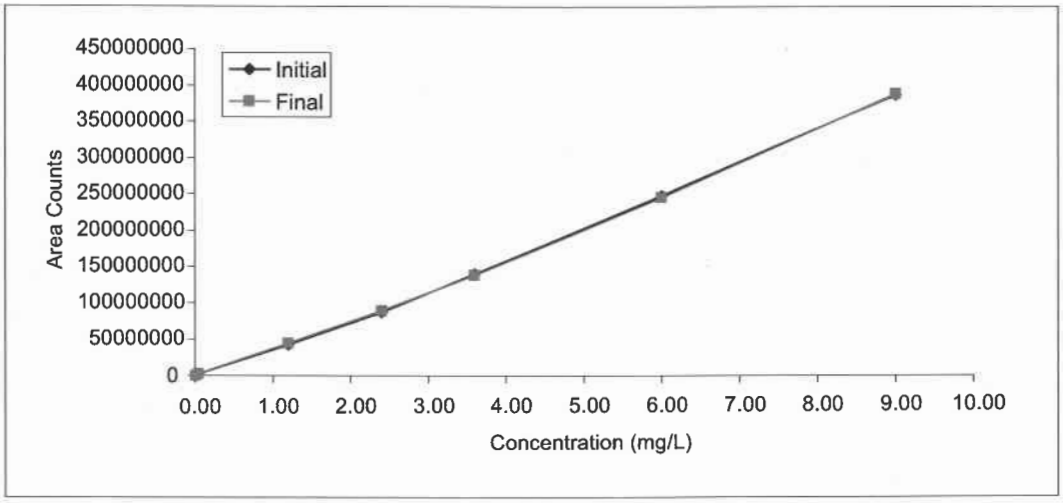
Standard / Reagent	Prepared
Stock Calibration Standard	2012/05/30
Stock Reference Standard	2011/09/02
Intermediate Mixed Cal. Standard (IS	2012/04/25
Intermediate Mixed Cal. Standard low (IS low)	2012/04/30
Intermediate Mixed Ref. Standard (IR	2012/04/25
Working Calibration Standards	2012/04/30
Working Reference Standards	2012/04/30
Eluent Stock Solution	2012/04/26
Working Eluent Solution	2012/05/01
Regenerant Solution	2012/05/03

Std ID	Actual Amount	Initial Counts	Final Counts	% diff ± 5 %
1	0.00	0	0	0
2	0.05	2217004	2240164	0.5
3	1.20	42907479	43981090	1.2
4	2.40	87522039	88708606	0.7
5	3.60	138772818	137255153	0.5
6	6.00	246725263	244529441	0.4
7	9.00	385784543	387206307	0.2

Method Criteria	Expected	± Limits
2nd Order Correlation	> 0.995	-
ICV (ppm)	6.00	0.30
QC ICMIX6-100 (ppm)	5.00	0.25
Blank (ppm)	< 0.100	-
Blank Spike (ppm)	3.00	0.30
Duplicates (%)	-	10
Matrix Spike (%)	100	20
CCB	< 0.100	-
CCV	3.60	0.36
Replicate Injections (%)	-	5

Hydrogen Chloride Calibration

A check on the pre and post run calibration standard



Appendix L

Laboratory Results
EPA Method 29

Prepared for: TRC Environmental Inc.

Project: 192131

Analytical Data Package

Analysis: Method 29

Maxxam Job #: B258362

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

2012.05.14 08:54:41 -04'00'

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Glossary of Terms

- ***MDL*** represents the Minimum Detection Limit below which the laboratory cannot confirm the presence of the analyte to the 95% confidence level.
- ***RDL*** represents the Reportable Detection Limit and is usually set at a value equivalent to the lowest calibration standard.
- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.
- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.
- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.
- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid
- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.
- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variablity.
- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.
- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.
- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.
- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.
- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.
- ***RSD*** is the relative standard deviation.
- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.
- ***Window Definng Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.
- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.
- ***EMPC/NDR*** – Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

1.0 Project Narrative

Maxxam Analytics International
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PROJECT NARRATIVE

Maxxam Analytics
Maxxam Job #: B258362

Client: TRC Environmental Corporation
Client Project: 192131 COVANTA HUDSON

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run
Mercury 1B in Filter + Rinse (M29)					
NF4777	BLANK-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/07
NF4779	U1-R1-IN-HG	2012/04/17	2012/04/25	2012/05/02	2012/05/07
NF4780	U1-R2-IN-HG	2012/04/17	2012/04/25	2012/05/02	2012/05/07
NF4781	U1-R3-IN-HG	2012/04/17	2012/04/25	2012/05/02	2012/05/07
NF4782	U1-R1-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/07
NF4783	U1-R2-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/07
NF4784	U1-R3-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/07
NF4785	U2-R1-IN-HG	2012/04/18	2012/04/25	2012/05/02	2012/05/07
NF4786	U2-R2-IN-HG	2012/04/18	2012/04/25	2012/05/02	2012/05/07
NF4787	U2-R3-IN-HG	2012/04/18	2012/04/25	2012/05/02	2012/05/07
NF4788	U2-R1-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/07
NF4789	U2-R2-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/07
NF4790	U2-R3-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/07
Mercury 2B in HNO3/H2O2 Imp.					
NF4777	BLANK-M29	2012/04/18	2012/04/25	2012/04/30	9660/03/14
NF4779	U1-R1-IN-HG	2012/04/17	2012/04/25	2012/04/30	9660/03/14
NF4780	U1-R2-IN-HG	2012/04/17	2012/04/25	2012/04/30	9660/03/14
NF4781	U1-R3-IN-HG	2012/04/17	2012/04/25	2012/04/30	9660/03/14
NF4782	U1-R1-OUT-M29	2012/04/17	2012/04/25	2012/04/30	9660/03/14
NF4783	U1-R2-OUT-M29	2012/04/17	2012/04/25	2012/04/30	9660/03/14
NF4784	U1-R3-OUT-M29	2012/04/17	2012/04/25	2012/04/30	9660/03/14
NF4785	U2-R1-IN-HG	2012/04/18	2012/04/25	2012/04/30	9660/03/14
NF4786	U2-R2-IN-HG	2012/04/18	2012/04/25	2012/04/30	9660/03/14
NF4787	U2-R3-IN-HG	2012/04/18	2012/04/25	2012/04/30	9660/03/14
NF4788	U2-R1-OUT-M29	2012/04/18	2012/04/25	2012/04/30	9660/03/14
NF4789	U2-R2-OUT-M29	2012/04/18	2012/04/25	2012/04/30	9660/03/14
NF4790	U2-R3-OUT-M29	2012/04/18	2012/04/25	2012/04/30	9660/03/14
Mercury 3A in HNO3 Rinse					
NF4777	BLANK-M29	2012/04/18	2012/04/25	2012/04/27	2012/05/03
NF4779	U1-R1-IN-HG	2012/04/17	2012/04/25	2012/04/27	2012/05/03
NF4780	U1-R2-IN-HG	2012/04/17	2012/04/25	2012/04/27	2012/05/03
NF4781	U1-R3-IN-HG	2012/04/17	2012/04/25	2012/04/27	2012/05/03
NF4782	U1-R1-OUT-M29	2012/04/17	2012/04/25	2012/04/27	2012/05/03
NF4783	U1-R2-OUT-M29	2012/04/17	2012/04/25	2012/04/27	2012/05/03
NF4784	U1-R3-OUT-M29	2012/04/17	2012/04/25	2012/04/27	2012/05/03
NF4785	U2-R1-IN-HG	2012/04/18	2012/04/25	2012/04/27	2012/05/03

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run
Mercury 3A in HNO3 Rinse					
NF4786	U2-R2-IN-HG	2012/04/18	2012/04/25	2012/04/27	2012/05/03
NF4787	U2-R3-IN-HG	2012/04/18	2012/04/25	2012/04/27	2012/05/03
NF4788	U2-R1-OUT-M29	2012/04/18	2012/04/25	2012/04/27	2012/05/03
NF4789	U2-R2-OUT-M29	2012/04/18	2012/04/25	2012/04/27	2012/05/03
NF4790	U2-R3-OUT-M29	2012/04/18	2012/04/25	2012/04/27	2012/05/03
Mercury 3B in KMnO4/H2SO4 Imp.					
NF4777	BLANK-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/03
NF4779	U1-R1-IN-HG	2012/04/17	2012/04/25	2012/05/02	2012/05/03
NF4780	U1-R2-IN-HG	2012/04/17	2012/04/25	2012/05/02	2012/05/03
NF4781	U1-R3-IN-HG	2012/04/17	2012/04/25	2012/05/02	2012/05/03
NF4782	U1-R1-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/03
NF4783	U1-R2-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/03
NF4784	U1-R3-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/03
NF4785	U2-R1-IN-HG	2012/04/18	2012/04/25	2012/05/02	2012/05/03
NF4786	U2-R2-IN-HG	2012/04/18	2012/04/25	2012/05/02	2012/05/03
NF4787	U2-R3-IN-HG	2012/04/18	2012/04/25	2012/05/02	2012/05/03
NF4788	U2-R1-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/03
NF4789	U2-R2-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/03
NF4790	U2-R3-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/03
Mercury 3C in HCl Rinse					
NF4777	BLANK-M29	2012/04/18	2012/04/25	2012/05/03	2012/05/07
NF4779	U1-R1-IN-HG	2012/04/17	2012/04/25	2012/05/03	2012/05/07
NF4780	U1-R2-IN-HG	2012/04/17	2012/04/25	2012/05/03	2012/05/07
NF4781	U1-R3-IN-HG	2012/04/17	2012/04/25	2012/05/03	2012/05/07
NF4782	U1-R1-OUT-M29	2012/04/17	2012/04/25	2012/05/03	2012/05/07
NF4783	U1-R2-OUT-M29	2012/04/17	2012/04/25	2012/05/03	2012/05/07
NF4784	U1-R3-OUT-M29	2012/04/17	2012/04/25	2012/05/03	2012/05/07
NF4785	U2-R1-IN-HG	2012/04/18	2012/04/25	2012/05/03	2012/05/07
NF4786	U2-R2-IN-HG	2012/04/18	2012/04/25	2012/05/03	2012/05/07
NF4787	U2-R3-IN-HG	2012/04/18	2012/04/25	2012/05/03	2012/05/07
NF4788	U2-R1-OUT-M29	2012/04/18	2012/04/25	2012/05/03	2012/05/07
NF4789	U2-R2-OUT-M29	2012/04/18	2012/04/25	2012/05/03	2012/05/07
NF4790	U2-R3-OUT-M29	2012/04/18	2012/04/25	2012/05/03	2012/05/07
Metals in Combined Train (6020)					
NF4777	BLANK-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/02
NF4782	U1-R1-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/02
NF4783	U1-R2-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/02
NF4784	U1-R3-OUT-M29	2012/04/17	2012/04/25	2012/05/02	2012/05/02
NF4788	U2-R1-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/02
NF4789	U2-R2-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/02
NF4790	U2-R3-OUT-M29	2012/04/18	2012/04/25	2012/05/02	2012/05/02

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Mike Challis, Customer Service Manager

2012/05/14
Date

2.0 Summary Report

Maxxam Analytics International
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Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam

Success Through Science®

Your P.O. #: 43121
Your Project #: 192131
Site Location: COVANTA HUDSON
Your C.O.C. #: N/A

Attention: Richard Kopacz
TRC Environmental Corporation
21 Griffin Rd. North
Windsor, CT
USA 6095

Report Date: 2012/05/07

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B258362
Received: 2012/04/25, 12:35

Sample Matrix: Stack Sampling Train
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Mercury 3C in HCl Rinse	13	2012/05/03	2012/05/07	BRL SOP-00104	EPA M29 / M0060
Mercury 2B in HNO3/H2O2 Imp.	13	2012/04/30	9660/03/14	BRL SOP-00104	EPA M29 / M0060
Mercury 3A in HNO3 Rinse	13	2012/04/27	2012/05/03	BRL SOP-00104	EPA M29 / M0060
Mercury 3B in KMnO4/H2SO4 Imp.	13	2012/05/02	2012/05/03	BRL SOP-00104	EPA M29 / M0060
Mercury 1B in Filter + Rinse (M29)	13	2012/05/02	2012/05/07	BRL SOP-00104	EPA Method 29
Metals in Combined Train (6020)	7	2012/05/02	2012/05/02	BRL SOP-00103/ BRL SOP-00102	EPA 6020 / M29

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

MIKE CHALLIS, CET, B.Sc, C.Chem, Customer Service Manager, US Air Toxics
Email: MChallis@maxxam.ca
Phone# (905) 817-5790

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

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Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

MERCURY BY COLD VAPOUR AA (STACK SAMPLING TRAIN)

Maxxam ID		NF4777		NF4779	NF4779		NF4780		NF4781		
Sampling Date		2012/04/18		2012/04/17	2012/04/17		2012/04/17		2012/04/17		
COC Number		N/A		N/A	N/A		N/A		N/A		
	Units	BLANK-M29	RDL	U1-R1-IN-HG	U1-R1-IN-HG Lab-Dup	RDL	U1-R2-IN-HG	RDL	U1-R3-IN-HG	RDL	QC Batch
1B Mercury (Hg)	ug	<0.015	0.015	45.3	45.0	0.26	102	0.45	359	2.7	2837243
2B Mercury (Hg)	ug	<0.15	0.15	1.21	1.23	0.27	4.76	0.33	3.7	0.3	2834357
3A Mercury (Hg)	ug	<0.05	0.05	0.197	0.194	0.058	0.22	0.06	0.078	0.055	2833009
3B Mercury (Hg)	ug	<0.013	0.013	<0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	2836775
3C Mercury (Hg)	ug	<0.015	0.015	2.70	2.76	0.015	1.48	0.015	2.73	0.015	2838075

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NF4782		NF4783		NF4784		NF4785		
Sampling Date		2012/04/17		2012/04/17		2012/04/17		2012/04/18		
COC Number		N/A		N/A		N/A		N/A		
	Units	U1-R1-OUT-M29	RDL	U1-R2-OUT-M29	RDL	U1-R3-OUT-M29	RDL	U2-R1-IN-HG	RDL	QC Batch
1B Mercury (Hg)	ug	0.021	0.015	0.023	0.015	0.028	0.015	296	4.9	2837243
2B Mercury (Hg)	ug	5.45	0.31	5.72	0.32	6.84	0.34	65.2	0.28	2834357
3A Mercury (Hg)	ug	<0.055	0.055	<0.055	0.055	<0.053	0.053	0.082	0.052	2833009
3B Mercury (Hg)	ug	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	2836775
3C Mercury (Hg)	ug	0.332	0.015	0.277	0.015	0.314	0.015	3.54	0.015	2838075

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NF4786		NF4787		NF4788		NF4789		
Sampling Date		2012/04/18		2012/04/18		2012/04/18		2012/04/18		
COC Number		N/A		N/A		N/A		N/A		
	Units	U2-R2-IN-HG	RDL	U2-R3-IN-HG	RDL	U2-R1-OUT-M29	RDL	U2-R2-OUT-M29	RDL	QC Batch
1B Mercury (Hg)	ug	133	1.9	463	4.4	0.172	0.015	0.051	0.015	2837243
2B Mercury (Hg)	ug	10.9	0.3	45.9	0.3	106	1.6	66.4	0.34	2834357
3A Mercury (Hg)	ug	0.222	0.055	0.365	0.055	0.172	0.053	0.080	0.055	2833009
3B Mercury (Hg)	ug	0.09	0.02	0.08	0.02	0.03	0.02	0.037	0.023	2836775
3C Mercury (Hg)	ug	11.4	0.15	17.2	0.15	1.75	0.015	1.62	0.015	2838075

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics
Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

MERCURY BY COLD VAPOUR AA (STACK SAMPLING TRAIN)

Maxxam ID		NF4790		
Sampling Date		2012/04/18		
COC Number		N/A		
	Units	U2-R3-OUT-M29	RDL	QC Batch
1B Mercury (Hg)	ug	0.108	0.015	2837243
2B Mercury (Hg)	ug	58.2	0.34	2834357
3A Mercury (Hg)	ug	<0.057	0.057	2833009
3B Mercury (Hg)	ug	0.02	0.02	2836775
3C Mercury (Hg)	ug	1.66	0.015	2838075

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Success Through Science

Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

ELEMENTS BY ICP/MS (STACK SAMPLING TRAIN)

Maxxam ID		NF4777		NF4782	NF4782	NF4783		
Sampling Date		2012/04/18		2012/04/17	2012/04/17	2012/04/17		
COC Number		N/A		N/A	N/A	N/A		
	Units	**BLANK-M29**	**RDL**	**U1-R1-OUT-M29**	**U1-R1-OUT-M29 Lab-Dup**	**U1-R2-OUT-M29**	**RDL**	**QC Batch**
Combined Train Cadmium (Cd)	ug	<0.10	0.10	0.31	0.26	0.28	0.20	2837245
Combined Train Lead (Pb)	ug	0.42	0.20	10.2	10.5	6.26	0.40	2837245

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		NF4784	NF4788	NF4789	NF4790		
Sampling Date		2012/04/17	2012/04/18	2012/04/18	2012/04/18		
COC Number		N/A	N/A	N/A	N/A		
	Units	**U1-R3-OUT-M29**	**U2-R1-OUT-M29**	**U2-R2-OUT-M29**	**U2-R3-OUT-M29**	**RDL**	**QC Batch**
Combined Train Cadmium (Cd)	ug	0.25	0.41	0.47	0.22	0.20	2837245
Combined Train Lead (Pb)	ug	7.27	7.29	12.8	7.01	0.40	2837245

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel (905) 817-5700 Toll-Free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

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Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

Test Summary

Maxxam ID NF4777
Sample ID BLANK-M29
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

Maxxam ID NF4779
Sample ID U1-R1-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET

Maxxam ID NF4779 Dup
Sample ID U1-R1-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/05/01	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/05/01	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/03	2012/05/07	FAYE SABET

Maxxam ID NF4780
Sample ID U1-R2-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET

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Success Through Science®

Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

Test Summary

Maxxam ID NF4781
Sample ID U1-R3-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET

Maxxam ID NF4782
Sample ID U1-R1-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

Maxxam ID NF4782 Dup
Sample ID U1-R1-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

Maxxam ID NF4783
Sample ID U1-R2-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

Maxxam ID NF4784
Sample ID U1-R3-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/17
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

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Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

Test Summary

Maxxam ID NF4785
Sample ID U2-R1-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET

Maxxam ID NF4786
Sample ID U2-R2-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET

Maxxam ID NF4787
Sample ID U2-R3-IN-HG
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET

Maxxam ID NF4788
Sample ID U2-R1-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

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Success through Science

Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

Test Summary

Maxxam ID NF4789
Sample ID U2-R2-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter + Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

Maxxam ID NF4790
Sample ID U2-R3-OUT-M29
Matrix Stack Sampling Train

Collected 2012/04/18
Shipped
Received 2012/04/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2838075	2012/05/03	2012/05/07	FAYE SABET
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2834357	2012/04/30	9660/03/14	FAYE SABET
Mercury 3A in HNO3 Rinse	CVAA	2833009	2012/04/27	2012/05/03	FAYE SABET
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2836775	2012/05/02	2012/05/03	FAYE SABET
Mercury 1B in Filter +Rinse (M29)	CVAA	2837243	2012/05/02	2012/05/07	FAYE SABET
Metals in Combined Train (6020)	ICP1/MS	2837245	2012/05/02	2012/05/02	NAN RAYKHA

Maxxam Job #: B258362
Report Date: 2012/05/07

TRC Environmental Corporation
Client Project #: 192131
Site Location: COVANTA HUDSON
Your P.O. #: 43121

MERCURY BY COLD VAPOUR AA (STACK SAMPLING TRAIN)

Mercury 1B in Filter + Rinse (M29): Matrix spike recovery could not be calculated accurately due to high mercury content in the native sample.

Mercury 3C in HCl Rinse : Matrix spike recovery could not be calculated accurately due to high mercury content in the native sample.

ELEMENTS BY ICP/MS (STACK SAMPLING TRAIN)

Metals in Combined Train (6020): Extra 2x dilution was required for all samples except NF4777, due to the matrix
Post digestion duplicate and spike was done on sample NF4782.

Results relate only to the items tested.

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TRC Environmental Corporation
Attention: Richard Kopacz
Client Project #: 192131
P.O. #: 43121
Site Location: COVANTA HUDSON

Quality Assurance Report

Maxxam Job Number: GB258362

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2833009 FFS	Matrix Spike (NF4779)	3A Mercury (Hg)	2012/05/03		106	%	85 - 115
	Matrix Spike DUP (NF4779)	3A Mercury (Hg)	2012/05/03		106	%	85 - 115
	MS/MSD RPD	3A Mercury (Hg)	2012/05/03	0.8		%	20
	Spiked Blank	3A Mercury (Hg)	2012/05/03		105	%	90 - 110
	Spiked Blank DUP	3A Mercury (Hg)	2012/05/03		105	%	90 - 110
	RPD	3A Mercury (Hg)	2012/05/03	0.8		%	20
	Method Blank	3A Mercury (Hg)	2012/05/03	<0.005		ug	
	RPD - Sample/Sample Dup	3A Mercury (Hg)	2012/05/03	NC		%	20
2834357 FFS	Matrix Spike (NF4779)	2B Mercury (Hg)	2012/05/02		110	%	85 - 115
	Matrix Spike DUP (NF4779)	2B Mercury (Hg)	9660/03/14		108	%	85 - 115
	MS/MSD RPD	2B Mercury (Hg)	9660/03/14	2.0		%	20
	Spiked Blank	2B Mercury (Hg)	9660/03/14		107	%	90 - 110
	Spiked Blank DUP	2B Mercury (Hg)	9660/03/14		105	%	90 - 110
	RPD	2B Mercury (Hg)	9660/03/14	1.7		%	20
	Method Blank	2B Mercury (Hg)	2012/05/02	<0.015		ug	
	RPD - Sample/Sample Dup	2B Mercury (Hg)	9660/03/14	NC		%	20
2836775 FFS	Reagent Blank	3B Mercury (Hg)	2012/05/03	<0.013		ug	
	Matrix Spike (NF4779)	3B Mercury (Hg)	2012/05/03		98	%	85 - 115
	Matrix Spike DUP (NF4779)	3B Mercury (Hg)	2012/05/03		100	%	85 - 115
	MS/MSD RPD	3B Mercury (Hg)	2012/05/03	1.3		%	20
	Spiked Blank	3B Mercury (Hg)	2012/05/03		98	%	90 - 110
	Spiked Blank DUP	3B Mercury (Hg)	2012/05/03		101	%	90 - 110
	RPD	3B Mercury (Hg)	2012/05/03	2.2		%	20
	Method Blank	3B Mercury (Hg)	2012/05/03	<0.013		ug	
	RPD - Sample/Sample Dup	3B Mercury (Hg)	2012/05/03	NC		%	20
2837243 FFS	Reagent Blank	1B Mercury (Hg)	2012/05/07	<0 015		ug	
	Matrix Spike (NF4779)	1B Mercury (Hg)	2012/05/07		74 (1)	%	85 - 115
	Matrix Spike DUP (NF4779)	1B Mercury (Hg)	2012/05/07		84 (1)	%	85 - 115
	MS/MSD RPD	1B Mercury (Hg)	2012/05/07	12.9		%	20
	Spiked Blank	1B Mercury (Hg)	2012/05/07		100	%	90 - 110
	Spiked Blank DUP	1B Mercury (Hg)	2012/05/07		99	%	90 - 110
	RPD	1B Mercury (Hg)	2012/05/07	1.7		%	20
	Method Blank	1B Mercury (Hg)	2012/05/07	<0.015		ug	
	RPD - Sample/Sample Dup	1B Mercury (Hg)	2012/05/07	0.5		%	20
2837245 N R	Matrix Spike (NF4782)	Combined Train Cadmium (Cd)	2012/05/02		99	%	70 - 130
	Matrix Spike DUP (NF4782)	Combined Train Cadmium (Cd)	2012/05/02		99	%	70 - 130
	MS/MSD RPD	Combined Train Cadmium (Cd)	2012/05/02	0		%	20

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TRC Environmental Corporation
Attention: Richard Kopacz
Client Project #: 192131
P.O. #: 43121
Site Location: COVANTA HUDSON

Quality Assurance Report (Continued)

Maxxam Job Number: GB258362

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2837245 N_R	Matrix Spike (NF4782)	Combined Train Lead (Pb)	2012/05/02		103	%	70 - 130
	Matrix Spike DUP (NF4782)	Combined Train Lead (Pb)	2012/05/02		104	%	70 - 130
	MS/MSD RPD	Combined Train Lead (Pb)	2012/05/02	1		%	20
	Spiked Blank	Combined Train Cadmium (Cd)	2012/05/02		100	%	85 - 115
	Spiked Blank DUP	Combined Train Cadmium (Cd)	2012/05/02		100	%	85 - 115
	RPD	Combined Train Cadmium (Cd)	2012/05/02	0.5		%	20
	Spiked Blank	Combined Train Lead (Pb)	2012/05/02		104	%	85 - 115
	Spiked Blank DUP	Combined Train Lead (Pb)	2012/05/02		102	%	85 - 115
	RPD	Combined Train Lead (Pb)	2012/05/02	1.7		%	20
	Method Blank	Combined Train Cadmium (Cd)	2012/05/02	<0.10		ug	
	Method Blank DUP	Combined Train Cadmium (Cd)	2012/05/02	<0.10		ug	
	RPD	Combined Train Cadmium (Cd)	2012/05/02	NC		%	20
	Method Blank	Combined Train Lead (Pb)	2012/05/02	<0.20		ug	
	Method Blank DUP	Combined Train Lead (Pb)	2012/05/02	<0.20		ug	
	RPD	Combined Train Lead (Pb)	2012/05/02	NC		%	20
	RPD - Sample/Sample Dup	Combined Train Cadmium (Cd)	2012/05/02	NC		%	20
		Combined Train Lead (Pb)	2012/05/02	2.8		%	20
2838075 FFS	Reagent Blank	3C Mercury (Hg)	2012/05/07	<0.013		ug	
	Matrix Spike (NF4779)	3C Mercury (Hg)	2012/05/07		94	%	85 - 115
	Matrix Spike DUP (NF4779)	3C Mercury (Hg)	2012/05/07		61 (1)	%	85 - 115
	MS/MSD RPD	3C Mercury (Hg)	2012/05/07	43.7 (1)		%	20
	Spiked Blank	3C Mercury (Hg)	2012/05/07		106	%	90 - 110
	Spiked Blank DUP	3C Mercury (Hg)	2012/05/07		102	%	90 - 110
	RPD	3C Mercury (Hg)	2012/05/07	3.8		%	20
	Method Blank	3C Mercury (Hg)	2012/05/07	<0.015		ug	
	RPD - Sample/Sample Dup	3C Mercury (Hg)	2012/05/07	2.2		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Reagent Blank: A blank matrix containing all reagents used in the analytical procedure. Used to determine any analytical contamination.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Validation Signature Page

Maxxam Job #: B258362

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

FRANK MO, B.Sc., Inorganic Lab. Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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3.0 Sample Custody

Maxxam Analytics International
6740 Campobello Rd.
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CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 4/17/2012 and 4/18/12
Laboratory: Maxxam
Laboratory P.O.:
Shipping Date(s): 23-Apr-12
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*					Comments
M29-U1-1-1 (in)	4/17/2012					X				Quartz Filter		X												Unit 1 inlet
M29-U1-1-3 (in)	4/17/2012			X						Probe Rinse - 0.1 N HNO3		X												
M29-U1-1-4 (in)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2		X												
M29-U1-1-5A (in)	4/17/2012			X						Imp 4 - 0.1 N HNO3		X												
M29-U1-1-5B (in)	4/17/2012						X			Imp 5 - 6: KmNO4		X												
M29-U1-1-5C (in)	4/17/2012						X			8N HCl & DI H2O		X												
M29-U1-2-1 (in)	4/17/2012					X				Quartz Filter		X												
M29-U1-2-3 (in)	4/17/2012			X						Probe Rinse - 0.1 N HNO3		X												
M29-U1-2-4 (in)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2		X												
M29-U1-2-5A (in)	4/17/2012			X						Imp 4 - 0.1 N HNO3		X												
M29-U1-2-5B (in)	4/17/2012						X			Imp 5 - 6: KmNO4		X												
M29-U1-2-5C (in)	4/17/2012						X			8N HCl & DI H2O		X												
M29-U1-3-1 (in)	4/17/2012					X				Quartz Filter		X												
M29-U1-3-3 (in)	4/17/2012			X						Probe Rinse - 0.1 N HNO3		X												
M29-U1-3-4 (in)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2		X												
M29-U1-3-5A (in)	4/17/2012			X						Imp 4 - 0.1 N HNO3		X												
M29-U1-3-5B (in)	4/17/2012						X			Imp 5 - 6: KmNO4		X												
M29-U1-3-5C (in)	4/17/2012						X			8N HCl & DI H2O		X												

Relinquished by: [signature]	**Date/Time:** 4/23/12 12:00	**Relinquished by:**	**Date/Time:**
Received by: [signature]	**Date/Time:** 12/04/25 12:35	**Received by:**	**Date/Time:**

Remarks (*): Please analyze for mercury

TRC

Maxxam Analytics

CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 4/17/2012 and 4/18/12
Laboratory: Maxxam
Laboratory P.O.:
Shipping Date(s): 3-May-11
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Source Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*					Comments
M29-U2-1-1 (in)	4/17/2012					X				Quartz Filter		X												Unit 2 inlet
M29-U2-1-3 (in)	4/17/2012			X						Probe Rinse - 0.1 N HNO3		X												
M29-U2-1-4 (in)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2		X												
M29-U2-1-5A (in)	4/17/2012			X						Imp 4 - 0.1 N HNO3		X												
M29-U2-1-5B (in)	4/17/2012						X			Imp 5 - 6: KmNO4		X												
M29-U2-1-5C (in)	4/17/2012						X			8N HCl & DI H2O		X												
M29-U2-2-1 (in)	4/17/2012					X				Quartz Filter		X												
M29-U2-2-3 (in)	4/17/2012			X						Probe Rinse - 0.1 N HNO3		X												
M29-U2-2-4 (in)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2		X												
M29-U2-2-5A (in)	4/17/2012			X						Imp 4 - 0.1 N HNO3		X												
M29-U2-2-5B (in)	4/17/2012						X			Imp 5 - 6: KmNO4		X												
M29-U2-2-5C (in)	4/17/2012						X			8N HCl & DI H2O		X												

Relinquished by: [signature] **Date/Time:** 4/23/12 1200 **Relinquished by:** **Date/Time:**

Received by: [signature] **Date/Time:** 12/04/25 12:35 **Received by:** **Date/Time:**

Remarks (*): Please analyze for mercury

Maxxam Analytics

TRC

CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 4/17/12 and 4/18/12
Laboratory: Maxxam
Laboratory P.O.:
Shipping Date(s): 23-Apr-12
Shipper's Name: TRC

MaxxamAnalytics

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*					Comments
M29-U2-3-1 (in)	4/18/2012					X				Quartz Filter		X												Unit 2 inlet
M29-U2-3-3 (in)	4/18/2012			X						Probe Rinse - 0.1 N HNO3		X												
M29-U2-3-4 (in)	4/18/2012			X						Imp 1-3: 5%HNO3/10%H2O2		X												
M29-U2-3-5A (in)	4/18/2012			X						Imp 4 - 0.1 N HNO3		X												
M29-U2-3-5B (in)	4/18/2012						X			Imp 5 - 6: KmNO4		X												
M29-U2-3-5C (in)	4/18/2012						X			8N HCl & DI H2O		X												
M29-U1-1-1 (out)	4/17/2012					X				Quartz Filter	X													Unit 1 outlet
M29-U1-1-2 (out)	4/17/2012			X						Probe Rinse - acetone	X													
M29-U1-1-3 (out)	4/17/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-U1-1-4 (out)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													
M29-U1-1-5A (out)	4/17/2012			X						Imp 4 - 0.1 N HNO3	X													
M29-U1-1-5B (out)	4/17/2012						X			Imp 5 - 6: KmNO4	X													
M29-U1-1-5C (out)	4/17/2012						X			8N HCl & DI H2O	X													
M29-U1-2-1 (out)	4/17/2012					X				Quartz Filter	X													
M29-U1-2-2 (out)	4/17/2012			X						Probe Rinse - acetone	X													
M29-U1-2-3 (out)	4/17/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-U1-2-4 (out)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													
M29-U1-2-5A (out)	4/17/2012			X						Imp 4 - 0.1 N HNO3	X													

Relinquished by: [signature] **Date/Time:** 4/23/12 1200 **Relinquished by:** **Date/Time:**

Received by: [signature] **Date/Time:** 12/04/25 12:35 **Received by:** **Date/Time:**

Remarks (*): Analyze outlet (out) samples for mercury, lead and cadmium - combine metals front half and back half for one analysis. Analyze all five fractions separately for mercury.
Analyzed inlet (in) samples for mercury only.

TRC

CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 4/17/12 and 4/18/12
Laboratory: Maxxam
Laboratory P.O.: 0
Shipping Date(s): 4/23/2012
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Source Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*					Comments
M29-U1-2-5B (out)	4/17/2012						X			Imp 5 - 6: KmNO4	X													Unit 1 outlet
M29-U1-2-5C (out)	4/17/2012						X			8N HCl & DI H2O	X													
M29-U1-3-1 (out)	4/17/2012					X				Quartz Filter	X													
M29-U1-3-2 (out)	4/17/2012			X						Probe Rinse - acetone	X													
M29-U1-3-3 (out)	4/17/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-U1-3-4 (out)	4/17/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													
M29-U1-3-5A (out)	4/17/2012			X						Imp 4 - 0.1 N HNO3	X													
M29-U1-3-5B (out)	4/17/2012						X			Imp 5 - 6: KmNO4	X													
M29-U1-3-5C (out)	4/17/2012						X			8N HCl & DI H2O	X													

Relinquished by:	Date/Time: 4/23/12 1200	Relinquished by:	Date/Time:
Received by:	Date/Time: 12/04/25 12:35	Received by:	Date/Time:

Remarks (*): Analyze outlet (out) samples for mercury, lead and cadmium - combine metals front half and back half for one analysis. Analyze all five fractions separately for mercury.

Maxxam Analytics

TRC

CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 18-Apr-12
Laboratory: Maxxam
Laboratory P.O.:
Shipping Date(s): 23-Apr-12
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*					Comments
M29-U2-1-1 (out)	4/18/2012					X				Quartz Filter	X													Unit 2-outlet
M29-U2-1-2 (out)	4/18/2012			X						Probe Rinse - acetone	X													
M29-U2-1-3 (out)	4/18/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-U2-1-4 (out)	4/18/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													
M29-U2-1-5A (out)	4/18/2012			X						Imp 4 - 0.1 N HNO3	X													
M29-U2-1-5B (out)	4/18/2012						X			Imp 5 - 6: KmNO4	X													
M29-U2-1-5C (out)	4/18/2012						X			8N HCl & DI H2O	X													
M29-U2-2-1 (out)	4/18/2012					X				Quartz Filter	X													
M29-U2-2-2 (out)	4/18/2012			X						Probe Rinse - acetone	X													
M29-U2-2-3 (out)	4/18/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-U2-2-4 (out)	4/18/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													
M29-U2-2-5A (out)	4/18/2012			X						Imp 4 - 0.1 N HNO3	X													
M29-U2-2-5B (out)	4/18/2012						X			Imp 5 - 6: KmNO4	X													
M29-U2-2-5C (out)	4/18/2012						X			8N HCl & DI H2O	X													
M29-U2-3-1 (out)	4/18/2012					X				Quartz Filter	X													
M29-U2-3-2 (out)	4/18/2012			X						Probe Rinse - acetone	X													
M29-U2-3-3 (out)	4/18/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-U2-3-4 (out)	4/18/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													

Relinquished by:	Date/Time: 4/23/12 1200	Relinquished by:	Date/Time:
Received by:	Date/Time: 12/04/25 12:35	Received by:	Date/Time:

Remarks (*): Analyze outlet samples (out) for mercury, lead and cadmium - combine metals front and back half for one analysis. Analyze all five fractions separately for mercury.

Maxxam Analytics
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TRC

CHAIN OF CUSTODY RECORD

Project Name: Covanta Hudson
Project No.: 192131
Sampling Date(s): 4/18/2012
Laboratory: Maxxam
Laboratory P.O.: 0
Shipping Date(s): 4/23/2012
Shipper's Name: TRC

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment (Solid)	Acidic	Basic	Other	Source Description	ANALYSIS: Trace Metals*	Mercury	HCl	Cl2	Particulate Matter	PCDD/PCDF	Semivolatile Organics	Voaltile Organics	Physical Parameters*					Comments
M29-U2-3-5A (out)	4/18/2012			X						Imp 4 - 0.1 N HNO3	X													Unit 2 outlet
M29-U2-3-5B (out)	4/18/2012						X			Imp 5 - 6: KmNO4	X													↓
M29-U2-3-5C (out)	4/18/2012						X			8N HCl & DI H2O	X													
M29-Blank-1	4/18/2012					X				Quartz Filter	X													Blanks
M29-Blank-2	4/18/2012			X						Probe Rinse - acetone	X													
M29-Blank-3	4/18/2012			X						Probe Rinse - 0.1 N HNO3	X													
M29-Blank-4	4/18/2012			X						Imp 1-3: 5%HNO3/10%H2O2	X													
M29-Blank-5A	4/18/2012			X						Imp 4 - 0.1 N HNO3	X													
M29-Blank-5B	4/18/2012						X			Imp 5 - 6: KmNO4	X													
M29-Blank-5C	4/18/2012						X			8N HCl & DI H2O	X													

Relinquished by:	Date/Time: 4/23/12 1200	Relinquished by:	Date/Time:
Received by:	Date/Time: 12/04/25 12:35	Received by:	Date/Time:

Remarks (*): Analyze outlet samples (out) for mercury, lead and cadmium - combine metals front and back half for one analysis. Analyze all five fractions separately for mercury.

Maxxam Analytics

TRC

4.0 Sample Chromatograms

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Method 29 – Determination of Metals Emissions from Stationary Sources

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Inorganic Analysis Action / Comment Form

* Please note any action or anomalies impacting this set of samples

Client ID: TRC Environmental Corp.

Maxxam Job #: B258362

Maxxam Sample ID range(s): NF4777, NF4782-84, NF4788-90

Analytical Worksheet(s): 2837245 (CB)

For additional comments, please staple additional pages(s)

Analysis: ICPMS

Analyst ID: NR

Actions:	*Impacted Sample ID's
Additional digestion needed	
Re-analysis needed (alternate technique)	
Re-analysis needed (contract technique)	
Bottle discrepancies	
Interferences observed	
Dilutions needed	All samples except NF4777
Reintegrations performed	
Internal calculations modified	N/A
Field / Trip blanks missing	
Other	NF4782

Explanation/comments:

Ge internal standard was substituted forSc due to Silica interference on Sc(FH)-N/A

Post digestion duplicate and spike was done on sample NF4782

Extra 2x dilution was donefor all samples except NF4777, due to the matrix.

EPA METHOD 29
Metals by ICP-MS

Level 3 Data Package

Calibration: 0 ug/L, 10 ug/L, 50 ug/L, 100 ug/L for As, Ba, Be, Cr, Cu, Pb, Ni, Se, V and Tl
0 ug/L, 2 ug/L, 10ug/L, 20 ug/L for Sb
0 ug/L, 5 ug/L, 25 ug/L, 50 ug/L for Cd, Ag, Mo and Sn
0 ug/L, 20 ug/L, 100 ug/L, 200 ug/L, 2000 ug/L for Al and Zn
0 ug/L, 50 ug/L, 250 ug/L, 500 ug/L, 5000 ug/L for Fe

Reporting Isotope (s): ^{111}Cd and ^{208}Pb

Internal Standard(s): ^{103}Rh, and ^{169}Tm
Method Detection Limit(s): as listed on the certificate of analysis and/or the validation record(s)

Testcode : ICPMSCB-TR

Matrix: Filter and Impinger (combined)
Calculation: Final Result (ug) = Conc. (ug/L) x Final Volume (0.3 L) x Dilution Factor (10) or (20)

Procedural Legend

ICB - Initial Calibration Blank	
ICV - Initial Calibration Verification	Conc. - 10 ug/L for Sb Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 250 ug/L for Fe Conc. - 50 ug/L for all other metals
BL - Process Blank	
M - Process Spike P - Post Spike	Conc. - 10 ug/L for Sb Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 250 ug/L for Fe Conc. - 50 ug/L for all other metals
D - Duplicate Sample	
DM - Duplicate Process Spike DP - Duplicate Post Spike	Conc. - 10 ug/L for Sb Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 250 ug/L for Fe Conc. - 50 ug/L for all other metals
CCB - Continuing Calibration Blank	
CCV- Continuing Calibration Verification	Conc. - 10 ug/L for Sb Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 250 ug/L for Fe Conc. - 50 ug/L for all other metals

Comments for Worksheet # 2837245 - Printed: 2012-05-03 12:23 PM

Job Comments
None

Worksheet Comments
None

Sample Comments
None

Test Comments

Test ICPMSCB-TR, WS # 2837245
Extra 2x dilution was required for all samples except NF4777, due to the matrix
Post digestion duplicate and spike was done on sample NF4782.

Parameter Comments
None

Worksheet Number: 2837245

Metals in Combined Train (6020) - Stack Sampling Train
(ug)

Parameter Name	Units	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE	DL
Aluminum (Al)	ug	N/A*******		N/A******		N/A*****	10
Antimony (Sb)	ug	N/A*******		N/A******		N/A*****	0.4
Arsenic (As)	ug	N/A*******		N/A******		N/A*****	0.4
Barium (Ba)	ug	N/A******		N/A******		N/A*****	3
Beryllium (Be)	ug	N/A*******		N/A******		N/A*****	0.1
Bismuth (Bi)	ug	N/A******		N/A******		N/A******	0.2
Boron (B)	ug	N/A*******		N/A******		N/A*****	3
Cadmium (Cd)	ug	99		99		100.24406	0.1
Calcium (Ca)	ug	N/A******		N/A******		N/A******	36
Chromium (Cr)	ug	N/A******		N/A******		N/A*******	0.3
Cobalt (Co)	ug	N/A******		N/A******		N/A******	0.1
Copper (Cu)	ug	N/A******		N/A******		N/A*******	0.5
Iron (Fe)	ug	N/A*****		N/A *****		N/A*****	36
Lead (Pb)	ug	103		104		103.73005	0.2
Magnesium (Mg)	ug	N/A*******		N/A******		N/A*****	6
Manganese (Mn)	ug	N/A******		N/A******		N/A*****	0.75
Molybdenum (Mo)	ug	N/A******		N/A******		N/A*****	0.5
Nickel (Ni)	ug	N/A******		N/A******		N/A*******	0.5
Phosphorus (P)	ug	N/A*******		N/A******		N/A*****	30
Potassium (K)	ug	N/A*******		N/A******		N/A******	30
Rhenium (Re)	ug	N/A******		N/A******		N/A******	2
Selenium (Se)	ug	N/A******		N/A*******		N/A*****	1
Silver (Ag)	ug	N/A******		N/A******		N/A*****	0.2
Sodium (Na)	ug	N/A******		N/A******		N/A*****	26
Strontium (Sr)	ug	N/A******		N/A******		N/A*******	0.3
Thallium (Tl)	ug	N/A******		N/A******		N/A*******	0.5
Tin (Sn)	ug	N/A*******		N/A******		N/A*****	0.6
Titanium (Ti)	ug	N/A******		N/A******		N/A*****	0.5
Uranium (U)	ug	N/A*******		N/A*******		N/A*******	0.2
Vanadium (V)	ug	N/A******		N/A*******		N/A*****	0.3
Zinc (Zn)	ug	N/A******		N/A*****		N/A*******	5

Approved By: N. Rajfula 2012-05-03

Validated By: 2012-05-07

Worksheet Number: 2837245 Contd....

Parameter Name	SPIKEDup1	DL	BLANK	DL	BLANKDup1	DL	B258362 NF4777
Aluminum (Al)	N/A****	10	N/A****	10	N/A****	10	N/A*******
Antimony (Sb)	N/A****	0.4	N/A****	0.4	N/A****	0.4	N/A*******
Arsenic (As)	N/A*******	0.4	N/A****	0.4	N/A*******	0.4	N/A*******
Barium (Ba)	N/A****	3	N/A****	3	N/A*******	3	N/A*******
Beryllium (Be)	N/A*******	0.1	N/A****	0.1	N/A****	0.1	N/A*******
Bismuth (Bi)	N/A****	0.2	N/A****	0.2	N/A****	0.2	N/A*******
Boron (B)	N/A****	3	N/A****	3	N/A****	3	N/A*******
Cadmium (Cd)	99.74400	0.1	0.00300	0.1	0.00600	0.1	0.01200
Calcium (Ca)	N/A****	30	N/A****	30	N/A****	30	N/A*******
Chromium (Cr)	N/A*******	0.3	N/A****	0.3	N/A****	0.3	N/A*******
Cobalt (Co)	N/A*******	0.1	N/A****	0.1	N/A****	0.1	N/A*******
Copper (Cu)	N/A****	0.5	N/A****	0.5	N/A****	0.5	N/A*******
Iron (Fe)	N/A****	30	N/A****	30	N/A****	30	N/A*******
Lead (Pb)	101.99000	0.2	0.01800	0.2	0.01800	0.2	0.42300
Magnesium (Mg)	N/A*******	6	N/A****	6	N/A*******	6	N/A*******
Manganese (Mn)	N/A****	0.75	N/A****	0.75	N/A*******	0.75	N/A*******
Molybdenum (Mo)	N/A****	0.5	N/A*******	0.5	N/A****	0.5	N/A*******
Nickel (Ni)	N/A****	0.5	N/A****	0.5	N/A****	0.5	N/A*******
Phosphorus (P)	N/A****	30	N/A****	30	N/A****	30	N/A*******
Potassium (K)	N/A*******	30	N/A****	30	N/A****	30	N/A*******
Rhenium (Re)	N/A****	2	N/A****	2	N/A****	2	N/A*******
Selenium (Se)	N/A****	1	N/A****	1	N/A****	1	N/A*******
Silver (Ag)	N/A*******	0.2	N/A****	0.2	N/A****	0.2	N/A*******
Sodium (Na)	N/A****	20	N/A****	20	N/A****	20	N/A*******
Strontium (Sr)	N/A****	0.3	N/A****	0.3	N/A****	0.3	N/A*******
Thallium (Tl)	N/A*******	0.5	N/A****	0.5	N/A****	0.5	N/A*******
Tin (Sn)	N/A*******	0.6	N/A****	0.6	N/A****	0.6	N/A*******
Titanium (Ti)	N/A****	0.5	N/A****	0.5	N/A****	0.5	N/A*******
Uranium (U)	N/A****	0.2	N/A****	0.2	N/A****	0.2	N/A*******
Vanadium (V)	N/A****	0.3	N/A****	0.3	N/A****	0.3	N/A*******
Zinc (Zn)	N/A****	5	N/A****	5	N/A****	5	N/A*******

Worksheet Number: 2837245 Contd....

		B258362		B258362		B258362	
Parameter Name	DL	NF4782	DL	NF4782Dup1	DL	NF4783	DL
Aluminum (Al)	10	N/A*******	20	N/A*******	20	N/A*******	20
Antimony (Sb)	0.4	N/A*******	0.8	N/A*******	0.8	N/A*******	0.8
Arsenic (As)	0.4	N/A*******	0.8	N/A*******	0.8	N/A*******	0.8
Barium (Ba)	3	N/A*******	6	N/A*******	6	N/A*******	6
Beryllium (Be)	0.1	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2
Bismuth (Bi)	0.2	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4
Boron (B)	3	N/A*******	6	N/A*******	6	N/A*******	6
Cadmium (Cd)	0.1	0.31200	0.2	0.26400	0.2	0.27600	0.2
Calcium (Ca)	30	N/A*******	60	N/A*******	60	N/A*******	60
Chromium (Cr)	0.3	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6
Cobalt (Co)	0.1	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2
Copper (Cu)	0.5	N/A*******	1	N/A*******	1	N/A*******	1
Iron (Fe)	30	N/A*******	60	N/A*******	60	N/A*******	60
Lead (Pb)	0.2	10.17000	0.4	10.46400	0.4	6.25800	0.4
Magnesium (Mg)	6	N/A*******	12	N/A*******	12	N/A*******	12
Manganese (Mn)	0.75	N/A*******	1.5	N/A*******	1.5	N/A*******	1.5
Molybdenum (Mo)	0.5	N/A*******	1	N/A*******	1	N/A*******	1
Nickel (Ni)	0.5	N/A*******	1	N/A*******	1	N/A*******	1
Phosphorus (P)	30	N/A*******	60	N/A*******	60	N/A*******	60
Potassium (K)	30	N/A*******	60	N/A*******	60	N/A*******	60
Rhenium (Re)	2	N/A*******	4	N/A*******	4	N/A*******	4
Selenium (Se)	1	N/A*******	2	N/A*******	2	N/A*******	2
Silver (Ag)	0.2	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4
Sodium (Na)	20	N/A*******	40	N/A*******	40	N/A*******	40
Strontium (Sr)	0.3	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6
Thallium (Tl)	0.5	N/A*******	1	N/A*******	1	N/A*******	1
Tin (Sn)	0.6	N/A*******	1.2	N/A*******	1.2	N/A*******	1.2
Titanium (Ti)	0.5	N/A*******	1	N/A*******	1	N/A*******	1
Uranium (U)	0.2	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4
Vanadium (V)	0.3	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6
Zinc (Zn)	5	N/A*******	10	N/A*******	10	N/A*******	10

Worksheet Number: 2837245 Contd....

	B258362		B258362		B258362		B258362
Parameter Name	NF4784	DL	NF4788	DL	NF4789	DL	NF4790
Aluminum (Al)	N/A*******	20	N/A*******	20	N/A*******	20	N/A*******
Antimony (Sb)	N/A*******	0.8	N/A*******	0.8	N/A*******	0.8	N/A*******
Arsenic (As)	N/A*******	0.8	N/A*******	0.8	N/A*******	0.8	N/A*******
Barium (Ba)	N/A*******	6	N/A*******	6	N/A*******	6	N/A*******
Beryllium (Be)	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******
Bismuth (Bi)	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4	N/A*******
Boron (B)	N/A*******	6	N/A*******	6	N/A*******	6	N/A*******
Cadmium (Cd)	0.25200	0.2	0.40800	0.2	0.46800	0.2	0.21600
Calcium (Ca)	N/A*******	60	N/A*******	60	N/A*******	60	N/A*******
Chromium (Cr)	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6	N/A*******
Cobalt (Co)	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******
Copper (Cu)	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Iron (Fe)	N/A*******	60	N/A*******	60	N/A*******	60	N/A*******
Lead (Pb)	7.26600	0.4	7.29000	0.4	12.80400	0.4	7.01400
Magnesium (Mg)	N/A*******	12	N/A*******	12	N/A*******	12	N/A*******
Manganese (Mn)	N/A*******	1.5	N/A*******	1.5	N/A*******	1.5	N/A*******
Molybdenum (Mo)	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Nickel (Ni)	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Phosphorus (P)	N/A*******	60	N/A*******	60	N/A*******	60	N/A*******
Potassium (K)	N/A*******	60	N/A*******	60	N/A*******	60	N/A*******
Rhenium (Re)	N/A*******	4	N/A*******	4	N/A*******	4	N/A*******
Selenium (Se)	N/A*******	2	N/A*******	2	N/A*******	2	N/A*******
Silver (Ag)	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4	N/A*******
Sodium (Na)	N/A*******	40	N/A*******	40	N/A*******	40	N/A*******
Strontium (Sr)	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6	N/A*******
Thallium (Tl)	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Tin (Sn)	N/A*******	1.2	N/A*******	1.2	N/A*******	1.2	N/A*******
Titanium (Ti)	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Uranium (U)	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4	N/A*******
Vanadium (V)	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6	N/A*******
Zinc (Zn)	N/A*******	10	N/A*******	10	N/A*******	10	N/A*******

Worksheet Number: 2837245 Contd....

Parameter Name	DL	RDL	MDL	IDL
Aluminum (Al)	20	10	3	0.1
Antimony (Sb)	0.8	0.4	0.08	0.03
Arsenic (As)	0.8	0.4	0.08	0.03
Barium (Ba)	6	3	0.8	0.02
Beryllium (Be)	0.2	0.1	0.04	0.03
Bismuth (Bi)	0.4	0.2	0.1	0.05
Boron (B)	6	3	2	0.15
Cadmium (Cd)	0.2	0.1	0.04	0.03
Calcium (Ca)	60	30	18	2.5
Chromium (Cr)	0.6	0.3	0.1	0.04
Cobalt (Co)	0.2	0.1	0.02	0.03
Copper (Cu)	1	0.5	0.2	0.08
Iron (Fe)	60	30	10	0.28
Lead (Pb)	0.4	0.2	0.04	0.06
Magnesium (Mg)	12	6	1	0.75
Manganese (Mn)	1.5	0.75	0.1	0.03
Molybdenum (Mo)	1	0.5	0.1	0.03
Nickel (Ni)	1	0.5	0.2	0.03
Phosphorus (P)	60	30	10	10
Potassium (K)	60	30	6	1.5
Rhenium (Re)	4	2	2	0.15
Selenium (Se)	2	1	0.5	0.04
Silver (Ag)	0.4	0.2	0.04	0.01
Sodium (Na)	40	20	4	7.5
Strontium (Sr)	0.6	0.3	0.06	0.03
Thallium (Tl)	1	0.5	0.1	0.03
Tin (Sn)	1.2	0.6	0.1	0.02
Titanium (Ti)	1	0.5	0.3	0.05
Uranium (U)	0.4	0.2	0.04	0.04
Vanadium (V)	0.6	0.3	0.08	0.03
Zinc (Zn)	10	5	1	0.13

Report Name: Work Sheet - (Liquids and Solids) #: 2837245

Assignment Date: Wednesday ; May 02, 2012
Assigned to: NUWAN HALLOWITA
Test Code: ICPMSCB-TR Instrument Id:
Test Description: Total Metals Analysis of the Combined Train HF Digest by ICP-MS

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	SPIKE	0	METCB										2012/05/02
	SPIKE	1	METCB										2012/05/02
	BLANK												2012/05/02
B258362	*NF4777-01R		BLANK-M29						1	2012/05/18	2012/05/08 23:00		2012/05/02
B258362	*NF4782-01R		U1-R1-OUT-M29						1	2012/05/17	2012/05/08 23:00		2012/05/02
B258362	*NF4783-01R		U1-R2-OUT-M29						1	2012/05/17	2012/05/08 23:00		2012/05/02
B258362	*NF4784-01R		U1-R3-OUT-M29						1	2012/05/17	2012/05/08 23:00		2012/05/02
B258362	*NF4788-01R		U2-R1-OUT-M29						1	2012/05/18	2012/05/08 23:00		2012/05/02
B258362	*NF4789-01R		U2-R2-OUT-M29						1	2012/05/18	2012/05/08 23:00		2012/05/02
B258362	*NF4790-01R		U2-R3-OUT-M29						1	2012/05/18	2012/05/08 23:00		2012/05/02

Remarks:

Samples extracted by: NUWAN HALLOWITA 2012.05.02
Instrumentation performed by: N. Rajpuka Date: 2012.05.02
Calculations performed by: N. Rajpuka Date: 2012.05.03
Validated by: Date: 2012.05.07

B258362

HGFR-TR, ICPMSCB-TR

EPA METHOD 29 PREPARATION LOG (COMBINED):

BRL SOP-00102 | DG29HFC

Front Half
- ✓ 0.1 N HNO3 Probe wash reduced
- ✓ Acetone Wash redissolved
- ✓ Filter and washes combined in bomb
- ✓ HNO3 and HF added
- ✓ Bombs sealed, weighed and digested
- ✓ Bombs cooled and weighed
- ✓ Sample transferred to 250 ml bottle

Front Half (cont'd)
- ✓ Bulked to 150 ml in 250ml bottle
- ✓ 75ml Mercury cut taken
- ✓ Hg cut bulked to 150 ml and labeled
- ✓ Back half digest added
- ✓ Samples bulked to final vol.
- ✓ MARK "HF" ON LIDS IN RED

Back Half
- Impinger volume recorded
- pH checked
- 50% Hg cut taken/recorded
- Back Half reduced in volume
- Back Half digested

	Bomb #	Sample I.D.	Final Vol.	First Pre Wt. (g)	First Post Wt. (g)	Dilution Factor	Comment
1	B	BL 0502	150	232	232	300X	
2	1	BL 0502 M	300	230	230	1	1500 ul of ICPMS HQCA & HQCB
3	2	BL 0502 DM	300	230	230	1	1500 ul of ICPMS HQCA & HQCB
4		BL N/A S					300 ul of ICP QCA & QCB
5		BL N/A DS					300 ul of ICP QCA & QCB
6	C	NF 4777	150ml	237	237		
7	D	4782		229	229		
8	E	4783		230	230		
9	F	4784		229	229		
10	G	4788		228	228		
11	H	4789		227	227		
12	K	4790		234	234		
13	L	NF 4779	300ml	235	235	5171	total particulates 8.6183 g
14	M	4780		234	234	8359	14.9321 g
15	N	4781		233	233	5402	9.0026 g
16	O	4785		233	232	1956	3.2601 g
17	P	4786		231	231	7585	12.6422 g
18	Q	4787		232	232	8891	14.8176 g
19							
20							
21							
22							
23			N/A				
24							
25							

* * * * * *

Notes:

Acids used are of a grade suitable for metals analyses

RODI water is Reverse Osmosis Deionized Water

*******	*HYDROFLUORIC ACID - USE EXTREME CAUTION* *WEAR GLOVES, EYE PROTECTION AND LAB COAT*	*******

Supplier/Lot Information	Supplier	Lot/Expiry Date
PSC/ICPMS-HQC Solution A	High Purity	1207533 2013-03-22
PSC/ICPMS-HQC Solution B	High Purity	1207534 2013-03-22
PSC/ICP/QCA	High Purity	N/A
PSC/ICP/QCB	High Purity	N/A
HF	Fisher	511024 Nov 2014
HNO_3	Fisher	111122 Dec 2014
1:1 HNO_3	Internal	11 11 1111 2012-10-27
3% H_2O_2	Fisher/Internal	112274 2012-10-30

Prepared By: ~~2A~~ NUA Date: 2012-05-02 Checked By: NUA

* 0.5g were digested.

User Name: nraykha
Computer Name: ELAN9000
Sample File: C:\elandata\Sample\0502NR01.sam
Report Date/Time: Wednesday, May 02, 2012 17:15:30

Sample Batch

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Aliquot Vol.	Diluted Vol.
8	0502NR01	RINSE		Sample	1.000	1.000
8	0502NR01	RINSE		Sample	1.000	1.000
9	0502NR01	ICB#155		Sample	1.000	1.000
10	0502NR01	ICV#257		Sample	1.000	1.000
11	0502NR01	LLQC		Sample	1.000	1.000
3	0502NR01	CAL 2 CHK		Sample	1.000	1.000
12	0502NR01	SPEX#53		Sample	1.000	1.000
13	0502NR01	ICSA		Sample	1.000	1.000
14	0502NR01	ICSAB		Sample	1.000	1.000
8	0502NR01	RINSE		Sample	1.000	1.000
8	0502NR01	RINSE		Sample	1.000	1.000
15	0502NR01	CCV#16		Sample	1.000	1.000
16	0502NR01	CCB#155		Sample	1.000	1.000
17	0502NR01	BLANK X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
18	0502NR01	BLANKD X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
19	0502NR01	BL0502M X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
20	0502NR01	BL0502DM X5	S/1g to 1000ml WS2835267 DNU	Sample	1.000	1.000
21	0502NR01	NF3972R X25	S/1g to 1000ml WS2835267	Sample	1.000	1.000
22	0502NR01	NF3972 X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
23	0502NR01	NF3972D X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
24	0502NR01	NF3972M X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
25	0502NR01	NF3972DM X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
26	0502NR01	RTC036 X5	S/1g to 1000ml WS2835267	Sample	1.000	1.000
27	0502NR01	CCV#16		Sample	1.000	1.000
28	0502NR01	CCB#155		Sample	1.000	1.000
29	0502NR01	TRAINRINSE	TX300 WS2837245	Sample	1.000	1.000
30	0502NR01	BLANK X10	TX300 WS2837245	Sample	1.000	1.000
31	0502NR01	BLANKD X10	TX300 WS2837245	Sample	1.000	1.000
32	0502NR01	BL0502M X10	TX300 WS2837245	Sample	1.000	1.000
33	0502NR01	BL0502DM X10	TX300 WS2837245	Sample	1.000	1.000
34	0502NR01	NF4782 X20	TX300 WS2837245	Sample	1.000	1.000
35	0502NR01	NF4782D X20	TX300 WS2837245	Sample	1.000	1.000
36	0502NR01	NF4782P X20	TX300 WS2837245	Sample	1.000	1.000
37	0502NR01	NF4782DP X20	TX300 WS2837245 ✓	Sample	1.000	1.000
38	0502NR01	NF4777 X10	TX300 WS2837245	Sample	1.000	1.000
39	0502NR01	NF4783 X20	TX300 WS2837245	Sample	1.000	1.000
40	0502NR01	NF4784 X20	TX300 WS2837245	Sample	1.000	1.000
41	0502NR01	NF4788 X20	TX300 WS2837245	Sample	1.000	1.000
42	0502NR01	NF4789 X20	TX300 WS2837245	Sample	1.000	1.000
43	0502NR01	NF4790 X20	TX300 WS2837245	Sample	1.000	1.000
44	0502NR01	NF4790R X100	TX300 WS2837245	Sample	1.000	1.000
45	0502NR01	CCV#16		Sample	1.000	1.000
46	0502NR01	CCB#155		Sample	1.000	1.000
47	0502NR01	BLANK X10	TX300 WS2835868	Sample	1.000	1.000
48	0502NR01	BLANKD X10	TX300 WS2835868 ✓	Sample	1.000	1.000
49	0502NR01	BL0501M X10	TX300 WS2835868	Sample	1.000	1.000
50	0502NR01	BL0501DM X10	TX300 WS2835868	Sample	1.000	1.000

51	0502NR01	NF4377 X20	TX300 WS2835868	Sample	1.000	1.000
52	0502NR01	NF4377D X20	TX300 WS2835868	Sample	1.000	1.000
53	0502NR01	NF4377P X20	TX300 WS2835868	Sample	1.000	1.000
54	0502NR01	NF4377DP X20	TX300 WS2835868	Sample	1.000	1.000
55	0502NR01	NF4359 X10	TX300 WS2835868	Sample	1.000	1.000
56	0502NR01	NF4378 X20	TX300 WS2835868	Sample	1.000	1.000
57	0502NR01	NF4380 X20	TX300 WS2835868	Sample	1.000	1.000
58	0502NR01	NF4384 X20	TX300 WS2835868	Sample	1.000	1.000
59	0502NR01	NF4385 X20	TX300 WS2835868	Sample	1.000	1.000
60	0502NR01	NF4386 X20	TX300 WS2835868	Sample	1.000	1.000
61	0502NR01	NF4386R X100	TX300 WS2835868	Sample	1.000	1.000
62	0502NR01	CCV#16		Sample	1.000	1.000
63	0502NR01	CCB#155		Sample	1.000	1.000
64	0502NR01	ICSA		Sample	1.000	1.000
65	0502NR01	ICSAB		Sample	1.000	1.000

Appendix M

Field Equipment Calibrations Data

Airgas.

CERTIFICATE OF BATCH ANALYSIS

NITROGEN - CEM-CAL ZERO

Airgas Specialty Gases
600 Union Landing Road
Riverton, NJ 08077
(856) 829-7878
Fax (856) 829-0571
www.airgas.com

Part Number:	NI CZ15A	Reference Number:	82-124266617-3
Cylinder Analyzed:	CC208289	Cylinder Volume:	142 Cubic Feet
Laboratory:	ASG - Riverton - NJ	Cylinder Pressure:	2000 PSIG
Analysis Date:	May 23, 2011	Valve Outlet:	580
Lot #:	82-124266617-3		

Expiration Date: May 23, 2016

ANALYTICAL RESULTS

Component		Requested Purity		Certified Concentration
NitrogenCEM		99.9995%		99.9995%
CARBON DIOXIDE	<	1 PPM	<LDL	0.06 PPM
Moisture	<	1 PPM	<LDL	0.20 PPM
NOx	<	0.1 PPM	<LDL	0.02 PPM
SO2	<	0.1 PPM	<LDL	0.10 PPM
THC	<	0.1 PPM	<LDL	0.02 PPM
CARBON MONOXIDE	<	0.5 PPM		0.130 PPM
Oxygen	<	0.5 PPM		0.060 PPM

Cylinders in Batch:

105750, 9162624, CC170997, CC172202, CC176655, CC182370, CC193027, CC193076, CC19527, CC199599, CC199674, CC201783*, CC208289, CC210979, CC211167, CC232317, CC263724, CC267679, CC275026, CC315818, CC342525, CC349017, CC4145, SG9135882, SG9170038, XC019510B, XC027786B

Notes:

Meets Federal Register specifications Title 40 C.F.R. 72.2

Impurities verified againstanalytical standards traceable to NIST by weight and/or analysis.

Approved forRelease

#5000

Airgas

Airgas Specialty Gases
600 Union Landing Rd.
Riverton, NJ 08077
(856) 829-7878 Fax: (856) 829-0571
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E03NI80E15A0138	Reference Number:	82-124273629-1
Cylinder Number:	XC012170B	Cylinder Volume:	151 Cu.Ft.
Laboratory:	ASG - Riverton - NJ	Cylinder Pressure:	2015 PSIG
PGVP Number:	B52011	Valve Outlet:	590
		Analysis Date:	Jul 16, 2011

Expiration Date: Jul 16, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON DIOXIDE	10.00 %	9.989 %	G1	+/- 1% NIST Traceable
OXYGEN	10.00 %	9.907 %	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	00040211	CC108890	10.00% OXYGEN/NITROGEN	Oct 02, 2011
NTRM	09060639	CC263111	9.921% CARBON DIOXIDE/NITROGEN	Apr 10, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA 510 LDH9LRNS	NDIR	Jun 23, 2011
Siemens 5E BN805	Paramagnetic	Jul 08, 2011

Triad Data Available Upon Request

Notes:

Jessica Lanier

Approved for Release

Airgas C

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
600 Union Landing Road
Riverton, NJ 08077
(856) 829-7878
Fax (856) 829-0571
www.airgas.com

Part Number:	E03NI60E15A1069	Reference Number:	82-124290910-1
Cylinder Number:	XC011300B	Cylinder Volume:	158 Cu.Ft.
Laboratory:	ASG - Riverton - NJ	Cylinder Pressure:	2015 PSIG
PGVP Number:	B52011	Valve Outlet:	590
		Analysis Date:	Nov 12, 2011

Expiration Date: Nov 12, 2014

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON DIOXIDE	18.00 %	17.74 %	G1	+/- 1% NIST Traceable
OXYGEN	22.00 %	22.01 %	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRMplus	06120212	CC195587	20.90% OXYGEN/NITROGEN	Dec 01, 2015
NTRM	08061334	CC255709	20.09% CARBON DIOXIDE/NITROGEN	Jul 15, 2012

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA 510 LDH9LRNS	NDIR	Oct 20, 2011
Siemens 5E BN805	Paramagnetic	Nov 09, 2011

Triad Data Available Upon Request

Notes:

C. Modzelewski

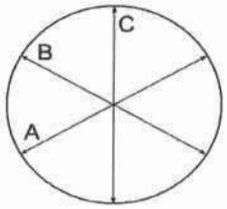
Approved for Release

#5000

TRC

Nozzle Calibration Data Sheet

Nozzle Set No: M-2 Date: January 12, 2012



Nozzle No.	Diameter*	A	B	C	Average**
M-2-1	0.218	0.217	0.218	0.218	0.218
M-2-2	0.218	0.218	0.218	0.219	0.218
M-2-3	0.250	0.252	0.249	0.250	0.250
M-2-4	0.250	0.250	0.250	0.250	0.250
M-2-5	0.280	0.281	0.280	0.281	0.281
M-2-6	0.280	0.280	0.281	0.279	0.280
M-2-7	0.315	0.315	0.315	0.314	0.315

* Measure to nearest .001".

** Three measurements must be within .004" of each other.

Technician: P Wright

TRC Environmental Corporation

Critical Orifice Calibration

Date: 1/13/2012 Metering System Indentification: 8130 Technician: A Canora

Critical Orifice Id No.:		DN-48				DN-55				DN-63			
Critical Vacuum		15				15				15			
K' factor		0.342				0.4528				0.5814			
Run Number		1		2		1		2		1		2	
DGM Final Reading	ft^3	483.678		492.613		468.115		476.947		427.290		432.568	
DGM Initial Reading	ft^3	477.002		483.710		460.500		468.150		422.048		427.290	
Difference, Vm	ft^3	6.676		8.903		7.615		8.797		5.242		5.278	
Volume Criteria Met	> 5 ft^3	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Inlet/Outlet Temp.													
DGM Initial	°F	68	67	69	68	64	64	66	65	63	63	66	65
DGM Final	°F	69	68	73	71	66	65	68	67	66	65	67	66
Average Temp., Tm		68		70.25		64.75		66.5		64.25		66	
Time	min.	15		20		13		15		7		7	
Delta H	in. H_2O	0.64		0.64		1.2		1.2		2.0		2.0	
Pbar	in. Hg	29.23		29.23		29.23		29.23		29.51		29.51	
Ambient Temp	°F	68		68		68		68		68		68	
Pump Vacuum	in. Hg	21		21		20		20		19		19	
Vm(std)	ft^3	6.530		8.671		7.505		8.641		5.231		5.249	
Vcr(std)	ft^3	6.526		8.701		7.488		8.640		5.227		5.227	
DGM Cal. Factor, Y		0.999		1.003		0.998		1.000		0.999		0.996	
Y Average		1.001				0.999				0.997			
Y Dev. from avg.[1]		0.20%				0.11%				0.18%			
Y Dev. from other[2]		Max Y		1.001		Min Y		0.997		Y deviation		**0.40% good**	
Delta H@		1.948		1.940		2.097		2.090		2.062		2.055	
Delta H@ Average		1.944				2.094				2.059			
Delta H Dev. from avg.[3]		0.21%				0.17%				0.17%			

Average Y =	0999
Average Delta H =	2.032

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average

2 If any critical orifice yields a DGM Y factor differing by more than 2% from others, recalibrate orifices

3 Average Delta H@ must be within 0.15 of the average

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)

Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)

Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 5/3/2012 Metering System Indentification: 8130 Technician: M. Moauro

Critical Orifice Id No.:		DN-63		DN-63		DN-63	
Critical Vacuum		15		15		15	
K' factor		0.5814		0.5814		0.5814	
Run Number		1		2		3	
DGM Final Reading	ft^3	427.29		432.568		437.844	
DGM Initial Reading	ft^3	422.048		427.29		432.568	
Difference, Vm	ft^3	5.242		5.278		5.276	
Inlet/Outlet Temp.							
DGM Initial	°F	63	63	66	65	67	66
DGM Final	°F	66	65	67	66	67	66
Average Temp., Tm		64.25		66		66.5	
Time	min.	7		7		7	
Delta H	in. H_2O	2.0		2.0		2.0	
Pbar	in. Hg	29.51		29.51		29.51	
Ambient Temp.	°F	68		68		68	
Pump Vacuum	in. Hg	16		16		16	
Vm(std)	ft^3	5.231		5.249		5.242	
Vcr(std)	ft^3	5.227		5.227		5.227	
DGM Cal. Factor, Y		0.999		0.996		0.997	
Y Average		0.997					
Y Dev. from avg.[1]		0.19%		0.16%		0.03%	
Delta H@		2.062		2.055		2.053	
Delta H@ Average		2.057					
H@ Dev. from avg.[2]		0.25%		0.08%		0.17%	

Average Y =	0.997
Average Delta H =	2.057

Initial DGM Y =	0.999
Acceptable Cal[3]	YES

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average
2 Average Delta H@ must by within 0.15 of the average
3 The post DGM Y calibration has to be within 5% of the initial calibration

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)
Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)
Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 1/13/2012 Metering System Indentification: M-2 Technician: A Canora

Critical Orifice Id No.:		DN-48				DN-55				DN-63			
Critical Vacuum		15				15				15			
K' factor		0.3420				0.4528				0.5814			
Run Number		1		2		1		2		1		2	
DGM Final Reading	ft^3	579.996		585.728		569.000		574.257		557.787		563.719	
DGM Initial Reading	ft^3	574.300		580.030		563.800		569.050		552.600		557.800	
Difference, Vm	ft^3	5.696		5.698		5.200		5.207		5.187		5.919	
Volume Criteria Met	> 5 ft^3	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Inlet/Outlet Temp.													
DGM Initial	°F	68	67	68	67	68	66	68	67	67	66	67	65
DGM Final	°F	68	67	68	68	68	67	68	67	67	66	66	65
Average Temp., Tm		67.5		67.75		67.25		67.5		66.5		65.75	
Time	min.	13		13		9		9		7		8	
Delta H	in. H_2O	0.65		0.65		1.1		1.1		1.9		1.9	
Pbar	in. Hg	29.23		29.23		29.23		29.23		29.23		29.23	
Ambient Temp.	°F	69		69		69		69		69		69	
Pump Vacuum	in. Hg	23		23		21		21		20		20	
Vm(std)	ft^3	5.577		5.576		5.099		5.104		5.104		5.833	
Vcr(std)	ft^3	5.650		5.650		5.179		5.179		5.172		5.911	
DGM Cal. Factor, Y		1.013		1.013		1.016		1.015		1.013		1.013	
Y Average		1.013				1.015				1.013			
Y Dev. from avg.[1]		0.01%				0.04%				0.00%			
Y Dev. from other[2]		Max Y		1.015		Min Y		1.013		Y deviation		**0.19%**	**good**
Delta H@		1.992		1.991		1.924		1.923		2.019		2.022	
Delta H@ Average		1.992				1.924				2.020			
Delta H Dev. from avg.[3]		0.02%				0.02%				0.07%			

Average Y =	1.014
Average Delta H =	1978

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average

2 If any critical orifice yields a DGM Y factor differing by more than 2% from others, recalibrate orifices

3 Average Delta H@ must be within 0.15 of the average

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)

Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)

Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 4/30/2012 Metering System Indentification: M2 Technician A Canora

Critical Orifice Id No.:		NF-55		NF-55		NF-55	
Critical Vacuum		15		15		15	
K' factor		0.4475		0.4475		0.4475	
Run Number		1		2		3	
DGM Final Reading	ft^3	14.958		20.174		25.402	
DGM Initial Reading	ft^3	9.800		15.000		20.200	
Difference, Vm	ft^3	5.158		5.174		5.202	
Inlet/Outlet Temp.							
DGM Initial	°F	63	62	67	64	67	64
DGM Final	°F	67	64	67	64	68	65
Average Temp., Tm		64		65.5		66	
Time	min.	9		9		9	
Delta H	in. H_2O	1.1		1.1		1.1	
Pbar	in. Hg	30.3		30.3		30.3	
Ambient Temp.	°F	67		67		67	
Pump Vacuum	in. Hg	22		22		22	
Vm(std)	ft^3	5.275		5.277		5.300	
Vcr(std)	ft^3	5.316		5.316		5.316	
DGM Cal. Factor, Y		1.008		1.007		1.003	
Y Average		1.006					
Y Dev. from avg.[1]		0.16%		0.14%		0.30%	
Delta H@		1.759		1.754		1.753	
Delta H@ Average		1.756					
H@ Dev. from avg.[2]		0.22%		0.06%		0.16%	

Average Y =	1.006
Average Delta H =	1.756

Initial DGM Y =	1.014
Acceptable Cal[3]	YES

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average
2 Average Delta H@ must by within 0.15 of the average
3 The post DGM Y calibration has to be within 5% of the initial calibration

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)
Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)
Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 1/3/2012 Metering System Indentification: 80819 Technician: A Canora

Critical Orifice Id No.:		DN-48				DN-55				DN-63			
Critical Vacuum		15				15				15			
K' factor		0.342				0.4528				0.5814			
Run Number		1		2		1		2		1		2	
DGM Final Reading	ft^3	434.59		440.524		850.261		855.639		423.671		429.044	
DGM Initial Reading	ft^3	429.188		434.656		844.900		850.261		417.614		423.739	
Difference, Vm	ft^3	5.402		5.868		5.361		5.378		6.057		5.305	
Volume Criteria Met	> 5 ft^3	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Inlet/Outlet Temp.													
DGM Initial	°F	65	63	67	64	71	68	71	69	61	61	63	62
DGM Final	°F	67	64	69	66	70	67	71	68	63	61	64	62
Average Temp., Tm		64.75		66.5		69		69.75		61.5		62.75	
Time	min.	12		13		9		9		8		7	
Delta H	in. H_2O	0.62		0.62		1.2		1.2		1.9		1.9	
Pbar	in. Hg	29.9		29.9		29.9		29.9		29.9		29.9	
Ambient Temp.	°F	66		66		66		66		66		66	
Pump Vacuum	in. Hg	23		23		22		22		21		21	
Vm(std)	ft^3	5.438		5.887		5.360		5.370		6.155		5.378	
Vcr(std)	ft^3	5.350		5.796		5.313		5.313		6.064		5.306	
DGM Cal. Factor, Y		0.984		0.985		0.991		0.989		0.985		0.987	
Y Average		0.984				0.990				0.986			
Y Dev. from avg.[1]		0.03%				0.09%				0.07%			
Y Dev. from other[2]		Max Y		0.990		Min Y		0.984		Y deviation		**0.62% good**	
Delta H@		1.754		1.749		1.841		1.839		1.872		1.867	
Delta H@ Average		1.751				1.840				1.870			
Delta H Dev. from avg.[3]		0.17%				0.07%				0.12%			

Average Y =	0987
Average Delta H =	1820

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average

2 If any critical orifice yields a DGM Y factor differing by more than 2% from others, recalibrate orifices

3 Average Delta H@ must be within 0.15 of the average

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)

Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)

Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 4/30/2012 Metering System Indentification: 80819 Technician: A Canora

Critical Orifice Id No.:		NF-63		NF-63		NF-63	
Critical Vacuum		15		15		15	
K' factor		0.5612		0.5612		0.5612	
Run Number		1		2		3	
DGM Final Reading	ft^3	922.284		927.303		932.586	
DGM Initial Reading	ft^3	917.100		922.224		927.403	
Difference, Vm	ft^3	5.184		5.079		5.183	
Inlet/Outlet Temp.							
DGM Initial	°F	60	59	62	59	66	61
DGM Final	°F	62	59	66	60	67	62
Average Temp., Tm		60		61.75		64	
Time	min.	7		7		7	
Delta H	in. H_2O	1.75		1.75		1.75	
Pbar	in. Hg	30.3		30.3		30.3	
Ambient Temp.	°F	67		67		67	
Pump Vacuum	in. Hg	17		17		17	
Vm(std)	ft^3	5.351		5.225		5.309	
Vcr(std)	ft^3	5.185		5.185		5.185	
DGM Cal. Factor, Y		0.969		0.992		0.977	
Y Average		0.979					
Y Dev. from avg.[1]		1.06%		1.33%		0.27%	
Delta H@		1.793		1.787		1.780	
Delta H@ Average		1.787					
H@ Dev. from avg.[2]		0.37%		0.03%		0.40%	

Average Y =	0.979
Average Delta H =	1.787

Initial DGM Y =	0.987
Acceptable Cal[3]	YES

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average
2 Average Delta H@ must by within 0.15 of the average
3 The post DGM Y calibration has to be within 5% of the initial calibration

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)
Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)
Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 2/27/2012 Metering System Indentification: 90610 Technician: A Canora

Critical Orifice Id No.:		NF-48				NF-55				NF-63			
Critical Vacuum		19.5				15				15			
K' factor		0.3415				0.4475				0.5612			
Run Number		1		2		1		2		1		2	
DGM Final Reading	ft^3	226.388		233.511		212.941		219.177		196.255		205.492	
DGM Initial Reading	ft^3	219.305		226.429		205.564		213.002		190.904		196.301	
Difference, Vm	ft^3	7.083		7.082		7.377		6.175		5.351		9.191	
Volume Criteria Met	> 5 ft^3	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Inlet/Outlet Temp.													
DGM Initial	°F	70	66	70	68	71	66	69	65	62	61	65	61
DGM Final	°F	72	68	71	68	70	65	71	66	65	61	80	77
Average Temp., Tm		69		69.25		68		67.75		62.25		70.75	
Time	min.	15		15		12		10		7		12	
Delta H	in. H_2O	0.63		0.63		1.1		1.1		1.9		1.9	
Pbar	in. Hg	30.03		30.03		30.03		30.03		30.03		30.03	
Ambient Temp.	°F	66		66		66		66		66		66	
Pump Vacuum	in. Hg	20		20		21		21		19		19	
Vm(std)	ft^3	7.104		7.099		7.421		6.215		5.453		9.216	
Vcr(std)	ft^3	6.707		6.707		7.031		5.859		5.144		8.818	
DGM Cal. Factor, Y		0.944		0.945		0.947		0.943		0.943		0.957	
Y Average		0.944				0.945				0.950			
Y Dev. from avg.[1]		0.03%				0.25%				0.71%			
Y Dev. from other[2]		Max Y		0.950		Min Y		0.944		Y deviation		**0.59% good**	
Delta H@		1.751		1.750		1.783		1.784		1.980		1.949	
Delta H@ Average		1.750				1.784				1.964			
Delta H Dev. from avg.[3]		0.02%				0.02%				0.81%			

Average Y =	0.947
Average Delta H =	1.833

1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average

2 If any critical orifice yields a DGM Y factor differing by more than 2% from others, recalibrate orifices

3 Average Delta H@ must be within 0.15 of the average

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)

Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)

Y = Vcr(std) / Vm(std)

TRC Environmental Corporation

Critical Orifice Calibration

Date: 4/30/2012 Metering System Indentification: 90610 Technician: A Canora

Critical Orifice Id No.:		NF-55		NF-55		NF-55	
Critical Vacuum		16		16		16	
K' factor		0.4475		0.4475		0.4475	
Run Number		1		2		3	
DGM Final Reading	ft^3	207.203		212.759		222.614	
DGM Initial Reading	ft^3	201.7		207.252		212.799	
Difference, Vm	ft^3	5.503		5.507		9.815	
Inlet/Outlet Temp.							
DGM Initial	°F	62	61	65	61	68	63
DGM Final	°F	65	61	68	63	71	66
Average Temp., Tm		62.25		64.25		67	
Time	min.	9		9		16	
Delta H	in. H_2O	1.1		1.1		1.1	
Pbar	in. Hg	30.27		30.27		30.27	
Ambient Temp.	°F	67		67		67	
Pump Vacuum	in. Hg	21		21		21	
Vm(std)	ft^3	5.641		5.624		9.971	
Vcr(std)	ft^3	5.311		5.311		9.441	
DGM Cal. Factor, Y		0.941		0.944		0.947	
Y Average		0.944					
Y Dev. from avg.[1]		0.30%		0.01%		0.28%	
Delta H@		1.771		1.764		1.755	
Delta H@ Average		1.763					
H@ Dev. from avg.[2]		0.43%		0.05%		0.48%	

Average Y =	0944
Average Delta H =	1.763

Initial DGM Y =	0.947
Acceptable Cal[3]	YES

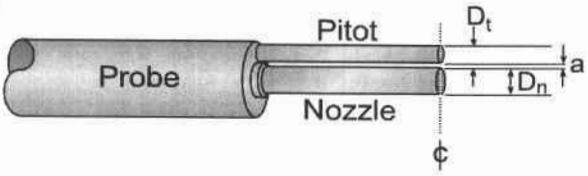
1 Y at each of the flow rates should not differ by more than +/- 2.0% from the average
2 Average Delta H@ must by within 0.15 of the average
3 The post DGM Y calibration has to be within 5% of the initial calibration

Vm(std) = 17.64 Vm (Pbar + deltaH/13.6) / (Tm + 460)
Vcr(std) = K' Pbar Time / SQRT(Tamb + 460)
Y = Vcr(std) / Vm(std)

S-Type Pitot Geometric Calibration
Part 1 - Probe Configuration

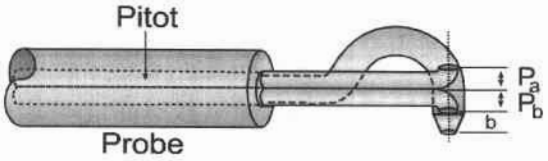
TRC Probe Identification: 7-4
Technical Specialist: M. Moauro
Date: January 12, 2012

A.



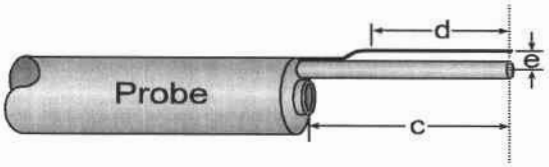
D_t = 0.375
D_n = 0.500
a = 0.792

B.



P_a = 0.472
P_b = 0.472
b = 0.531

C.



c = 4.654
d = 4.519
e = 1.155

OR

D.

OR

c = _____

f = _____

Specifications (EPA Method 2)

D_t = 3/16" to 3/8"	$c \geq 3"$	$P_a = P_b$
D_n = 1/2"	$d \geq 3"$	
$a \geq 3/4"$	$e \geq 3/4"$	$1.05\ D_t \leq P \leq 1.50\ D_t$
$b \geq 0$	$f \geq 2"$	

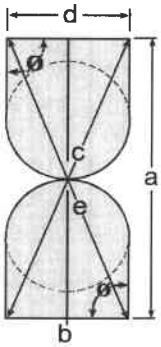
If these specifications are met, proceed with Part 2 Pitot alignment.

S-Type Pitot Geometric Calibration
Part 2 - Pitot Alignment

TRC Probe Identification: 7-4
Technical Specialist: M. Moauro
Date: January 12, 2012

A. Transverse Tube Axis

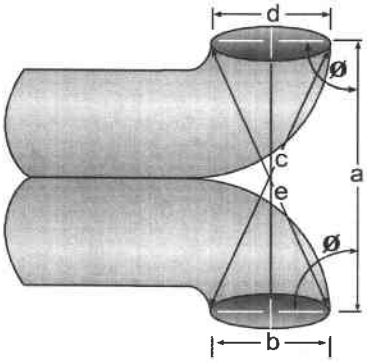
($80^o < Ø < 100^o$)
($80^o < Ø' < 100^o$)



a =	0.930
b =	0.365
c =	0.988
d =	0.375
e =	0.995
Ø =	88.1
Ø' =	88.7

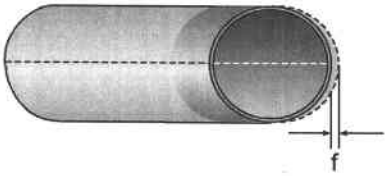
B. Longitudinal Tube Axis

($85^o < Ø < 95^o$)
($85^o < Ø' < 95^o$)

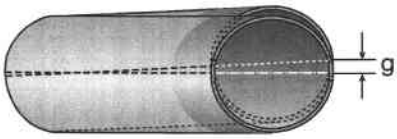


a =	0.934
b =	0.584
c =	1.080
d =	0.616
e =	1.091
Ø =	87.5
Ø' =	86.9

C. (f < 1/8")



D. (g,1/32")



f =	0
g =	0

Pitot Calibration = Good

NOTE: Values in parentheses are EPA Method 2 Specifications.

Probe Thermocouple Calibration

Tolerance
$^oR = {}^oF + 460$

			% Change	Allowable
Thermocouple Identification	7-4			
Expected Stack Temperature(T_s)		^oR		
Reference Thermometer(T_{ref}) boiling pt	672	^oR		
Thermocouple Readout	670	^oR	0.30%	1.50%
Reference Thermometer(T_{ref}) freezing pt	492	^oR		
Thermocouple Readout	493	^oR	-0.20%	1.50%

Technician: M. Moauro Date: 12-Jan-12

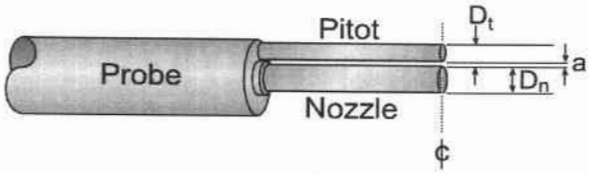
Reviewed By: Date: 12-Jan-12

TRC

S-Type Pitot Geometric Calibration
Part 1 - Probe Configuration

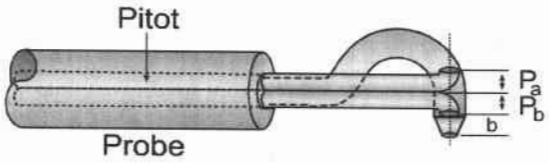
TRC Probe Identification: 7-3
Technical Specialist: M. Moauro
Date: January 12, 2012

A.



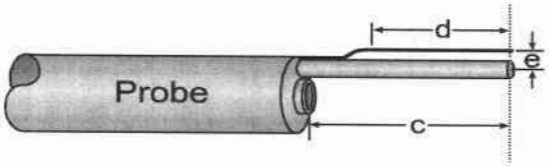
D_t = 0.375
D_n = 0.500
a = 0.804

B.



P_a = 0.465
P_b = 0.465
b = 0.271

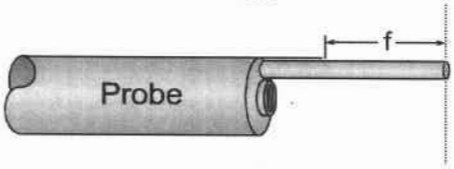
C.



c = 4.458
d = 4.254
e = 1.165

OR

D.



OR

c = _____

f = _____

Specifications (EPA Method 2)

D_t = 3/16" to 3/8"	$c \geq 3"$	$P_a = P_b$
D_n = 1/2"	$d \geq 3"$	
$a \geq 3/4"$	$e \geq 3/4"$	$1.05\ D_t \leq P \leq 1.50\ D_t$
$b \geq 0$	$f \geq 2"$	

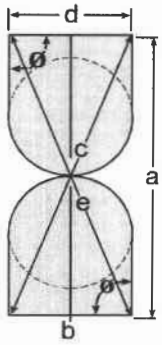
If these specifications are met, proceed with Part 2 Pitot alignment.

S-Type Pitot Geometric Calibration
Part 2 - Pitot Alignment

TRC Probe Identification: 7-3
Technical Specialist: M. Moauro
Date: January 12, 2012

A. Transverse Tube Axis

($80^o < Ø < 100^o$)
($80^o < Ø' < 100^o$)

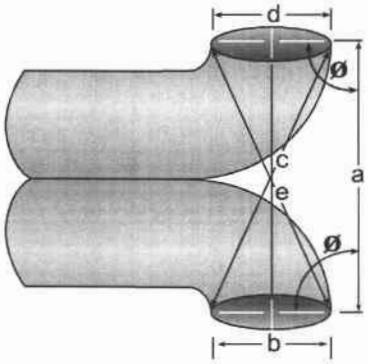


a = 0.908
b = 0.375
c = 0.971
d = 0.375
e = 0.964

Ø = 88.1
Ø' = 87.0

B. Longitudinal Tube Axis

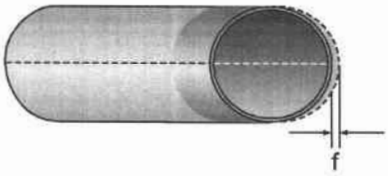
($85^o < Ø < 95^o$)
($85^o < Ø' < 95^o$)



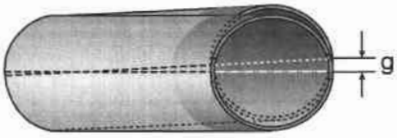
a = 0.909
b = 0.616
c = 1.100
d = 0.615
e = 1.095

Ø = 90.2
Ø' = 89.7

C. (f < 1/8")



D. (g,1/32")



f = 0
g = 0

Pitot Calibration = Good

NOTE: Values in parentheses are EPA Method 2 Specifications.

Probe Thermocouple Calibration

Tolerance
$^oR = {}^oF + 460$

			% Change Allowable	
Thermocouple Identification	7-3			
Expected Stack Temperature(T_s)		^oR		
Reference Thermometer(T_{ref}) boiling pt	672	^oR		
Thermocouple Readout	672	^oR	0.00%	1.50%
Reference Thermometer(T_{ref}) freezing pt	492	^oR		
Thermocouple Readout	492	^oR	0.00%	1.50%

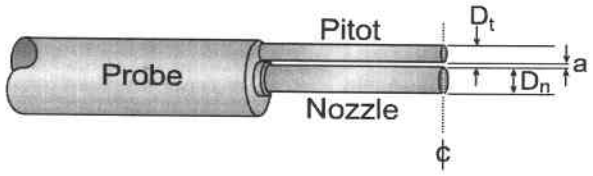
Technician: M. Moauro Date: 12-Jan-12

Reviewed By: [signature] Date: 12-Jan-12

S-Type Pitot Geometric Calibration
Part 1 - Probe Configuration

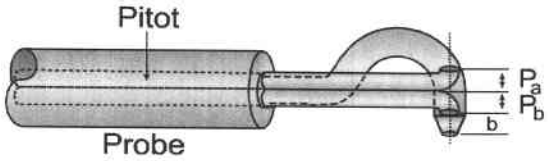
TRC Probe Identification: 7-2
Technical Specialist: M. Moauro
Date: January 12, 2012

A.



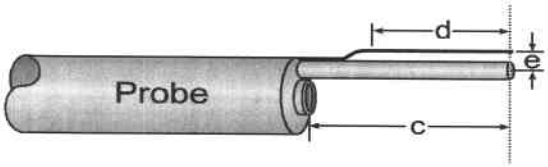
D_t = 0.375
D_n = 0.500
a = 1.068

B.



P_a = 0.493
P_b = 0.493
b = 0.272

C.



c = 4.556
d = 4.504
e = 1.138

OR

D.

OR

c = _____

f = _____

Specifications (EPA Method 2)

D_t = 3/16" to 3/8"	$c \geq 3"$	$P_a = P_b$
D_n = 1/2"	$d \geq 3"$	
$a \geq 3/4"$	$e \geq 3/4"$	$1.05\ D_t \leq P \leq 1.50\ D_t$
$b \geq 0$	$f \geq 2"$	

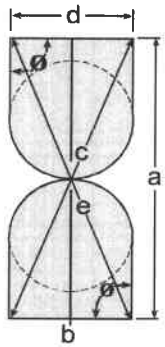
If these specifications are met, proceed with Part 2 Pitot alignment.

S-Type Pitot Geometric Calibration
Part 2 - Pitot Alignment

TRC Probe Identification: 7-2
Technical Specialist: M. Moauro
Date: January 12, 2012

A. Transverse Tube Axis

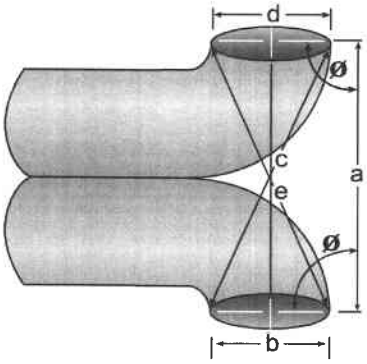
($80^o < Ø < 100^o$)
($80^o < Ø' < 100^o$)



a =	1.069
b =	0.375
c =	1.115
d =	0.365
e =	1.116
Ø =	87.1
Ø' =	87.8

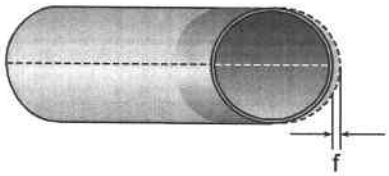
B. Longitudinal Tube Axis

($85^o < Ø < 95^o$)
($85^o < Ø' < 95^o$)

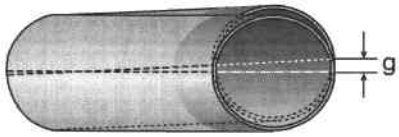


a =	1.069
b =	0.538
c =	1.168
d =	0.524
e =	1.192
Ø =	86.6
Ø' =	90.2

C. (f < 1/8")



D. (g,1/32")



f =	0
g =	0

Pitot Calibration = Good

NOTE: Values in parentheses are EPA Method 2 Specifications.

Probe Thermocouple Calibration

Tolerance
$^oR = {}^oF + 460$

			% Change	Allowable
Thermocouple Identification	7-2			
Expected Stack Temperature(T_s)		^oR		
Reference Thermometer(T_{ref}) boiling pt	672	^oR		
Thermocouple Readout	672	^oR	0.00%	1.50%
Reference Thermometer(T_{ref}) freezing pt	492	^oR		
Thermocouple Readout	492	^oR	0.00%	1.50%

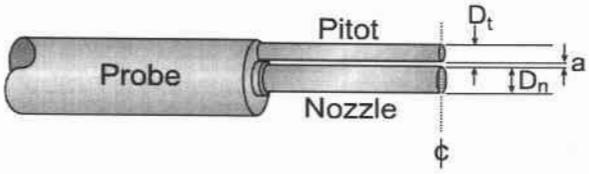
Technician: M. Moauro Date: 12-Jan-12

Reviewed By: [signature] Date: 12 JAN 12

S-Type Pitot Geometric Calibration
Part 1 - Probe Configuration

TRC Probe Identification	3-2
Technical Specialist	M. Moauro
Date	5-Jan-12

A.

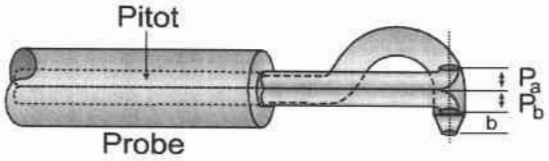


D_t = 0.375

D_n = 0.500

a = 0.781

B.

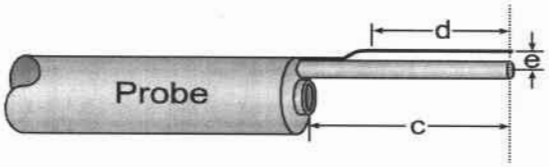


P_a = 0.478

P_b = 0.478

b = 1.315

C.



c = 4.800

d = 5.200

e = 0.800

OR

D.

OR

c = _____

f = _____

Specifications (EPA Method 2)

D_t = 3/16" to 3/8"	$c \geq 3"$	$P_a = P_b$
D_n = 1/2"	$d \geq 3"$	
$a \geq 3/4"$	$e \geq 3/4"$	$1.05\ D_t \leq P \leq 1.50\ D_t$
$b \geq 0$	$f \geq 2"$	

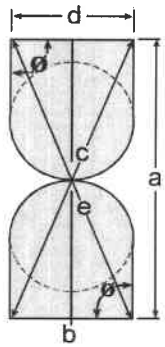
If these specifications are met, proceed with Part 2 Pitot alignment.

S-Type Pitot Geometric Calibration
Part 2 - Pitot Alignment

TRC Probe Identification: 3-2
Technical Specialist: M. Moauro
Date: January 5, 2012

A. Transverse Tube Axis

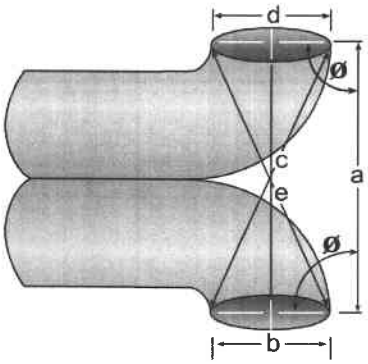
($80^o < Ø < 100^o$)
($80^o < Ø' < 100^o$)



a =	0.979
b =	0.380
c =	1.035
d =	0.380
e =	1.029
Ø =	87.6
Ø' =	88.8

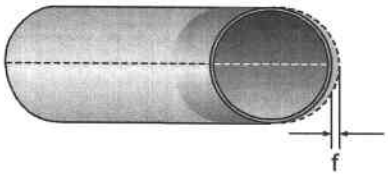
B. Longitudinal Tube Axis

($85^o < Ø < 95^o$)
($85^o < Ø' < 95^o$)

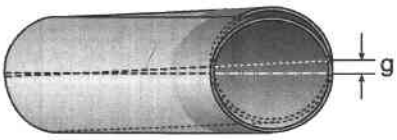


a =	0.976
b =	0.575
c =	1.120
d =	0.588
e =	1.126
Ø =	88.5
Ø' =	89.2

C. (f < 1/8")



D. (g,1/32")



f =	0
g =	0

Pitot Calibration = Good

NOTE: Values in parentheses are EPA Method 2 Specifications.

Probe Thermocouple Calibration

Tolerance
$^oR = {}^oF + 460$

			% Change	Allowable
Thermocouple Identification	3-2			
Expected Stack Temperature(T_s)		^oR		
Reference Thermometer(T_{ref}) boiling pt	672	^oR		
Thermocouple Readout	674	^oR	-0.30%	1.50%
Reference Thermometer(T_{ref}) freezing pt	492	^oR		
Thermocouple Readout	491	^oR	0.20%	1.50%

Technician: M. Moauro Date: 5-Jan-12
Reviewed By: [signature] Date: 5-Jan-12

Appendix N

Facility Operating Data

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T1 1-Hour Calcs
Report Name: T1 1-Hour Calcs
Start of Report: 04/17/2012 00:00
End of Report: 04/17/2012 23:59

Validation: All Available Data

Group#-Channel#	G6-C12	G6-C14	G6-C13	G6-C15	G6-C23	G6-C10	G6-C6
Long Descrip.	NOx Corr.	SO2inCorr	SO2 Corr.	SO2 Reduc	CO Corr.	O2 Inlet	MIR O2
Short Descrip.	1-NOx@7%	1-SO2in@7	1-SO2@7%	1-SO2 Red	1-CO@7%	1-O2in	1-MIR O2
Units	ppm	ppm	ppm	%	ppm	%	%
Range	0-500	0-1500	0-900	0-100	0-2100	0-25	0-25
04/17/2012 00:00	152	103	0	100.0	34	10.0	12.2
04/17/2012 01:00	138	117	13	89.8	28	9.1	11.6
04/17/2012 02:00	125	148	20	93.1	30	8.8	11.3
04/17/2012 03:00	95	222	78	73.0	76	7.9	10.7
04/17/2012 04:00	99	190	19	90.1	56	7.9	10.7
04/17/2012 05:00	98	163	19	88.5	80	8.1	10.7
04/17/2012 06:00	126	131	18	86.9	42	9.0	11.6
04/17/2012 07:00	112	115	32	87.4<	42<	9.1	11.7<
04/17/2012 08:00	128	113	20	100.0	42	9.2	11.7
04/17/2012 09:00	116<	105	19<	82.6<	54<	9.0	11.3<
04/17/2012 10:00	142	96	13	89.4	44	9.8	12.1
04/17/2012 11:00	124	103	12	92.3	48	9.2	11.7
04/17/2012 12:00	118	105	7	96.6	46	8.9	11.5
04/17/2012 13:00	136	94	11	87.8	44	9.5	12.0
04/17/2012 14:00	136	96	6	96.4	40	9.2	11.9
04/17/2012 15:00	120	93	7	94.6	42	8.8	11.3
04/17/2012 16:00	105	114	17	85.0	73	8.0	10.8
04/17/2012 17:00	128	119	11	91.9	85	10.0	12.4
04/17/2012 18:00	110	90	13	85.8	92	8.9	11.4
04/17/2012 19:00	115	81	10	87.4	50	9.1	11.5
04/17/2012 20:00	124	95	12	87.8	63	9.3	11.7
04/17/2012 21:00	141	99	11	89.4	50	9.8	12.2
04/17/2012 22:00	134	101	10	90.3	55	9.7	12.3
04/17/2012 23:00	131	119	21	83.3	75	9.6	12.2
Period Average =	123	117	17	89.6	54	9.1	11.6
Period Max Value =	152	222	78	100.0	92	10.0	12.4
Period Min Value =	95	81	0	73.0	28	7.9	10.7
Period Totals =	2.9530E+3	2.8120E+3	3.9900E+2	2.1494E+3	1.2910E+3	2.1790E+2	2.7850E+2
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 08:18

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/17/2012 00:00
End of Report: 04/17/2012 23:59

Validation: All Available Data

Group#-Channel#	G6-C11	G8-C2	G6-C17	G7-C2	G6-C16	G7-C3
Long Descrip.	Carbon Fe	Carbon Fe	SteamLoad	Stm Load Bag	Temp	Bag Temp
Short Descrip.	1-Carbon	1-Carbon	1-StmLoad	1-StmLoad	1-BagTemp	1-BagTemp
Units	lb/hr	lb/hr	klb/hr	klb/hr	Deg-F	Deg-F
Range	0-40	0-40	0-82	0-82	0-500	0-500
04/17/2012 00:00	0.0	0.0	49.0	52.8	322	326
04/17/2012 01:00	0.0		52.4		327	
04/17/2012 02:00	0.0		54.3		326	
04/17/2012 03:00	0.0		55.3		327	
04/17/2012 04:00	0.0		54.8	55.8	326	323
04/17/2012 05:00	0.0		56.1		320	
04/17/2012 06:00	0.0		56.4		320	
04/17/2012 07:00	0.0		55.9		324	
04/17/2012 08:00	0.0	0.0	56.0	55.2	329	329
04/17/2012 09:00	0.0		55.2		329	
04/17/2012 10:00	0.0		54.3		329	
04/17/2012 11:00	0.0		55.4		327	
04/17/2012 12:00	0.0		55.5	55.3	327	327
04/17/2012 13:00	0.0		54.6		327	
04/17/2012 14:00	0.0		55.4		324	
04/17/2012 15:00	0.0		55.7		328	
04/17/2012 16:00	0.0	0.0	55.3	55.4	327	328
04/17/2012 17:00	0.0		56.0		328	
04/17/2012 18:00	0.0		54.7		329	
04/17/2012 19:00	0.0		55.5		328	
04/17/2012 20:00	0.0		55.4	55.4	328	328
04/17/2012 21:00	0.0		55.3		328	
04/17/2012 22:00	0.0		55.6		328	
04/17/2012 23:00	0.0		55.4		327	
Period Average =	0.0	0.0	55.0	55.0	326	327
Period Max Value =	0.0	0.0	56.4	55.8	329	329
Period Min Value =	0.0	0.0	49.0	52.8	320	323
Period Totals =	0.0000E+0	0.0000E+0	1.3195E+3	3.2990E+2	7.8350E+3	1.9610E+3
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 09:28

6-min Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T1 6-Min Opacity

Report Name: T1 OPA 6-MIN Summary

Start of Report: 04/17/2012 00:00

End of Report: 04/17/2012 23:59

Validation: All Available Data

Group#-Channel#	G3-C1
Long Descrip.	Opacity
Short Descrip.	1 Opacity
Units	%
Range	0-100
Date:	04/17/2012

						Minute				
Hour	**00**	**06**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**
0:00	1	1	1	1	1	1	1	1	1	1
1:00	1	1	1	1	0	1	1	1	1	1
2:00	0	0	1	1	1	1	0	0	0	0
3:00	0	0	1	0	1	1	1	1	1	1
4:00	1	1	1	1	1	1	1	1	1	1
5:00	1	1	1	0	3	1	1	1	0	1
6:00	1	1	2	0	1	1	0	1	1	0
7:00	0	0	0	0	0	1	1	1 C	8 C	0 C
8:00	0	0	0	0	0	0	0	0	0	0
9:00	0	0 S	0 S	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0 S
11:00	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	1	0	0	0
15:00	0	0	0	0	0	0	1	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0
17:00	1	1	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T1 1-Hour Calcs
Report Name: T1 1-Hour Calcs
Start of Report: 04/18/2012 00:00
End of Report: 04/18/2012 23:59

Validation: All Available Data

Group#-Channel#	G6-C12	G6-C14	G6-C13	G6-C15	G6-C23	G6-C10	G6-C6
Long Descrip.	NOx Corr.	SO2inCorr	SO2 Corr.	SO2 Reduc	CO Corr.	O2 Inlet	MIR O2
Short Descrip.	1-NOx@7%	1-SO2in@7	1-SO2@7%	1-SO2 Red	1-CO@7%	1-O2in	1-MIR O2
Units	ppm	ppm	ppm	%	ppm	%	%
Range	0-500	0-1500	0-900	0-100	0-2100	0-25	0-25
04/18/2012 00:00	153	105	19	82.0	45	10.6	12.9
04/18/2012 01:00	170	79	5	94.0	40	11.0	13.3
04/18/2012 02:00	155	108	10	91.7	36	10.5	12.9
04/18/2012 03:00	129	122	10	92.6	38	9.7	12.4
04/18/2012 04:00	128	110	6	95.0	50	9.5	12.3
04/18/2012 05:00	132	109	16	85.9	43	9.6	12.4
04/18/2012 06:00	126	116	19	83.4	48	9.5	12.2
04/18/2012 07:00	141	119	20	83.4	37	9.8	12.7
04/18/2012 08:00	127	124	19	85.1	49	9.4	11.9
04/18/2012 09:00	137	125	22	83.3	47	10.2	12.6
04/18/2012 10:00	141	135	26	81.5	93	10.9	13.4
04/18/2012 11:00	129	76	3	96.1	61	9.7	12.5
04/18/2012 12:00	134	70	2	98.0	74	9.6	12.4
04/18/2012 13:00	146	54	2	97.5	52	10.1	12.6
04/18/2012 14:00	126	73	0	98.6	72	9.4	12.2
04/18/2012 15:00	111	87	3	97.2	139	8.7	11.4
04/18/2012 16:00	142	95	2	98.3	50	9.9	12.6
04/18/2012 17:00	136	117	2	98.3	45	10.0	12.9
04/18/2012 18:00	125	109	4	97.9	37	9.5	13.0
04/18/2012 19:00	101	102	2	98.5	62	8.4	12.4
04/18/2012 20:00	126	93	0	100.0	54	9.6	13.2
04/18/2012 21:00	129	92	0	100.0	48	9.7	12.8
04/18/2012 22:00	136	117	11	93.1	40	9.5	12.2
04/18/2012 23:00	120	130	16	87.2	36	8.8	11.6
Period Average =	133	103	9	92.4	54	9.7	12.5
Period Max Value =	170	135	26	100.0	139	11.0	13.4
Period Min Value =	101	54	0	81.5	36	8.4	11.4
Period Totals =	3.2000E+3	2.4670E+3	2.1900E+2	2.2186E+3	1.2960E+3	2.3360E+2	3.0080E+2
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/18/2012 00:00
End of Report: 04/18/2012 23:59

Validation: All Available Data

Group#-Channel#	G6-C11	G8-C2	G6-C17	G7-C2	G6-C16	G7-C3
Long Descrip.	Carbon Fe	Carbon Fe	SteamLoad	Stm Load	Bag Temp	Bag Temp
Short Descrip.	1-Carbon	1-Carbon	1-StmLoad	1-StmLoad	1-BagTemp	1-BagTemp
Units	lb/hr	lb/hr	klb/hr	klb/hr	Deg-F	Deg-F
Range	0-40	0-40	0-82	0-82	0-500	0-500
04/18/2012 00:00	0.0	0.0	52.1	52.1	329	329
04/18/2012 01:00	0.0		49.7		329	
04/18/2012 02:00	0.0		51.5		329	
04/18/2012 03:00	0.0		55.2		330	
04/18/2012 04:00	0.0		53.2	54.9	331	329
04/18/2012 05:00	0.0		55.8		329	
04/18/2012 06:00	0.0		55.3		327	
04/18/2012 07:00	0.0		55.3		330	
04/18/2012 08:00	0.0	0.0	55.6	54.0	329	329
04/18/2012 09:00	0.0		55.1		328	
04/18/2012 10:00	0.0		50.1		328	
04/18/2012 11:00	0.0		55.3		331	
04/18/2012 12:00	0.0		54.9	54.4	300	316
04/18/2012 13:00	0.0		52.2		302	
04/18/2012 14:00	0.0		55.2		333	
04/18/2012 15:00	0.0		55.1		330	
04/18/2012 16:00	0.0	0.0	49.0	50.5	329	327
04/18/2012 17:00	0.0		50.5		327	
04/18/2012 18:00	0.0		50.0		326	
04/18/2012 19:00	0.0		52.3		326	
04/18/2012 20:00	0.0		45.7	50.0	326	326
04/18/2012 21:00	0.0		45.0		327	
04/18/2012 22:00	0.0		53.1		325	
04/18/2012 23:00	0.0		56.0		325	
Period Average =	0.0	0.0	52.6	52.7	326	326
Period Max Value =	0.0	0.0	56.0	54.9	333	329
Period Min Value =	0.0	0.0	45.0	50.0	300	316
Period Totals =	0.0000E+0	0.0000E+0	1.2632E+3	3.1590E+2	7.8260E+3	1.9560E+3
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 09:28

6-min Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T1 6-Min Opacity

Report Name: T1 OPA 6-MIN Summary

Start of Report: 04/18/2012 00:00

End of Report: 04/18/2012 23:59

Validation: All Available Data

Group#-Channel#	G3-C1
Long Descrip.	Opacity
Short Descrip.	1 Opacity
Units	%
Range	0-100
Date:	04/18/2012

	Minute									
Hour	**00**	**06**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**
0:00	0	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0	0	0	0
6:00	0	0	2	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0C	8C	1C
8:00	1	1	1	1	1	1	1	1	1	1
9:00	1	1	1	1	1	1	1	1	1	1
10:00	1	1	1	1	1	1	1	1	1	1
11:00	1	1	1	1	1	1	1	1	1	1
12:00	1	1	1	1	1	1	1	1	1	1
13:00	1	1	1	1	1	1	1	1	1	1
14:00	1	1	1	1	1	1	1	1	1	1
15:00	1	1	1	1	1	1	1	1	1	1
16:00	1	1	1	1	1	2	1	1	1	1
17:00	2	6	2	2	2	1	1	1	1	1
18:00	1	1	1	1	1	1	1	1	1	1
19:00	1	1	1	1	1	1	1	1	1	1
20:00	1	1	1	1	1	1	1	1	1	1
21:00	1	1	1	1	1	1	1	1	1	1
22:00	1	1	1	1	1	1	1	1	1	1
23:00	1	1	1	1	1	1	1	1	1	1

Date/Time Printed: 05/08/2012 09:33

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 1-Hour Calcs
Report Name: T2 1-Hour Calcs
Start of Report: 04/17/2012 00:00
End of Report: 04/17/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C12	G21-C14	G21-C13	G21-C15	G21-C23	G21-C10	G21-C6
Long Descrip.	NOx Corr.	SO2inCorr	SO2 Corr.	SO2 Reduc	CO Corr.	Inlet O2	MIR O2 Ou
Short Descrip.	2-NOx@7%	2-SO2in@7	2-SO2@7%	2-SO2 Red	2-CO@7%	2-O2in	2-MIR O2
Units	ppm	ppm	ppm	%	ppm	%	%
Range	0-500	0-1500	0-900	0-100	0-2100	0-25	0-25
04/17/2012 00:00	120d	83d	5d	0.0d	239d	10.8d	11.88d
04/17/2012 01:00	111d	110d	10d	0.0d	213d	8.3d	9.63d
04/17/2012 02:00	104d	146d	16d	0.0d	229d	8.6d	9.84d
04/17/2012 03:00	109	145	15	89.6	221	8.5	10.03
04/17/2012 04:00	114	104	1	98.5	287	9.9	10.86
04/17/2012 05:00	133	106	0	100.0	192	10.0	11.36
04/17/2012 06:00	96	115	0	100.0	363	8.5	9.92
04/17/2012 07:00	106	130	3	98.3	186	8.7	10.14
04/17/2012 08:00	109	125	6	95.0	117	8.6	10.19
04/17/2012 09:00	124	121	9	92.7	107	9.2	10.51
04/17/2012 10:00	128	114	11	91.4	117	9.4	10.68
04/17/2012 11:00	103	129	20	86.2	149	8.4	9.81
04/17/2012 12:00	132	129	17	87.8	104	9.7	10.97
04/17/2012 13:00	149	103	4	97.7	82	10.4	11.54
04/17/2012 14:00	140	110	1	99.1	63	9.9	11.18
04/17/2012 15:00	115	133	5	97.3	107	9.2	10.59
04/17/2012 16:00	103	151	9	94.1	131	8.9	10.53
04/17/2012 17:00	104	125	5	95.3	136	9.1	10.65
04/17/2012 18:00	98	95	3	98.0	172	8.8	10.15
04/17/2012 19:00	109	100	4	96.4	140	8.9	10.20
04/17/2012 20:00	107	117	7	94.3	116	8.9	10.22
04/17/2012 21:00	111	140	16	88.3	103	9.1	10.49
04/17/2012 22:00	112	147	18	87.7	171	8.8	10.20
04/17/2012 23:00	98	151	19	88.2	236	8.2	9.73
Period Average =	114	122	9	82.3	166	9.1	10.47
Period Max Value =	149	151	20	100.0	363	10.8	11.88
Period Min Value =	96	83	0	0.0	63	8.2	9.63
Period Totals =	2.7350E+3	2.9290E+3	2.0400E+2	1.9759E+3	3.9810E+3	2.1880E+2	2.5130E+2
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 09:34

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/17/2012 00:00
End of Report: 04/17/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C11	G23-C2	G21-C17	G22-C2	G21-C16	G22-C3
Long Descrip.	Carbon Fe	Carbon Fe	StmLoad	Stm Load	BagTemp	Bag Temp
Short Descrip.	2-Carbon	2-Carbon	2-StmLoad	2-StmLoad	2-BagTemp	2-BagTemp
Units	lb/hr	lb/hr	klb/hr	klb/hr	Deg-F	Deg-F
Range	0-40	0-40	0-82	0-82	0-500	0-500
04/17/2012 00:00	0.0d	0.0	28.8d	54.3	323d	328
04/17/2012 01:00	0.0d		54.5d		329d	
04/17/2012 02:00	0.0d		53.9d		327d	
04/17/2012 03:00	0.0		54.3		328	
04/17/2012 04:00	0.0		43.7	46.9	323	318
04/17/2012 05:00	0.0		43.1		308	
04/17/2012 06:00	0.0		49.1		317	
04/17/2012 07:00	0.0		51.6		323	
04/17/2012 08:00	0.0	0.0	53.9	53.3	324	324
04/17/2012 09:00	0.0		52.9		324	
04/17/2012 10:00	0.0		52.0		324	
04/17/2012 11:00	0.0		54.3		323	
04/17/2012 12:00	0.0		50.2	48.7	321	323
04/17/2012 13:00	0.0		46.9		324	
04/17/2012 14:00	0.0		48.0		324	
04/17/2012 15:00	0.0		49.8		324	
04/17/2012 16:00	0.0	0.0	49.7	49.6	324	325
04/17/2012 17:00	0.0		49.2		324	
04/17/2012 18:00	0.0		49.6		324	
04/17/2012 19:00	0.0		49.7		329	
04/17/2012 20:00	0.0		49.3	51.5	329	328
04/17/2012 21:00	0.0		49.3		328	
04/17/2012 22:00	0.0		52.7		328	
04/17/2012 23:00	0.0		54.5		327	
Period Average =	0.0	0.0	49.6	50.7	324	324
Period Max Value =	0.0	0.0	54.5	54.3	329	328
Period Min Value =	0.0	0.0	28.8	46.9	308	318
Period Totals =	0.0000E+0	0.0000E+0	1.1910E+3	3.0430E+2	7.7790E+3	1.9460E+3
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 09:27

6-min Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 6-Min Opacity

Report Name: T2 OPA 6-MIN Summary

Start of Report: 04/17/2012 00:00

End of Report: 04/17/2012 23:59

Validation: All Available Data

Group#-Channel#	G18-C1
Long Descrip.	Opacity
Short Descrip.	2 Opacity
Units	%
Range	0-100
Date:	04/17/2012

	Minute									
Hour	**00**	**06**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**
0:00	1	1	1	1	1	1	1	1	1	1
1:00	1	1	1	1	1	1	1	1	1	1
2:00	1	1	1	1	1	1	1	1	1	1
3:00	1	1	1	1	1	1	1	1	1	1
4:00	1	1	1	1	1	1	1	1	1	1
5:00	1	1	1	1	1	1	1	1	1	1
6:00	1	1	1	1	1	1	1	1	1	1
7:00	1	1	1	1	1	1	1	1	1	1
8:00	1	1	1	1	1	1	1C	8C	1C	1
9:00	1	1	1	1	1	1	1	1	1	1
10:00	1	1	1	1	1	1	1	1	1	1
11:00	1	1	1	1	1	1	1	1	1	1
12:00	1	1	1	1	1	1	1	1	1	1
13:00	1	1	1	1	1	1	1	1	1	1
14:00	1	1	1	1	1	1	1	1	1	1
15:00	1	1	1	1	1	1	1	1	1	1
16:00	1	1	1	1	1	1	1	1	1	1
17:00	1	1	1	1	1	1	1	1	1	1
18:00	1	1	1	1	1	1	1	1	1	1
19:00	1	1	1	1	1	1	1	1	1	1
20:00	1	1	1	1	1	1	1	1	1	1
21:00	1	1	1	1	1	1	1	1	1	1
22:00	1	1	1	1	1	1	1	1	1	1
23:00	1	1	1	1	1	1	1	1	1	1

Date/Time Printed: 05/08/2012 09:36

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 1-Hour Calcs
Report Name: T2 1-Hour Calcs
Start of Report: 04/18/2012 00:00
End of Report: 04/18/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C12	G21-C14	G21-C13	G21-C15	G21-C23	G21-C10	G21-C6
Long Descrip.	NOx Corr.	SO2inCorr	SO2 Corr.	SO2 Reduc	CO Corr.	Inlet O2	MIR O2 Ou
Short Descrip.	2-NOx@7%	2-SO2in@7	2-SO2@7%	2-SO2 Red	2-CO@7%	2-O2in	2-MIR O2
Units	ppm	ppm	ppm	%	ppm	%	%
Range	0-500	0-1500	0-900	0-100	0-2100	0-25	0-25
04/18/2012 00:00	108	140	16	89.5	158	8.7	10.18
04/18/2012 01:00	141	111	5	96.9	56	10.5	11.72
04/18/2012 02:00	106	112	1	99.1	145	8.9	10.58
04/18/2012 03:00	105	115	1	98.8	127	8.8	10.40
04/18/2012 04:00	111	135	1	98.9	186	8.5	10.35
04/18/2012 05:00	131	123	8	95.6	133	9.3	10.96
04/18/2012 06:00	118	117	16	86.1	129	8.9	10.52
04/18/2012 07:00	133	134	21	84.7	109	9.2	10.86
04/18/2012 08:00	108	130	17	86.9	146	8.6	10.22
04/18/2012 09:00	118	114	13	88.0	103	8.9	10.50
04/18/2012 10:00	131	158	25	85.0	69	9.8	11.37
04/18/2012 11:00	110	137	17	87.6	131	8.7	10.26
04/18/2012 12:00	112	108	7	94.1	151	8.8	10.31
04/18/2012 13:00	111	105	4	96.1	129	8.9	10.53
04/18/2012 14:00	97	112	3	97.6	160	8.5	10.14
04/18/2012 15:00	112	125	12	91.5	90	8.9	10.44
04/18/2012 16:00	116	137	16	88.7	106	8.9	10.38
04/18/2012 17:00	117	165	12	93.6	148	8.8	10.58
04/18/2012 18:00	103	146	19	87.3	151	8.3	9.69
04/18/2012 19:00	112	126	18	86.2	128	8.7	10.22
04/18/2012 20:00	121	114	17	85.3	86	8.8	10.34
04/18/2012 21:00	122	134	42	71.9	136	8.8	10.39
04/18/2012 22:00	113	117	14	87.8	154	8.9	10.19
04/18/2012 23:00	105	127	17	87.0	221	8.4	10.06
Period Average =	115	127	13	90.2	131	8.9	10.47
Period Max Value =	141	165	42	99.1	221	10.5	11.72
Period Min Value =	97	105	1	71.9	56	8.3	9.69
Period Totals =	2.7610E+3	3.0420E+3	3.2200E+2	2.1642E+3	3.1520E+3	2.1350E+2	2.5119E+2
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/18/2012 00:00
End of Report: 04/18/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C11	G23-C2	G21-C17	G22-C2	G21-C16	G22-C3
Long Descrip.	Carbon Fe	Carbon Fe	StmLoad	Stm Load	BagTemp	Bag Temp
Short Descrip.	2-Carbon	2-Carbon	2-StmLoad	2-StmLoad	2-BagTemp	2-BagTemp
Units	lb/hr	lb/hr	klb/hr	klb/hr	Deg-F	Deg-F
Range	0-40	0-40	0-82	0-82	0-500	0-500
04/18/2012 00:00	0.0	0.0	53.5	51.6	329	329
04/18/2012 01:00	0.0		47.0		329	
04/18/2012 02:00	0.0		52.2		329	
04/18/2012 03:00	0.0		53.6		329	
04/18/2012 04:00	0.0		48.4	50.4	329	329
04/18/2012 05:00	0.0		48.9		329	
04/18/2012 06:00	0.0		53.1		329	
04/18/2012 07:00	0.0		51.0		329	
04/18/2012 08:00	0.0	0.0	53.9	52.4	329	328
04/18/2012 09:00	0.0		53.5		329	
04/18/2012 10:00	0.0		48.8		327	
04/18/2012 11:00	0.0		53.5		328	
04/18/2012 12:00	0.0		52.8	53.1	329	329
04/18/2012 13:00	0.0		52.5		329	
04/18/2012 14:00	0.0		53.6		329	
04/18/2012 15:00	0.0		53.6		329	
04/18/2012 16:00	0.0	0.0	53.6	52.1	328	329
04/18/2012 17:00	0.0		47.2		329	
04/18/2012 18:00	0.0		53.2		329	
04/18/2012 19:00	0.0		54.2		329	
04/18/2012 20:00	0.0		53.9	54.0	329	328
04/18/2012 21:00	0.0		54.0		326	
04/18/2012 22:00	0.0		53.7		328	
04/18/2012 23:00	0.0		54.3		328	
Period Average =	0.0	0.0	52.3	52.3	329	329
Period Max Value =	0.0	0.0	54.3	54.0	329	329
Period Min Value =	0.0	0.0	47.0	50.4	326	328
Period Totals =	0.0000E+0	0.0000E+0	1.2540E+3	3.1360E+2	7.8870E+3	1.9720E+3
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 09:27

6-min Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 6-Min Opacity

Report Name: T2 OPA 6-MIN Summary

Start of Report: 04/18/2012 00:00

End of Report: 04/18/2012 23:59

Validation: All Available Data

Group#-Channel#	G18-C1
Long Descrip.	Opacity
Short Descrip.	2 Opacity
Units	%
Range	0-100
Date:	04/18/2012

						Minute				
Hour	**00**	**06**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**
0:00	1	1	1	1	1	1	1	1	1	1
1:00	1	1	1	1	1	1	1	1	1	1
2:00	1	1	1	1	1	1	1	1	1	1
3:00	1	1	1	1	1	1	1	1	1	1
4:00	1	1	1	1	1	1	1	1	1	1
5:00	1	1	1	1	1	1	1	1	1	1
6:00	1	1	1	1	1	1	1	1	1	1
7:00	1	1	1	1	1	1	1	1	1	1
8:00	1	1	1	1	1	1	1C	9C	1C	1
9:00	1	1	1	1	1	1	1	1	1	1
10:00	1	1	1	1	1	1	1	1	1	1
11:00	1	1	1	1	1	1	1	1	1	1
12:00	1	1	1	1	1	1	1	1	1	1
13:00	1	1	1	1	1	1	1	1	1	1
14:00	1	1	1	1	1	1	1	1	1	1
15:00	1	1	1	1	1	1	1	1	1	1
16:00	1	1	1	1	1	1	1	1	1	1
17:00	1	1	1	1	1	1	1	1	1	1
18:00	1	1	1	1	1	1	1	1	1	1
19:00	1	1	1	1	1	1	1	1	1	1
20:00	1	1	1	1	1	1	1	1	1	1
21:00	1	1	1	1	1	1	1	1	1	1
22:00	1	1	1	1	1	1	1	1	1	1
23:00	1	1	1	1	1	1	1	1	1	1

Date/Time Printed: 05/08/2012 09:36

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 1-Hour Calcs
Report Name: T2 1-Hour Calcs
Start of Report: 04/25/2012 00:00
End of Report: 04/25/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C12	G21-C14	G21-C13	G21-C15	G21-C23	G21-C10	G21-C6
Long Descrip.	NOx Corr.	SO2inCorr	SO2 Corr.	SO2 Reduc	CO Corr.	Inlet O2	MIR O2 Ou
Short Descrip.	2-NOx@7%	2-SO2in@7	2-SO2@7%	2-SO2 Red	2-CO@7%	2-O2in	2-MIR O2
Units	ppm	ppm	ppm	%	ppm	%	%
Range	0-500	0-1500	0-900	0-100	0-2100	0-25	0-25
04/25/2012 00:00	142	221	28	88.6	69	10.6	11.89
04/25/2012 01:00	127	199	17	91.3	75	9.7	11.28
04/25/2012 02:00	133	209	33	85.8	64	10.0	11.27
04/25/2012 03:00	138	161	19	88.3	67	10.3	11.62
04/25/2012 04:00	152	127	11	92.6	46	10.6	11.87
04/25/2012 05:00	137	140	4	98.2	74	9.9	11.37
04/25/2012 06:00	105	163	16	90.7	143	8.8	10.31
04/25/2012 07:00	106	162	14	91.4	109	8.9	10.30
04/25/2012 08:00	92	133	12	91.0	162	8.4	9.74
04/25/2012 09:00	95	141	17	87.9	333	8.0	9.54
04/25/2012 10:00	90	116	12	89.9	279	8.2	9.51
04/25/2012 11:00	116	108	4	96.9	120	9.2	10.51
04/25/2012 12:00	119	98	3	98.1	117	9.3	10.76
04/25/2012 13:00	101	112	5	95.5	188	8.5	9.93
04/25/2012 14:00	97	117	5	97.4	343	8.2	9.88
04/25/2012 15:00	104	110	4	97.9	220	8.4	9.97
04/25/2012 16:00	114	120	13	91.5	206	8.5	10.05
04/25/2012 17:00	128	134	16	87.9	97	9.2	10.61
04/25/2012 18:00	134	132	12	91.9	104	9.1	10.65
04/25/2012 19:00	123	132	12	92.6	109	9.2	10.69
04/25/2012 20:00	108	109	3	98.4	165	8.8	10.26
04/25/2012 21:00	107	145	20	90.5	135	8.7	10.22
04/25/2012 22:00	128	147	10	95.1	74	9.8	11.26
04/25/2012 23:00	98	169	25	84.9	162	8.2	9.95
Period Average =	116	142	13	92.3	144	9.1	10.56
Period Max Value =	152	221	33	98.4	343	10.6	11.89
Period Min Value =	90	98	3	84.9	46	8.0	9.51
Period Totals =	2.7940E+3	3.4050E+3	3.1500E+2	2.2143E+3	3.4610E+3	2.1850E+2	2.5344E+2
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/25/2012 00:00
End of Report: 04/25/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C11	G23-C2	G21-C17	G22-C2	G21-C16	G22-C3
Long Descrip.	Carbon Fe	Carbon Fe	StmLoad	Stm Load	BagTemp	Bag Temp
Short Descrip.	2-Carbon	2-Carbon	2-StmLoad	2-StmLoad	2-BagTemp	2-BagTemp
Units	lb/hr	lb/hr	klb/hr	klb/hr	Deg-F	Deg-F
Range	0-40	0-40	0-82	0-82	0-500	0-500
04/25/2012 00:00	0.0	0.0	41.5	44.2	319	324
04/25/2012 01:00	0.0		45.9		323	
04/25/2012 02:00	0.0		44.6		324	
04/25/2012 03:00	0.0		44.8		328	
04/25/2012 04:00	0.0		41.7	45.7	327	328
04/25/2012 05:00	0.0		41.4		329	
04/25/2012 06:00	0.0		49.8		328	
04/25/2012 07:00	0.0		49.9		328	
04/25/2012 08:00	0.0	0.0	52.2	52.5	329	329
04/25/2012 09:00	0.0		52.6		329	
04/25/2012 10:00	0.0		54.2		330	
04/25/2012 11:00	0.0		50.8		329	
04/25/2012 12:00	0.0		49.1	51.0	329	329
04/25/2012 13:00	0.0		53.4		329	
04/25/2012 14:00	0.0		47.5		329	
04/25/2012 15:00	0.0		53.9		329	
04/25/2012 16:00	0.0	0.0	55.1	53.9	329	329
04/25/2012 17:00	0.0		55.2		330	
04/25/2012 18:00	0.0		54.4		329	
04/25/2012 19:00	0.0		50.9		329	
04/25/2012 20:00	0.0		52.2	51.1	329	329
04/25/2012 21:00	0.0		52.7		329	
04/25/2012 22:00	0.0		46.1		328	
04/25/2012 23:00	0.0		53.3		330	
Period Average =	0.0	0.0	49.7	49.7	328	328
Period Max Value =	0.0	0.0	55.2	53.9	330	329
Period Min Value =	0.0	0.0	41.4	44.2	319	324
Period Totals =	0.0000E+0	0.0000E+0	1.1932E+3	2.9840E+2	7.8720E+3	1.9680E+3
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 09:26

6-min Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 6-Min Opacity

Report Name: T2 OPA 6-MIN Summary

Start of Report: 04/25/2012 00:00

End of Report: 04/25/2012 23:59

Validation: All Available Data

Group#-Channel#	G18-C1
Long Descrip.	Opacity
Short Descrip.	2 Opacity
Units	%
Range	0-100
Date:	04/25/2012

	Minute									
Hour	**00**	**06**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**
0:00	0	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0 C	8 C	0 C	0
9:00	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0

Date/Time Printed: 05/08/2012 09:37

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 1-Hour Calcs
Report Name: T2 1-Hour Calcs
Start of Report: 04/26/2012 00:00
End of Report: 04/26/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C12	G21-C14	G21-C13	G21-C15	G21-C23	G21-C10	G21-C6
Long Descrip.	NOx Corr.	SO2inCorr	SO2 Corr.	SO2 Reduc	CO Corr.	Inlet O2	MIR O2 Ou
Short Descrip.	2-NOx@7%	2-SO2in@7	2-SO2@7%	2-SO2 Red	2-CO@7%	2-O2in	2-MIR O2
Units	ppm	ppm	ppm	%	ppm	%	%
Range	0-500	0-1500	0-900	0-100	0-2100	0-25	0-25
04/26/2012 00:00	99	154	5	97.6	227	8.1	9.95
04/26/2012 01:00	125	125	14	89.0	108	9.2	10.70
04/26/2012 02:00	104	164	21	87.5	202	8.8	10.25
04/26/2012 03:00	118	222	32	85.8	132	8.9	10.46
04/26/2012 04:00	127	272	44	84.2	150	9.7	11.17
04/26/2012 05:00	109	299	46	85.0	246	8.6	10.29
04/26/2012 06:00	116	242	25	91.1	151	8.8	10.48
04/26/2012 07:00	119	180	13	93.9	296	8.6	10.37
04/26/2012 08:00	111	135	19	86.6	252	8.0	9.75
04/26/2012 09:00	104	101	12	88.0	241	8.0	9.64
04/26/2012 10:00	113	98	10	89.8	216	8.4	9.79
04/26/2012 11:00	106	101	9	90.8	198	8.6	10.04
04/26/2012 12:00	92	91	5	95.0	268	8.2	9.70
04/26/2012 13:00	99	99	4	97.2	192	8.4	9.81
04/26/2012 14:00	85	106	8	92.7	361	7.6	9.16
04/26/2012 15:00	102	108	5	97.6	147	8.7	9.99
04/26/2012 16:00	114	113	1	98.8	68	9.3	10.63
04/26/2012 17:00	117	126	8	94.5	72	8.7	10.22
04/26/2012 18:00	113	124	9	92.3	122	8.7	10.22
04/26/2012 19:00	106	127	14	89.5	178	8.6	10.06
04/26/2012 20:00	112	147	29	81.5	171	9.2	10.51
04/26/2012 21:00	120	163	26	85.8	126	8.7	10.20
04/26/2012 22:00	113	183	28	85.2	166	8.7	10.07
04/26/2012 23:00	129	165	22	87.7	81	9.8	11.00
Period Average =	111	152	17	90.3	182	8.7	10.19
Period Max Value =	129	299	46	98.8	361	9.8	11.17
Period Min Value =	85	91	1	81.5	68	7.6	9.16
Period Totals =	2.6530E+3	3.6450E+3	4.0900E+2	2.1671E+3	4.3710E+3	2.0830E+2	2.4446E+2
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 10:09

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/26/2012 00:00
End of Report: 04/26/2012 23:59

Validation: All Available Data

Group#-Channel#	G21-C11	G23-C2	G21-C17	G22-C2	G21-C16	G22-C3
Long Descrip.	Carbon Fe	Carbon Fe	StmLoad	Stm Load	BagTemp	Bag Temp
Short Descrip.	2-Carbon	2-Carbon	2-StmLoad	2-StmLoad	2-BagTemp	2-BagTemp
Units	lb/hr	lb/hr	klb/hr	klb/hr	Deg-F	Deg-F
Range	0-40	0-40	0-82	0-82	0-500	0-500
04/26/2012 00:00	0.0	0.0	48.3	50.8	333	328
04/26/2012 01:00	0.0		51.1		330	
04/26/2012 02:00	0.0		52.2		326	
04/26/2012 03:00	0.0		51.7		324	
04/26/2012 04:00	0.0		47.1	48.4	318	322
04/26/2012 05:00	0.0		51.8		321	
04/26/2012 06:00	0.0		47.6		323	
04/26/2012 07:00	0.0		47.2		327	
04/26/2012 08:00	0.0	0.0	57.1	54.7	328	329
04/26/2012 09:00	0.0		55.2		329	
04/26/2012 10:00	0.0		52.6		329	
04/26/2012 11:00	0.0		53.9		329	
04/26/2012 12:00	0.0		52.1	49.8	329	329
04/26/2012 13:00	0.0		49.8		329	
04/26/2012 14:00	0.0		52.2		329	
04/26/2012 15:00	0.0		45.1		329	
04/26/2012 16:00	0.0	0.0	43.0	48.9	329	330
04/26/2012 17:00	0.0		48.6		330	
04/26/2012 18:00	0.0		51.0		330	
04/26/2012 19:00	0.0		53.1		329	
04/26/2012 20:00	0.0		50.8	50.9	329	329
04/26/2012 21:00	0.0		52.8		329	
04/26/2012 22:00	0.0		52.9		329	
04/26/2012 23:00	0.0		46.9		329	
Period Average =	0.0	0.0	50.6	50.6	328	328
Period Max Value =	0.0	0.0	57.1	54.7	333	330
Period Min Value =	0.0	0.0	43.0	48.4	318	322
Period Totals =	0.0000E+0	0.0000E+0	1.2141E+3	3.0350E+2	7.8670E+3	1.9670E+3
Period % Recovery =	100.0	100.0	100.0	100.0	100.0	100.0

Date/Time Printed: 05/08/2012 10:10

6-min Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: T2 6-Min Opacity

Report Name: T2 OPA 6-MIN Summary

Start of Report: 04/26/2012 00:00

End of Report: 04/26/2012 23:59

Validation: All Available Data

Group#-Channel#	G18-C1
Long Descrip.	Opacity
Short Descrip.	2 Opacity
Units	%
Range	0-100
Date:	04/26/2012

						Minute				
Hour	**00**	**06**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**
0:00	0	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0		0	0	0	0	0	0
8:00	0	0	0	0	0	0	0 C	8 C	0 C	0
9:00	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0		0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0

Date/Time Printed: 05/08/2012 10:09

DATE: 4/17/12 Covanta Energy **Turbine Log** **OR-03** SS

TURBINE LOG	RANGE	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Steam Inlet Pressure	590 - 605	594	594	594	595	594	594	594	594	595	594	594	594	594	594	594	594	594	594	594	594	594	594	594	595
Steam Temp to Turb.	650-715f	685	685	684	688	690	685	691	691	688	685	685	686	684	685	685	685	685	685	684	685	685	685	685	684
Steam Flow to Turb.	40-118k	75.8	107.8	109	110.3	100.3	99.2	106.3	108.1	110.6	109.3	107	110.5	106.8	102.4	103.9	106.3	106.1	106.9	105.2	106.3	105.3	105.6	109	110.7
Extraction Flow.	0-45k	8.3	9.5	9.5	9.8	9.6	9.3	9.7	9.4	9.5	9.5	9.3	9.5	9.0	9.0	8.9	8.6	8.8	9.0	8.9	9.2	9.4	9.6	9.8	10.2
Exhaust Flow	40 - 100	68	98	99	101	91	90	97	99	101	100	98	101	98	93	95	98	97	98	96	97	96	96	99	100
Gross MW/HR.	0-11	5.68	8.60	8.63	9.01	8.07	8	8.66	8.79	8.98	8.80	8.58	8.84	8.46	8.03	8.05	8.22	8.16	8.23	8.23	8.37	8.38	8.45	8.52	8.98
ACC Vacuum IN H20	19"-28"	-26.8	-25.6	-25.5	-25.6	-25.8	-26.1	-25.7	-25.3	-25.1	-25.2	-25.1	-24.6	-24.7	-24.8	-24.2	-23.7	-23.7	-23.9	-24.6	-24.9	-25.5	-25.9	-26	-26.2
TG Exhaust IN HgA	2 - 12.5	2.2	3.5	3.5	3.5	3.2	2.9	3.3	3.8	3.9	3.8	3.9	4.5	4.4	4.2	4.8	5.3	5.3	5.1	4.4	4.1	3.5	3.1	3	2.8
ACC Fan Set Point.	3.0-7.0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Ambient Air Temp.	Record	64	64	64	64	64	62	66	66	66	68	70	72	72	76	76	79	80	76	71	67	63	62	59	56
Lube Oil Temp.	110-130f	118	119	119	120	120	120	119	118	118	117	117	117	117	118	119	119	118	118	117	117	115	114	113	112
Turbine Exhaust Temp.	Record	126	124	128	124	119	123	127	132	131	129	131	139	137	134	137	142	138	136	134	132	125	122	126	122
T/G Thrust BRG Temp.	A	210	210	211	208	205	209	209	209	208	208	209	209	207	206	208	209	208	208	207	208	208	206	205	208
#1	B	90	90	90	91	88	89	89	89	89	88	89	89	90	90	90	90	89	89	89	88	88	88	88	86
T/G Journal BRG Temp.	A	165	161	162	169	170	167	164	160	164	166	164	160	164	167	165	164	165	166	166	166	165	165	165	157
#2	B	192	193	194	192	189	191	191	192	192	190	191	193	192	190	192	194	192	192	189	188	186	185	186	187
Gear Thrust BRG Temp.	A	149	152	153	151	151	153	153	152	151	151	151	151	150	150	151	152	152	152	152	153	151	150	148	149
#3	B	134	135	135	135	135	135	135	134	134	134	134	134	134	134	135	135	135	134	134	133	132	132	131	131
Gear HS BRG Temp.	A	165	161	161	165	164	166	166	166	165	164	164	165	164	164	164	166	166	166	165	165	163	163	163	162
#4	B	164	166	166	163	162	164	164	165	164	163	164	164	164	162	163	164	164	164	163	163	162	161	161	162
Gear LS BRG Temp.	A	130	131	131	132	131	131	131	131	130	130	130	130	130	130	131	131	131	131	130	129	128	127	127	126
#5	B	138	141	142	141	141	141	141	141	141	140	140	140	140	140	141	141	141	141	141	141	140	139	138	137
GEN Journal BRG Temp.	A	152	153	153	154	153	153	153	154	153	153	155	155	156	156	156	157	156	156	156	155	153	153	152	150
#6	B	158	159	159	160	160	159	159	160	160	160	161	162	162	162	164	164	164	163	162	161	159	159	157	156
Phase A Stator Wind	A	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Temp. #7	B	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Phase B Stator Wind	A	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146
Temp. #8	B	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
Phase C Stator Wind	A	107	110	110	111	108	107	109	114	114	114	116	117	117	117	118	120	119	117	115	113	109	108	108	104
Temp. #9	B	106	108	108	108	106	105	108	112	112	112	114	115	115	115	116	118	117	115	113	111	108	105	105	102
TURB AXIAL POSITION	Thrust	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
TURB STM END VIBR.	VERT	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
	HORIZ	.5	.5	.5	.5	.5	.5	.6	.6	.5	.5	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
TURB EXH END VIBR.	VERT	1.9	1.9	1.9	1.7	1.7	1.8	1.9	1.9	1.7	1.7	1.8	1.9	1.8	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7
	HORIZ	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Gear HS BRG Vibr.	Coupling	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.2	.3	.3	.3	.2	.3
Gear LS BRG Vibr.	Coupling	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.4	.5	.5	.4	.4	.4	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.4
GEN Journal BRG Vibr.	Coupling	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.7	1.6	1.5	1.5	1.6	1.7
	Exciter	1.9	1.7	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7
Operator Initials																									

Boiler #: 1

Covanta Energy
Control Room Operator Log OR-03

Date: 4/17/12 SS (B)

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	49.1	52.5	54.4	55.5	55.1	56.5	56.7	56.1	56.2	55.7	54.4	55.6	55.9	54.9	55.4	56.2	55.9	57	55.2	56	56	55.7	55.9	55.6
Steam Flow (Setpoint)	Setpoint < 60K	56	56	56	56	56	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	55	55	55	55
Steam Temp.	690-710	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
Steam Drum Pressure	< 620	599	603	605	606	603	605	605	606	607	607	605	606	603	601	602	603	603	608	607	606	606	605	606	607
Ram Speed	0 - 3 FPM	1.74	1.65	1.60	1.56	1.53	1.48	1.46	1.46	1.46	1.43	1.45	1.46	1.46	1.45	1.47	1.46	1.41	1.34	1.35	1.35	1.36	1.35	1.37	1.35
Combustor Speed	3 - 5 RPH	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
% Oxygen	4.5 - 8.5	9.4	8.7	8.2	7.5	7.4	7.5	8.5	8.5	8.7	8.4	9.2	8.6	8.3	8.9	8.7	8.2	7.6	9.3	8.4	8.6	8.7	9.2	9.2	9.1
PPM CO	<250	34	28	30	76	56	80	42	42	42	54	44	48	46	44	40	42	73	85	92	50	63	50	55	75
PPM SO2	Record	0	13	20	18	14	19	18	X	X	19	13	12	7	11	6	7	17	11	13	10	12	11	10	21
SO2 Efficiency	Record	100	89	93	73	90	88	86	87	X	82	89	92	96	87	96	94	85	91	85	87	87	89	90	83
PPM Nox	< 170	152	138	125	95	99	98	126	106	X	116	142	124	118	136	136	120	105	128	110	115	124	141	134	131
Zone A Underfire	Air Flow (P)	3193	3169	3151	3148	3013	2896	3068	3094	3013	2771	3138	3081	2984	3130	3081	2888	2792	2281	2678	2779	2779	2782	3018	2930
Zone B Underfire	Air Flow (P)	5247	5414	5432	5424	4943	3378	5180	5253	4977	4107	5404	5214	4898	5375	5190	4549	4182	2758	3654	4151	4135	4872	4995	4680
Zone C Underfire	Air Flow (P)	945	951	945	943	940	932	940	924	919	911	919	914	909	858	891	885	867	893	875	904	919	932	945	958
Zone A Overfire	Air Flow (P)	3198	3188	3177	3177	3042	2893	3112	3130	3055	2820	3169	3120	3036	3161	3115	2945	2836	2318	2680	2833	2826	3036	3060	2982
Zone B Overfire	Air Flow (P)	3346	3340	3315	3365	3208	3005	3302	3320	3229	2906	3362	3313	3203	3357	3297	3081	2935	2245	2719	2924	2972	3148	3229	3122
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T- Grate Air Flow	800 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotary Comb. F	900 - 1250	1028	1058	967	1044	1049	1045	988	976	1115	1126	1030	947	1023	1106	1098	1111	1144	1242	1186	1242	1196	1203	1228	1176
Boiler Gas Temp	1100 - 1500	1340	1372	1405	1432	1416	1421	1397	1389	1396	1418	1401	1405	1464	1387	1387	1420	1433	1373	1386	1412	1433	1428	1426	1451
Induced Draft	0 to -0.2" WC	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.08	-.09	-.09	-.08	-.31	-.09	-.09	-.08	-.09	-.09	-.09
I D Fan Amps	300-500	444	409	375	328	349	386	443	432	417	425	411	404	411	423	417	392	333	313	337	339	370	414	356	448
Forced Draft	9.0 - 15	9.9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Average Opacity	0 -10	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Air Htr In Deg F	60-200 (#6)																								
Air Htr Out Deg F	400-600 (#5)	464	471	476	478	469	470	469	472	478	489	477	482	488	483	485	497	504	522	495	485	490	482	482	487
Feed H2O Temp	> 200																								
Economizer Gas Outlet Temp.	< 500	424	430	429	428	404	414	422	424	421	426	426	431	430	430	434	431	429	419	414	422	418	427	422	426
CRO Initials		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Operators

1. Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2. Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet.

Boiler #: 2

Covanta Energy
Control Room Operator Log OR-03

Date: 4/12/12 SS B

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	26.8	55.4	54.7	54.9	45.2	42.9	49.6	52.1	54.6	53.7	52.7	55	51	47.5	48.6	50.3	50.3	50	50.1	50.3	49.9	50	53.2	55.2
Steam Flow (Setpoint)	Setpoint < 60K	56	56	56	56	56	56	56	56	56	56	56	56	55	50	50	50	50	50	50	50	50	50	55	55
Steam Temp.	690-710	685	700	699	708	709	699	714	713	705	699	700	702	699	701	700	700	700	700	700	700	700	700	702	686
Steam Drum Pressure	< 620	0/5						Ø																	
Ram Speed	0 - 3 FPM	1.10	1.28	1.21	1.21	1.22	1.19	1.19	1.10	1.16	1.25	1.31	1.16	1.09	1.19	1.13	1.16	1.16	1.18	1.17	1.18	1.19	1.17	1.18	1.10
Combustor Speed	3 - 5 RPH	5	4	4	4	3	3	2	2	2	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3	3	3	3	3
% Oxygen	4.5 - 8.5	10.7	7.9	8	8.2	9.2	9.7	8.1	8.3	8.4	8.9	9.1	8.1	9.3	10.0	9.5	8.9	8.5	8.6	8.5	8.5	8.5	8.7	8.5	7.9
PPM CO	<250				221	257	192	363	186	117	107	117	149	104	82	63	107	131	136	172	140	116	103	171	236
PPM SO2	Record				15	1	0	0	3	6	9	11	20	17	4	1	5	9	5	3	4	7	16	15	19
SO2 Efficiency	Record				89	98	100	100	98	94	92	91	86	87	97	99	97	94	95	98	96	94	88	87	88
PPM Nox	< 170				109	114	133	96	106	109	124	128	103	132	149	140	115	103	104	98	109	107	111	112	98
Zone A Underfire	Air Flow (P)	2604	3003	3081	3044	2052	2148	2107	1969	2044	3047	3125	2878	3133	3185	3133	2938	2677	2698	2615	2641	2591	2706	2844	2732
Zone B Underfire	Air Flow (P)	3904	4979	5211	5099	5281	5531	5523	5419	5049	5099	5336	4607	5357	5518	5354	4786	4034	4086	3846	3927	3779	4117	4510	4135
Zone C Underfire	Air Flow (P)	885	1289	1375	1333	1568	1490	1484	1457	1315	1333	1419	1156	1427	1487	1430	1221	945	969	875	909	854	974	1120	1003
Zone A Overfire	Air Flow (P)	2612	3003	3086	3055	487	1667	1646	1505	1500	1495	1497	1500	1497	1500	1500	1500	1503	1495	1505	1500	1497	1500	1500	1503
Zone B Overfire	Air Flow (P)	1029	3414	4003	3979	3982	3857	3648	3521	3372	3323	3333	3128	3268	3320	3299	3164	2904	2887	2776	2760	2688	2763	2885	2810
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T- Grate Air Flow	800 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	606	602	595	601	555	624
Rotary Comb. F	900 - 1250	1101	1217	1205	1232	1186	1014	1021	1094	1188	1172	1199	1177	1203	1142	1103	1167	1183	1211	1148	1229	1223	1286	1236	1245
Boiler Gas Temp.	1100 - 1500	1150	1354	1364	1372	1270	1248	1351	1344	1325	1307	1309	1348	1286	1248	1282	1305	1318	1313	1323	1334	1333	1318	1356	1347
Induced Draft	0 to -0.2" WC	-.07	-.03	-.02	-.07	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04
I D Fan Amps	300-500	401	392	446	266	291	308	374	389	386	384	342	388	394	404	347	311	309	313	318	315	305	328	303	299
Forced Draft	9.0 - 15	6.5	10	10	10	10.5	11.8	10.8	10.0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Average Opacity	0 -10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Air Htr In Deg F	60-200 (#6)																								
Air Htr Out Deg F	400-600 (#5)	335	391	382	393	376	347	361	366	375	374	372	380	372	364	370	376	380	380	380	352	353	381	382	389
Feed H2O Temp.	> 200																								
Economizer Gas Outlet Temp.	< 500	415	412	422	391	365	373	386	393	396	394	401	402	396	401	404	396	395	395	395	398	396	398	402	405
CRO Initials		F	F	F	F	F	F	D	D	D	D	D	D	D	D	D	D	D	D	F	F	F	F	F	F

Operators:

1 Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2 Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet.

DATE: 4/18/12

Covanta Energy **Turbine Log** **OR-03**

SS

TURBINE LOG	RANGE	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Steam Inlet Pressure	590 - 605	594	594	595	595	594	595	595	595	595	595	594	595	594	594	595	594	594	594	595	595	594	595	595	596
Steam Temp to Turb.	650-715f	684	685	687	685	695	699	699	693	688	682	685	692	692	685	690	685	684	693	703	697	690	689	693	696
Steam Flow to Turb.	40-118k	106.7	97.1	103.8	101.4	102.9	104.8	104.6	106.7	111.0	109.6	99.7	109.2	106.7	105.4	104.5	110.1	103.7	98.2	103.5	107.3	100.8	99.6	107.5	110.8
Extraction Flow.	0-45k	10	9.7	10.2	10.4	10.7	10.4	10.5	10.5	10.4	10.5	10.1	10.0	10.2	9.9	10.2	10.1	9.9	10.2	10.0	10.1	9.9	9.7	10.3	10.4
Exhaust Flow	40 - 100	97	87	94	99	92	94	99	90	101	99	90	99	99	95	99	100	94	88	94	97	91	90	97	100
Gross MW/HR.	0-11	8.64	7.79	8.71	8.90	8.33	8.58	9.02	8.08	9.65	8.85	7.97	8.96	8.86	8.50	8.89	8.86	8.22	7.74	8.33	8.62	7.94	7.92	8.79	9.18
ACC Vacuum IN H20	19"-28"	26.1	-27	-27	-27	27.1	-27	27.0	27.0	26.5	27.0	27.0	26.2	26.6	26.2	26.4	26.3	26.6	26.8	26.6	26.5	27.0	26.9	26.9	26.9
TG Exhaust IN HgA	2 - 12.5	2.4	2	2.1	2	2	2	2.0	2.1	2.1	2.0	1.9	2.3	2.4	2.3	2.6	2.4	2.3	2.2	2.4	2.4	2.0	2.1	2.1	2.1
ACC Fan Set Point.	3.0-7.0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Ambient Air Temp.	Record	52	50	49	48	47	47	46	46	48	51	52	55	55	56	56	58	58	58	55	55	53	53	53	49
Lube Oil Temp.	110-130f	112	110	111	111	110	110	110	109	111	111	111	112	112	113	113	114	113	113	115	114	113	112	112	113
Turbine Exhaust Temp.	Record	114	116	114	117	119	115	113	116	118	117	113	118	118	121	120	119	119	117	122	114	117	115	115	118
T/G Thrust BRG Temp.	A	207	206	208	208	206	207	205	207	208	207	205	207	208	208	210	208	206	205	208	208	208	208	209	210
#1	B	85	82	82	83	82	81	81	81	82	83	83	84	85	84	86	84	83	84	87	86	85	87	83	85
T/G Journal BRG Temp.	A	165	163	158	157	163	155	163	155	157	164	165	164	164	168	159	165	165	165	164	166	165	165	159	157
#2	B	185	185	186	187	185	187	185	187	187	186	185	186	188	186	188	187	187	185	186	186	185	187	188	188
Gear Thrust BRG Temp.	A	148	146	146	146	145	145	145	145	145	146	145	146	147	147	147	147	147	146	147	148	147	147	147	147
#3	B	130	129	129	129	130	129	129	129	129	130	129	130	132	131	132	132	131	131	132	132	131	131	131	131
Gear HS BRG Temp.	A	162	160	161	162	161	162	160	162	162	163	160	162	163	163	164	163	162	162	164	162	161	162	163	164
#4	B	160	160	161	161	160	161	159	161	161	161	158	161	161	161	163	162	160	160	162	161	160	161	162	163
Gear LS BRG Temp.	A	126	125	125	125	125	124	124	124	125	126	125	126	127	127	128	127	127	127	127	128	127	127	127	127
#5	B	137	134	134	135	134	134	133	133	133	134	135	135	135	135	137	138	138	138	136	137	136	136	136	136
GEN Journal BRG Temp.	A	150	148	148	146	148	147	146	147	147	148	148	149	150	149	150	150	150	150	150	150	149	148	148	148
#6	B	156	154	154	152	154	152	152	153	154	154	154	156	156	155	157	157	156	156	156	156	156	155	155	155
Phase A Stator Wind	A	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Temp. #7	B	148	148	148	148	148	148	148	148	148	148	149	148	148	148	148	148	148	148	148	148	148	148	148	148
Phase B Stator Wind	A	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146
Temp. #8	B	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
Phase C Stator Wind	A	100	94	97	97	94	95	94	96	99	101	97	103	104	102	105	104	102	102	103	101	98	97	99	101
Temp. #9	B	98	93	95	95	91	93	92	94	96	98	98	100	101	101	103	102	100	98	101	99	96	95	97	98
TURB AXIAL POSITION	Thrust	7	7	7	7	7	7	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7	7	7	7	7	7
TURB STM END VIBR.	VERT	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
	HORIZ	.5	.5	.5	.5	.5	.6	.5	.5	.7	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.5	.5	.6	.7
TURB EXH END VIBR.	VERT	1.7	1.9	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.8	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9
	HORIZ	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.6	2.5	2.5
Gear HS BRG Vibr.	Coupling	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.3	.3	.3	.3	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
Gear LS BRG Vibr.	Coupling	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.5	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4
urnal BRG Vibr.	Coupling	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.8	1.8
	Exciter	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
tials		JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	MDC	MDC	MDC	MDC	MDC	MDC

Boiler #: 1

Covanta Energy
Control Room Operator Log OR-03

Date: 4/18/12 SS

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	52.4	49.7	51.3	55.3	53.6	55.7	55.7	55.3	56.3	55.3	50.3	55.3	55.2	52.3	55.3	55.7	49.3	50.6	49.6	52.6	46.1	45.3	52.9	56.1
Steam Flow Setpoint	Setpoint < 66K	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	45	44	53	55
Steam Temp	660-710	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	708	708	700	700	700
Steam Drum Pressure	< 620	605	605	605	606	605	606	607	606	608	606	602	600	606	604	606	606	604	603	605	606	605	606	608	609
Ram Speed	0 - 3 FPM	1.57	1.40	1.53	1.55	1.58	1.56	1.55	1.49	1.45	1.46	1.57	1.83	1.82	1.88	1.81	1.72	1.74	1.60	1.43	1.41	1.41	1.37	1.44	1.42
Turbulator Speed	3 - 5 RPM	3	3	3	3	3	3	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0
O2 Percent	4.5 - 8.5	9.4	10.4	9.9	9.2	8.9	9.1	8.9	9.0	9.2	9.6	10.4	9.2	9.0	9.6	8.9	8.1	9.3	9.4	9.0	7.9	9.1	9.1	9.0	8.3
PPM CO	<250	45	40	36	38	50	43	48	37	49	47	93	61	24	52	72	139	50	45	37	62	54	48	40	36
PPM SO2	Percent	19	5	10	10	6	16	19	20	19	22	26	3	2	2	6	3	2	2	4	2	0	0	11	16
SO2 Efficiency	Percent	92	94	91	92	95	85	83	83	85	83	81	96	98	97	98	97	98	98	97.9	98.5	100	100	93.1	87.2
PPM Nox	< 170	155	170	155	127	128	132	126	141	127	132	141	129	131	146	126	141	142	136	125	101	126	129	136	120
Zone A Underfire	Air Flow (P)	3148	3190	3185	3115	3138	3049	3010	3117	2727	3008	3190	3063	3010	3169	3021	2633	3171	2709	2221	2224	2505	2221	3023	2977
Zone B Underfire	Air Flow (P)	5419	5536	5523	5326	5367	5112	4975	5333	3460	4971	5536	5138	4964	5469	4966	3641	7411	5518	5547	5281	4117	3716	5201	4844
Zone C Underfire	Air Flow (P)	977	995	1005	1010	1008	1023	1026	1034	1021	1005	1013	1003	286	0	0	0	0	0	0	0	0	0	0	0
Zone A Overfire	Air Flow (P)	3169	3195	3195	3146	3151	3094	3057	3151	2279	3052	3203	3066	3057	3188	3049	2672	3162	2930	2266	2263	2268	2266	3057	3018
Zone B Overfire	Air Flow (P)	3367	3393	3398	3341	3344	3271	3324	3349	2652	2874	3396	2884	3314	3380	3241	2716	3357	3393	3404	3362	2914	2740	3297	3174
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gr. Grate Air Flow	800 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bottom Ash Temp	900 - 1250	1219	1147	1135	1104	1116	1111	1085	1120	1346	1371	1257	1240	1265	1260	1285	1257	1163	1118	1164	1133	1127	1172	1199	1223
Boiler Gas Temp	1100 - 1500	1401	1361	1386	1436	1436	1413	1409	1398	1430	1403	1360	1453	1456	1416	1470	1514	1438	1352	1362	1434	1376	1375	1430	1467
Induced Draft	0 to -0.2" WC	-.09	-.09	-.09	-.09	-.08	-.09	-.09	-.08	-.09	-.09	-.09	-.10	-.10	-.07	-.07	-.07	-.07	-.06	-.04	0	.01	-.03	-.06	-.06
Primary Air Flow	300-800	415	424	480	442	444	434	451	453	369	465	447	489	346	387	345	378	370	422	440	421	401	365	446	339
Secondary Air Flow	9.0 - 15	10	10	10	10	10	10	10.0	10.3	10.0	10.0	10.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.3	8.4	8.1	9.0	9.0
Auxiliary Burner	0 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
Air Hir In Deg F	60-200 (#6)																								
Air Hir Out Deg F	400-600 (#6)	476	469	471	485	479	465	467	462	486	479	467	489	495	484	500	523	490	464	459	465	468	473	475	490
Baghouse Temp	>200																								
Economizer Gas Outlet Temp	<500	425	424	432	437	412	413	420	423	424	429	438	439	431	433	440	440	416	401	405	423	402	412	427	425
CRO Initials		JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	MJC	MJC	MJC	MJC	MJC	MJC

Operators

1 Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2 Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet.

Boiler #: 2

Covanta Energy
Control Room Operator Log OR-03

Date: 4/18/12 SS

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	54.4	47.6	52.7	54.3	49.5	49.2	54.0	51.5	54.8	54.7	49.5	54.0	53.6	53.2	54.3	54.5	54.5	47.6	54.0	54.7	54.9	54.4	54.7	54.8
Steam Flow (Setpoint)	Setpoint < 60K	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Steam Temp.	690-710	699	699	704	699	721	730	729	715	726	714	700	715	714	700	709	700	700	718	736	723	709	708	716	721
Steam Drum Pressure	< 620	95						626	605	634	641	640	631	631	641	636	626	625	632	638	640	635	641	632	637
Ram Speed	0 - 3 FPM	1.03	1.44	1.12	1.14	1.12	1.13	1.13	1.22	1.19	1.18	1.37	1.31	1.35	1.40	1.36	1.25	1.27	1.28	1.25	1.23	1.20	1.23	1.22	1.21
Combustor Speed	3 - 5 RPH	3	3	3	3	3	3	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5
% Oxygen	4.5 - 8.5	8.3	10	8.7	8.4	8.1	8.9	8.5	9.1	8.2	8.5	9.4	8.4	8.4	8.6	8.1	8.6	8.4	8.5	7.9	8.4	8.4	8.5	8.3	8.1
PPM CO	<250	158	56	145	127	186	133	129	109	146	103	69	131	151	129	160	90	106	148	151	128	86	136	154	221
PPM SO2	Record	16	5	1	1	1	8	16	21	17	13	25	17	7	4	3	12	16	12	19	18	17	42	14	17
SO2 Efficiency	Record	89	96	99	98	98	95	86	84	87	88	85	87	94	96	97	91	88	93	87.3	86.2	85.3	71.9	87.8	87.0
PPM Nox	< 170	108	141	106	105	111	131	118	133	108	118	131	110	122	111	117	112	116	117	103	112	121	122	113	105
Zone A Underfire	Air Flow (P)	2846	3185	3109	3073	3146	3167	3086	3148	2932	3049	3160	3057	3044	3104	3023	3024	3057	3185	2974	2924	3010	3104	3021	2971
Zone B Underfire	Air Flow (P)	4931	5518	5412	5185	5404	5466	5269	5409	4776	5120	5445	5133	5245	5273	5039	5034	5141	5308	4893	4753	4995	5273	5036	4888
Zone C Underfire	Air Flow (P)	1428	1487	1404	1367	1443	1466	1378	1445	1216	1341	1479	1349	1385	1398	1313	1310	1346	1482	1260	1208	1297	1378	1313	1258
Zone A Overfire	Air Flow (P)	1412	1500	1508	1497	1505	1495	1503	1503	1490	1500	1497	1497	1500	1497	1487	1497	1499	1497	1503	1495	1503	1497	1497	1503
Zone B Overfire	Air Flow (P)	2848	3154	3177	3185	3242	3214	3253	3302	3133	3203	3294	3214	3234	3232	3193	3177	3188	3279	3172	3104	3138	3229	3180	3151
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T- Grate Air Flow	800 - 1500	601	593	607	592	595	596	595	595	610	595	595	600	625	605	600	595	595	600	576	636	604	584	598	612
Rotary Comb. F	900 - 1250	1217	1219	1197	1216	1216	1209	1201	1231	1236	1253	1239	1212	1221	1288	1256	1277	1253	1200	1240	1228	1241	1228	1256	1243
Boiler Gas Temp	1100 - 1500	1378	1395	1380	1396	1405	1363	1377	1351	1406	1388	1347	1347	1405	1389	1413	1393	1399	1400	1415	1399	1401	1403	1422	1432
Induced Draft	0 to -0.2" WC	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.04	-.05
I D Fan Amps	300-500	368	365	348	345	435	335	407	353	384	342	358	399	377	315	367	365	355	461	420	344	347	360	400	368
Forced Draft	9.0 - 15	10	10	10	10	10	10	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Average Opacity	0 -10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Air Htr In Deg F	60-200 (#6)																								
Air Htr Out Deg F	**400-600 (#5)**	389	374	383	392	386	372	374	373	384	382	377	387	386	386	391	391	393	382	387	388	386	387	391	395
Feed H2O Temp.	> 200																								
Economizer Gas Outlet Temp.	< 500	411	415	419	419	407	396	401	406	403	405	414	409	412	408	413	418	421	402	407	404	411	409	410	413
CRO Initials		JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JMC	JM	JM	JM	JM	JM	JM	MJC	MJC	MJC	MJC	MJC	MJC

Operators

1. Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2. Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet

Air emissions
STACK TEST
HCL - METALS

Boiler #: 1

Covanta Energy
Control Room Operator Log OR-03

Date: 4/25/12 SS

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	36.7	39.5	40.9	34	40.5	41.7	42.4	43.4	49.2	49.6	49.3	44.1	43.6	46.7	49.2	49.5	46.1	46.5	46.8	50.5	46.5	47.9	49.7	41.1
Steam Flow Setpoint)	Setpoint < 60K	55	55	55	55	55	55	55	55	55	54	50	50	50	50	51	52	52	52	52	55	55	55	55	55
Steam Temp.	690-710	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
Steam Drum Pressure	< 620	587	592	592	590	576	593	594	595	597	598	598	596	596	597	597	597	597	597	597	597	597	597	596	596
Ram Speed	0 - 3 FPM	1.01	.89	.88	1.04	1.23	1.44	1.48	1.29	1.21	1.25	1.27	1.59	1.36	1.36	1.36	1.29	1.26	1.29	1.29	1.34	1.44	1.34	1.30	1.69
Combustor Speed	3 - 5 RPH	3	4	4	3	3	3	3.0	2.8	2.8	2.8	2.9	3.0	2.7	2.7	2.7	2.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
% Oxygen	4.5 - 8.5	11.8	11.2	11	12.2	11.3	11.1	10.7	9.9	9.9	9.3	9.9	10.5	10.4	10.4	9.6	9.3	9.8	10.0	10.1	9.7	10.3	10.1	10.0	10.3
PPM CO	<250	357	212	222	387	196	123	95	80	41	48	46	82	60	57	44	74	63	58	60	47	70	81	60	148
PPM SO2	Record	6	8	6	2	8	16	23	15	26	19	10	0	0	0	2	2	0	0	0	0	11	4	22	15
SO2 Efficiency	Record	97	95	95	98	95	90	87.4	90.8	85.8	87.4	93.2	100	100	100	98.3	98.1	100	100	100	100	96	81	84	90
PPM Nox	< 170	192	185	176	203	186	185	169	178	154	141	156	168	168	172	149	126	144	153	153	149	161	164	153	179
Zone A Underfire	Air Flow (P)	3193	2521	2565	2779	3195	3198	3193	3195	3195	3195	3146	3193	3193	3083	3180	2766	2555	2852	2997	3154	3195	3195	3195	3193
Zone B Underfire	Air Flow (P)	5549	5547	5547	5685	5052	5258	5336	5479	5586	5635	5534	5581	5534	5724	5484	4411	4539	4893	5219	5383	5432	5602	5740	5722
Zone C Underfire	Air Flow (P)	1174	164	0	422	1440	1370	1359	1232	44	0	0	0	313	1031	0	0	0	0	0	0	0	0	0	331
Zone A Overfire	Air Flow (P)	1406	2297	2201	2263	3203	3148	2203	3000	3203	3203	3172	3203	3203	3005	2362	2346	2346	2346	2419	2565	2482	2482	2482	2482
Zone B Overfire	Air Flow (P)	1927	3401	3348	2964	2867	3250	3401	3398	3404	3398	3362	3401	3404	3396	3271	3211	3203	3307	3396	3347	3398	3404	3396	3404
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F- Grate Air Flow	800 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	1474	453	455	455	454	500	495	490	495	490	500
Rotary Comb. F	900 - 1250	857	1001	928	880	934	889	895	824	1036	1094	1106	1065	1015	1014	1086	1149	1047	1067	1036	1020	976	1033	1036	957
Boiler Gas Temp.	1100 - 1500	1178	1212	1249	1174	1233	1267	1265	1281	1341	1355	1355	1305	1281	1301	1333	1355	1310	1311	1314	1349	1304	1323	1346	1259
Induced Draft	0 to -0.2" WC	-.09	-.09	-.09	-.09	-.09	-.09	-.09	-.08	-.06	-.06	-.06	-.06	-.06	-.07	-.06	-.06	-.06	-.06	-.06	-.06	-.06	-.06	-.06	-.06
ID Fan Amps	300-500	400	406	431	391	442	415	381	432	383	455	426	402	474	470	376	360	394	378	435	469	473	419	453	468
Forced Draft	9.0 - 15	9.2	9	9	9.3	9.3	9.1	9.1	9.8	10.5	10.9	11.0	11.0	10.6	10.5	10.1	10.0	10.0	10.0	10.4	10.8	10.8	10.8	10.8	10.8
Average Opacity	0 -10	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Air Htr In Deg F	60-200 (#6)																								
Air Htr Out Deg F	400-600 (#5)	437	447	458	441	444	450	451	454	467	462	473	462	460	459	469	480	471	468	469	479	471	472	476	455
Feed H2O Temp.	> 200																								
Economizer Gas Outlet Temp.	< 500	419	422	420	415	429	422	427	433	415	435	426	430	436	438	429	423	426	432	438	442	442	442	435	408
CRO Initials		MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	JM	JM	JM	JM	JM	JM

Operators

1. Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2. Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet

Boiler #: 2

Covanta Energy
Control Room Operator Log OR-03

Date: 4/25/12 SS AW

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	41.7	46	45.5	45.3	42.2	41.7	50.2	50.5	52.9	53.0	55.2	51.8	49.3	54.3	48.0	54.4	55.8	56.2	55.1	52.1	52.4	53.4	46.7	53.8
Steam Flow Setpoint)	Setpoint < 60K	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	58	60	60	60	55	55	55	55	55
Steam Temp.	690-710	700	700	699	700	700	702	702	698	699	701	700	699	700	700	702	705	702	700	702	699	700	700	700	700
Steam Drum Pressure	< 620	615						618	633	622	627	626	624	632	628	629	634	632	625	640	616	625	618	610	636
Ram Speed	0 - 3 FPM	.96	.87	.88	.91	1.02	1.20	1.21	1.08	1.00	1.12	1.07	1.08	1.05	1.00	1.31	1.27	1.39	.97	1.23	1.14	1.18	1.16	1.20	1.33
Combustor Speed	3 - 5 RPH	3.5	4	4	4	3	3	3.0	3.2	3.2	3.2	3.2	3.1	3.5	4.3	5.2	5.0	3.5	3.4	4.0	4.0	5.0	5.0	5.0	5.0
% Oxygen	4.5 - 8.5	10.2	9.6	9.5	9.9	10.2	9.6	8.4	8.5	8.1	7.9	7.7	8.8	9.0	8.1	7.9	8.1	8.1	8.8	8.7	8.8	8.5	8.3	9.5	8.0
PPM CO	<250	68	75	64	67	46	74	143	109	162	333	279	120	117	188	343	220	206	97	104	109	145	135	74	162
PPM SO2	Record	28	17	33	19	11	4	16	14	12	17	12	4	3	5	5	4	13	16	12	12	3	20	10	25
SO2 Efficiency	Record	88	91	85	88	92	98	90.7	91.4	91.0	87.9	89.9	96.9	98.1	95.5	97.4	97.9	91.5	87.9	91	92	98	90	95	84
PPM Nox	< 170	142	127	133	138	152	137	105	106	92	95	90	116	119	101	97	104	114	128	134	123	108	107	68	98
Zone A Underfire	Air Flow (P)	3193	3193	3190	3193	3190	3190	3177	3188	3138	3122	3039	3120	3174	2958	3182	3125	3115	3141	3130	3102	3156	3102	3177	3089
Zone B Underfire	Air Flow (P)	5531	5526	5526	5531	5529	5531	5492	5513	5372	5328	5083	5328	5479	4857	5313	5578	5581	5927	5430	5477	5438	5268	5482	5227
Zone C Underfire	Air Flow (P)	1492	1492	1490	1490	1492	1490	1477	1182	0	0	0	0	299	2505	0	185	1956	3695	3449	3049	802	789	802	802
Zone A Overfire	Air Flow (P)	1003	2471	2497	2497	2495	2503	2500	2865	3143	3133	3049	3125	3185	2958	3185	3138	3130	3125	3154	3104	3169	3107	3180	3109
Zone B Overfire	Air Flow (P)	3393	3388	3343	3346	3346	3341	3354	3359	3370	3318	3232	3247	3372	3195	3352	3315	3273	3253	3286	3313	3357	3313	3365	3320
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	K	K	K	K	K	K
Grate Air Flow	800 - 1500	642	641	641	644	576	582	572	602	602	576	482	499	0	0	533	530	562	491	550	535	545	545	545	555
Rotary Comb. F	900 - 1250	1132	1163	1103	1186	1207	1154	1114	1130	1219	1217	1247	1255	1280	1299	1297	1255	1264	1283	1276	1263	1213	1209	1111	1186
Boiler Gas Temp	1100 - 1500	1364	1398	1397	1380	1379	1425	1468	1477	1486	1510	1549	1503	1471	1517	1533	1534	1538	1520	1508	1503	1525	1517	1445	1514
Induced Draft	0 to -0.2" WC	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.04	-.04	-.07	-.07	-.07	-.07
ID Fan Amps	300-500	355	368	383	349	394	357	394	365	354	367	348	369	383	330	394	371	452	447	485	356	396	364	382	402
Forced Draft	9.0 - 15	11	11	11	11	10.3	10	10.0	10.0	10.5	10.2	10.0	10.2	10.9	11.4	11.4	11.4	11.1	11.0	10.9	11.5	11.5	11.5	11.5	11.5
Average Opacity	0 -10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	K	K	K	K	K	K
Air Htr In Deg F	60-200 (#6)																								
Air Htr Out Deg F	400-600 (#5)	367	365	364	366	364	369	372	379	385	383	394	390	384	397	402	390	390	388	399	396	400	404	391	404
Feed H2O Temp.	> 200																								
Economizer Gas Outlet Temp	< 500	396	400	394	395	411	395	406	411	400	411	418	418	419	413	401	414	423	421	422	425	436	427	431	438
CRO Initials		JT	JT	JT	JT	JT	JT	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	JM	JM	JM	JM	JM	JM

Operators

1. Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2. Highlight any reading out of range. Yellow for low and Orange for high on the front of the log sheet

DATE: 4/25/12 Covanta Energy **Turbine Log** **OR-03** SS DM

TURBINE LOG	RANGE	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Steam Inlet Pressure	590 - 605	587	587	587	587	587	587	588	588	588	588	588	588	588	588	588	588	588	588	588	588	588	588	588	588
Steam Temp to Turb.	650-715f	684	684	684	683	684	685	685	683	684	685	684	684	684	684	685	687	685	684	685	683	684	684	685	684
Steam Flow to Turb.	40-118k	75.4	85.4	86.4	71.2	82.6	85.2	92.5	93.8	102.0	102.4	104.3	95.9	92.8	100.9	97.1	103.8	101.9	102.6	101.7	102.5	99.1	101.4	96.3	94.7
Extraction Flow.	0-45k	9	9.4	9.5	8.9	9.2	9.5	9.7	9.8	10.3	10.2	10.4	9.9	9.5	9.8	9.9	9.9	9.8	9.9	9.5	9.8	10.2	10.1	9.9	9.6
Exhaust Flow	40 - 100	69	76	77	70	73	74	83	84	92	92	94	86	83	91	87	94	92	93	92	93	89	91	86	85
Gross MW/HR.	0-11	6	6.73	6.79	6.11	6.42	6.46	7.43	7.53	8.26	8.31	8.46	7.66	7.39	8.11	7.75	8.35	8.16	8.19	8.5	8.20	7.92	8.15	7.66	7.55
ACC Vacuum IN H20	19"-28"	27.1	27.2	27.1	27.1	27.1	27.1	27.2	27.1	27.2	27.1	27.1	27.0	26.9	26.6	26.7	26.4	26.4	26.3	26.5	26.6	27.2	27.2	27.1	27.1
TG Exhaust IN HgA	2 - 12.5	2	1.9	2	2	2	2	1.9	2.0	1.9	2.0	2.0	2.0	2.2	2.4	2.4	2.7	2.6	2.7	2.5	2.5	1.9	1.9	2.0	2.0
ACC Fan Set Point.	3.0-7.0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Ambient Air Temp.	Record	45	43	41	40	40	40	39	42	47	48	51	56	55	55	57	57	59	62	57	56	52	49	48	46
Lube Oil Temp.	110-130f	112	113	112	112	111	111	112	112	114	114	114	116	116	116	117	116	117	117	117	117	116	114	114	113
Turbine Exhaust Temp.	Record	113	114	115	119	117	111	114	117	115	114	114	118	122	115	122	123	127	121	119	113	112	112	113	111
T/G Thrust BRG Temp.	A	206	210	202	201	207	206	208	213	215	215	214	213	214	212	214	216	214	215	216	214	214	213	209	212
#1	B	121	123	121	122	121	121	123	124	126	125	125	127	126	126	127	127	127	127	127	127	125	125	124	124
T/G Journal BRG Temp.	A	169	165	171	166	166	168	166	164	160	160	166	166	166	167	166	165	167	167	161	167	168	165	162	165
#2	B	180	185	178	183	183	179	183	185	188	188	185	186	188	186	186	190	188	189	189	185	186	187	183	184
Gear Thrust BRG Temp.	A	143	144	143	142	143	143	144	145	146	147	147	147	148	149	149	150	150	150	150	149	149	148	146	146
#3	B	130	131	130	129	130	129	130	130	131	132	132	133	133	133	133	133	134	133	133	133	132	132	131	131
Gear HS BRG Temp.	A	157	160	155	156	157	157	158	160	162	163	162	162	163	163	164	164	165	164	164	163	163	162	160	161
#4	B	156	159	155	156	157	156	158	160	162	162	161	161	162	161	162	163	163	163	164	162	162	160	159	160
Gear LS BRG Temp.	A	125	126	125	125	125	125	125	125	126	127	127	128	128	128	129	128	129	128	129	128	128	127	126	126
#5	B	133	134	133	132	133	132	133	134	135	136	136	137	137	138	139	139	139	139	139	138	138	137	135	135
GEN Journal BRG Temp.	A	144	145	144	142	143	142	142	142	144	145	145	148	148	148	149	149	150	149	148	148	147	146	144	144
#6	B	151	153	151	150	151	150	150	151	153	153	154	156	156	156	157	157	158	157	156	156	155	153	152	152
Phase A Stator Wind	A	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Temp. #7	B	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Phase B Stator Wind	A	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146
Temp. #8	B	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
Phase C Stator Wind	A	86	89	82	81	84	81	85	89	93	95	96	99	100	101	102	103	103	102	101	99	94	92	88	89
Temp. #9	B	85	88	81	80	82	80	83	88	92	93	94	98	99	100	101	101	102	101	99	96	93	91	87	88
TURB AXIAL POSITION	Thrust	6	7	5	6	5	6	7	7	7	7	7	7	7	7	7	7	7	7	7.0	7.0	7.0	7.0	7.0	7.0
TURB STM END VIBR.	VERT	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
	HORIZ	.8	.5	.9	.5	.7	.7	.6	.6	.6	.7	.6	.6	.6	.6	.6	.7	.5	.7	.7	.5	.5	.5	.5	.5
TURB EXH END VIBR.	VERT	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.7	1.7
	HORIZ	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.7	2.5	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.5	2.5
Gear HS BRG Vibr.	Coupling	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.2	.2	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
Gear LS BRG Vibr.	Coupling	.5	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.5	.4	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
GEN Journal BRG Vibr.	Coupling	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.7	1.8	1.8	1.7	1.7
	Exciter	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.9	1.9
Operator Initials		JT	JT	JT	JT	JT	JT	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	JM	JM	JM	JM	JM	JM

DATE: 4/26/12 Covanta Energy **Turbine Log** **OR-03** SS

TURBINE LOG	RANGE	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Steam Inlet Pressure	590 - 605	588	588	588	588	588	588	588	588	589	589	588	588	588	588	588	588	588	588	588	588	588	588	588	588
Steam Temp to Turb.	650-715f	687	684	683	685	685	684	686	689	702	689	683	677	683	684	684	685	685	685	684	688	684	684	684	685
Steam Flow to Turb.	40-118k	98.1	99.6	100.4	105.5	98.8	99.9	97.5	96.5	106.4	108.3	104.2	103.6	102.9	98.1	103.2	99.5	88.4	95.7	95.8	100.1	94.3	97.9	102.2	97.4
Extraction Flow.	0-45k	10.4	10.2	10.1	10.3	10.0	10.0	10.2	10.3	10.3	10.4	10.4	10.2	10.0	9.9	10.0	9.6	9.4	9.5	9.9	9.8	9.8	9.9	10.1	9.7
Exhaust Flow	40 - 100	88	89	91	95	89	90	87	86	96	98	94	93	93	88	93	90	79	86	86	90	85	88	92	88
Gross MW/HR.	0-11	7.87	7.95	8.00	8.50	7.88	7.98	7.77	7.68	8.74	8.82	8.32	8.24	8.23	7.80	8.25	7.91	6.90	7.58	7.55	8.00	7.47	7.81	8.17	7.79
ACC Vacuum IN H20	19"-28"	27.2	27.1	27.1	27.1	27.1	27.1	27.2	27.1	27.0	27.0	27.0	27.0	26.9	27.0	26.5	26.4	26.9	26.6	26.9	26.7	27.1	27.0	26.7	26.9
TG Exhaust IN HgA	2 - 12.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	1.9	2.1	2.1	2.1	2.5	2.6	2.1	2.4	2.2	2.3	2.0	2.1	2.3	2.1
ACC Fan Set Point.	3.0-7.0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Ambient Air Temp.	Record	43	40	40	36	35	34	36	40	47	49	50	52	53	55	59	58	60	57	56	55	55	55	54	54
Lube Oil Temp.	110-130f	113	113	113	112	111	111	111	112	114	114	115	116	116	117	118	119	120	120	120	120	119	120	121	121
Turbine Exhaust Temp.	Record	112	118	116	116	117	117	116	118	116	115	116	117	115	119	124	116	121	120	115	114	115	117	113	111
T/G Thrust BRG Temp.	A	212	213	213	213	213	212	213	213	215	215	215	216	215	215	216	213	216	216	215	216	216	218	218	212
#1	B	124	123	123	123	122	121	122	122	124	125	125	126	127	127	128	129	129	129	130	131	129	130	131	130
T/G Journal BRG Temp.	A	164	164	164	164	163	163	157	158	157	165	165	165	166	165	167	169	168	168	169	169	167	167	167	171
#2	B	184	186	186	184	184	184	186	186	189	186	185	186	188	189	190	190	192	192	191	191	191	194	193	190
Gear Thrust BRG Temp.	A	146	146	146	145	145	144	144	145	146	147	147	148	148	149	150	151	151	151	151	152	151	152	152	152
#3	B	131	131	130	130	130	129	130	130	132	132	132	133	133	134	134	135	136	136	135	135	135	135	136	134
Gear HS BRG Temp.	A	161	162	161	161	160	160	161	161	164	162	163	164	164	164	165	164	166	166	165	166	165	167	166	165
#4	B	160	160	160	160	160	159	161	161	163	161	162	163	162	164	164	163	164	164	164	164	164	164	165	164
Gear LS BRG Temp.	A	126	126	125	125	125	124	124	124	126	126	127	128	128	129	129	130	131	131	131	131	130	130	131	131
#5	B	135	135	135	134	134	134	132	133	135	136	137	137	137	138	139	140	140	141	141	141	140	140	141	141
GEN Journal BRG Temp.	A	143	143	142	142	142	140	141	141	143	145	145	145	146	147	148	149	150	149	148	149	148	148	148	148
#6	B	152	151	151	150	151	149	150	150	153	154	154	154	154	155	156	157	158	157	156	156	156	156	156	150
Phase A Stator Wind	A	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Temp. #7	B	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Phase B Stator Wind	A	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146
Temp. #8	B	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
Phase C Stator Wind	A	89	88	86	87	83	83	85	88	98	97	94	96	97	98	103	101	99	100	99	99	97	98	99	99
Temp. #9	B	88	87	85	85	81	82	84	87	96	95	92	95	95	97	102	100	99	99	92	98	96	97	97	97
TURB AXIAL POSITION	Thrust	7.0	7.0	7.0	7.0	7.0	7.0	7	7	7	7	7	7	7	7	7	7	7	7	7.0	7.0	7.0	7.0	7.0	7.0
TURB STM END VIBR.	VERT	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
	HORIZ	.5	.5	.5	.5	.5	.5	.6	.7	.7	.6	.6	.6	.5	.6	.6	.5	.6	.6	.5	.5	.5	.5	.7	.5
TURB EXH END VIBR.	VERT	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	HORIZ	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.5	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Gear HS BRG Vibr.	Coupling	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
Gear LS BRG Vibr.	Coupling	.5	.5	.5	.5	.5	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5
	Blind	.3	.3	.3	.3	.3	.3	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4
GEN Journal BRG Vibr.	Coupling	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7
	Exciter	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0
Operator Initials		JM	JM	JM	JM	JM	JM	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	JM	JM	JM	JM	JM	JM

Boiler #: 1

Covanta Energy
Control Room Operator Log OR-03

Date: 4/26/12 SS

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Steam Flow	48K-55K	49.5	48.2	47.9	53.4	51.2	47.4	49.2	49.0	49.0	51.9	50.7	49.3	50.2	47.5	50.6	53.6	45.2	47.0	44.2	46.3	43.0	44.5	48.4	50.0
Steam Flow (Setpoint)	Setpoint < 60K	55	55	55	55	55	55	55	55	55	55	55	53	54	55	55	55	55	55	55	55	55	55	55	55
Steam Temp.	690-710	700	700	700	700	700	700	700	700	708	700	700	700	700	700	700	700	700	708	700	700	700	700	700	700
Steam Drum Pressure	< 620	597	596	597	599	597	597	596	596	599	600	597	598	598	597	598	597	594	596	596	597	595	596	598	597
Ram Speed	0 - 3 FPM	1.42	1.43	1.50	1.48	1.49	1.49	1.48	1.45	1.40	1.18	1.35	1.42	1.35	1.35	1.26	1.24	1.28	1.32	1.24	1.25	1.29	1.30	1.30	1.30
Combustor Speed	3 - 5 RPH	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.7	3.2	3.0	2.7	3.0	3.0	3.0	3.5	3.5	2.8	2.9	2.9	2.9	2.9	2.9
% Oxygen	4.5 - 8.5	9.6	10.0	10.0	9.3	9.8	10.3	9.9	9.2	10.0	9.2	9.6	9.7	9.6	9.8	9.1	8.3	10.5	9.8	10.4	10.1	10.7	10.4	9.8	9.7
PPM CO	<250	42	63	45	39	52	96	57	55	49	41	46	45	39	52	34	55	75	53	56	51	75	53	42	53
PPM SO2	Record	12	9	11	32	[illegible]	[illegible]	3	25	13	11	5	0	0	0	0	6	0	0	0	0	0	0	0	3
SO2 Efficiency	Record	91	93	92	85	80	81	80.5	87.1	89.8	90.6	95.6	100	100	100	100	96.7	100	100	100	100	100	100	100	97
PPM Nox	< 170	150	153	164	141	146	150	151	139	149	146	158	149	156	156	149	121	161	154	164	153	167	166	153	146
Zone A Underfire	Air Flow (P)	3177	3149	3193	3148	3188	3195	3193	3185	3193	3188	3188	3193	3195	3195	3193	3135	3193	3193	3195	3193	3195	3195	3193	3185
Zone B Underfire	Air Flow (P)	5544	5370	5388	5346	5401	5388	5378	5305	5365	5411	5453	5479	5492	5497	5516	5414	5521	5542	5542	5542	5536	5539	5547	5523
Zone C Underfire	Air Flow (P)	0	0	0	0	0	0	0	0	0	107	451	185	596	0	65	0	240	34	0	0	0	0	0	0
Zone A Overfire	Air Flow (P)	2479	2482	2484	2482	2482	2482	2477	2482	2479	2482	2482	2479	2758	3206	3198	3159	3203	3203	3201	3206	3203	3201	3201	3198
Zone B Overfire	Air Flow (P)	3383	3401	3401	3365	3398	3398	3398	3396	3396	3396	3398	3401	3398	3398	3401	3354	3396	3401	3396	3404	3396	3404	3398	3391
Zone C Overfire	Air Flow (X)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T- Grate Air Flow	800 - 1500	485	495	490	490	490	495	470	471	475	478	477	484	485	482	454	467	483	487	480	490	480	485	475	480
Rotary Comb. F	900 - 1250	1034	946	1017	968	1052	1032	1005	965	1027	1065	1043	1029	1043	961	1040	1086	990	968	941	947	971	972	1025	1026
Boiler Gas Temp.	1100 - 1500	1345	1340	1345	1357	1379	1346	1366	1364	1356	1380	1379	1363	1362	1338	1376	1431	1317	1338	1296	1320	1269	1298	1349	1340
Induced Draft	0 to -0.2" WC	-.04	-.06	-.06	-.04	-.06	-.04	-.06	-.06	-.06	-.06	-.07	-.06	-.07	-.06	-.07	-.06	-.06	-.06	-.07	-.07	-.06	-.06	-.06	-.06
I D Fan Amps	300-500	432	456	445	470	431	437	421	461	420	435	397	401	460	470	361	402	435	420	472	435	415	452	414	405
Forced Draft	9.0 - 15	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.4	10.3	10.4	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Average Opacity	0 -10	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Air Htr In Deg F	60-200 (#6)																								
Air Htr Out Deg F	400-600 (#5)	483	476	475	489	484	473	475	477	475	483	479	477	477	471	479	480	472	475	467	472	465	467	477	453
Feed H2O Temp	> 200																								
Economizer Gas Outlet Temp.	< 500	444	443	450	444	444	440	438	436	445	445	441	440	441	446	434	450	447	438	444	439	443	442	447	442
CRO Initials		JM	JM	JM	JM	JM	JM	MDC	MDC	MDC	MDC	MDC	MDC	MDC	MDC	MDC	MDC	MDC	MDC	JM	JM	JM	JM	JM	JM

Operators.

1. Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2. Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet

Boiler #: 2

Covanta Energy
Control Room Operator Log OR-03

Date: 4/26/12 SS: [illegible]

Item	Range	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
[illegible]	[illegible]	49.1	51.5	55.1	50.0	47.7	52.6	48.4	47.6	57.5	56.5	53.6	54.4	52.7	50.7	52.8	46.0	43.3	48.8	51.7	53.8	51.5	53.5	53.4	47.6
Steam Flow [illegible]	Setpoint < 68K	55	53	55	55	53	53	56	58	62	58	55	55	55	55	54	52	52	52	52	52	55	55	55	55
[illegible]	[illegible]	705	698	698	701	699	700	704	707	734	706	696	685	698	700	699	699	700	701	702	705	700	700	698	694
Steam Drum [illegible]	< 630	623	626	621	625	625	631	635	634	636	629	634	626	624	617	619	612	625	625	626	625	632	635	636	617
[illegible]	0 - 3 FPM	1.25	1.13	1.10	1.11	1.31	1.00	1.18	1.23	1.42	.98	1.13	1.08	1.21	1.15	1.13	1.09	1.18	1.09	1.05	1.03	1.07	1.09	1.06	1.08
[illegible]	3 - 5 RPM	3.5	3.0	3.5	3.5	4.5	7.0	4.0	4.0	3.0	4.0	4.3	4.4	4.2	3.3	3.0	4.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0
[illegible]	4.5 - 8.5	7.7	8.8	8.5	8.5	9.3	8.2	8.5	8.2	7.7	8.0	8.1	8.2	8.0	8.0	7.4	8.3	8.9	8.4	8.6	8.3	8.8	8.4	8.3	9.4
[illegible]	<250	227	108	202	132	150	246	151	[illegible]	252	241	216	188	268	192	361	147	68	72	122	178	71	53	164	81
[illegible]	[illegible]	2	14	21	32	44	[illegible]	25	13	19	12	10	9	5	4	8	5	1	8	9	14	29	0	28	22
[illegible]	[illegible]	77	84	84	85	84	85	91.1	93.6	86.6	88.0	89.8	90.8	95.0	97.2	92.7	97.6	98.8	94.5	92	89	81	100	85	87
[illegible]	< 170	99	125	107	118	127	109	116	119	111	104	113	106	92	99	85	102	114	117	113	100	112	106	113	69
[illegible]	[illegible]	3169	3141	3140	3115	3151	3177	3177	3185	3182	3133	2932	3357	3211	2938	2763	2159	2240	3159	3004	3091	3182	3185	3057	3188
[illegible]	[illegible]	5466	5380	5447	5307	5414	5484	5482	5513	5247	5294	5294	5206	5128	5513	5029	5247	5534	5435	5497	5237	5503	5331	5178	5507
[illegible]	[illegible]	602	422	453	0	0	0	0	120	2474	500	0	479	178	0	0	0	216	1346	2979	2992	2977	2975	2974	2464
[illegible]	[illegible]	3164	3159	3179	3135	3146	3193	3177	3183	3190	3143	2948	2128	2589	2604	2513	2013	2055	3156	3010	3059	3195	3193	3057	3190
[illegible]	[illegible]	3336	3375	3190	3486	3320	3331	3326	3302	3320	3294	3094	2547	2716	3128	3096	3107	3315	3242	3143	3214	3284	3281	3234	3333
[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	865	1497	583	0	0	0	0	0	0	0	0	0	0	0
T- Grate Air Flow	800 - 1500	540	545	545	545	550	540	486	494	506	481	540	507	466	478	417	474	532	485	460	465	465	475	460	460
[illegible]	900 - 1350	1227	1258	1244	1208	1265	1234	1275	1236	1236	1269	1260	1280	1255	1236	1268	1242	1199	1210	1232	1238	1275	1225	1277	1244
[illegible]	1100 - 1500	1531	1478	1519	1502	1452	1546	1533	1522	1468	1547	1534	1525	1545	1530	1554	1491	1442	1485	1486	1508	1482	1515	1528	1464
[illegible]	[illegible]	-.04	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.07	-.02	-.07
[illegible]	300-500	360	351	370	331	417	371	435	440	404	363	313	394	343	326	265	299	327	407	432	405	389	511	391	417
[illegible]	9.0 - 15	11.5	11.5	4.5	11.5	11.5	11.5	11.3	10.5	10.9	10.7	10.1	11.1	10.1	10.0	10.0	9.1	10.1	10.1	10.0	10.0	10.0	10.0	10.0	10.0
[illegible]	0 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Htr In Deg F	[illegible]																								
[illegible]	400-600 (85)	700	582	344	389	385	347	326	388	388	395	392	392	402	401	406	397	394	395	386	386	383	380	343	383
[illegible]	>200																								
Economizer Gas [illegible]	< 500	404	404	403	404	415	420	410	408	418	421	422	419	422	416	403	412	422	422	416	417	420	425	420	427
CRO Initials		JM	JM	JM	JM	JM	JM	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	MJC	JM	JM	JM	JM	JM	JM

Operators

1. Initials verify that CRO has reviewed all required monitors, trends, charts, and equipment for proper operation
2. Highlight any reading out of range, Yellow for low and Orange for high on the front of the log sheet

Appendix O

Field Data Sheets and Plant Logs From Discarded Runs

There were no discarded runs during the test program.

Appendix P

Annual Steam Load Determinations

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

BY _____

CHK'D _____

TRC

SUBJECT Steam Load Determination

Parameter	Time	Date	(Klb/hr) Steam Load	Maximum Steam Load
M23-U2-1	1015-1419	4/25/12	51.5	
M23-U2-2	1503-1906	4/25/12	54.9	60.4
M23-U2-3	815-1217	4/26/12	54.5	

- Steam Load - Maximum 4-hour arithmetic average unit load during dioxin/furan four consecutive hour test runs. (Limit - 110% of the maximum steam load)

A

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/25/2012 10:15
End of Report: 04/25/2012 14:19

Validation: All Available Data

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 10:15	54.4
04/25/2012 10:16	56.5
04/25/2012 10:17	56.7
04/25/2012 10:18	53.4
04/25/2012 10:19	54.6
04/25/2012 10:20	55.8
04/25/2012 10:21	52.0
04/25/2012 10:22	54.4
04/25/2012 10:23	54.5
04/25/2012 10:24	50.8
04/25/2012 10:25	50.2
04/25/2012 10:26	50.3
04/25/2012 10:27	51.7
04/25/2012 10:28	53.2
04/25/2012 10:29	54.7
04/25/2012 10:30	55.7
04/25/2012 10:31	51.7
04/25/2012 10:32	54.8
04/25/2012 10:33	52.2
04/25/2012 10:34	53.2
04/25/2012 10:35	56.4
04/25/2012 10:36	54.8
04/25/2012 10:37	57.3
04/25/2012 10:38	57.2
04/25/2012 10:39	53.0
04/25/2012 10:40	53.0
04/25/2012 10:41	53.9
04/25/2012 10:42	53.4
04/25/2012 10:43	52.6
04/25/2012 10:44	52.4
04/25/2012 10:45	52.4
04/25/2012 10:46	52.8
04/25/2012 10:47	53.5
04/25/2012 10:48	54.6
04/25/2012 10:49	54.5
04/25/2012 10:50	54.0
04/25/2012 10:51	54.2
04/25/2012 10:52	54.7
04/25/2012 10:53	58.4

Date/Time Printed: 04/25/2012 14:53

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 10:54	62.7
04/25/2012 10:55	57.2
04/25/2012 10:56	56.2
04/25/2012 10:57	55.8
04/25/2012 10:58	52.0
04/25/2012 10:59	53.3
04/25/2012 11:00	54.2
04/25/2012 11:01	54.7
04/25/2012 11:02	54.5
04/25/2012 11:03	53.0
04/25/2012 11:04	52.0
04/25/2012 11:05	53.3
04/25/2012 11:06	54.9
04/25/2012 11:07	55.2
04/25/2012 11:08	54.4
04/25/2012 11:09	53.8
04/25/2012 11:10	53.1
04/25/2012 11:11	53.3
04/25/2012 11:12	53.9
04/25/2012 11:13	54.2
04/25/2012 11:14	56.6
04/25/2012 11:15	57.7
04/25/2012 11:16	55.4
04/25/2012 11:17	51.4
04/25/2012 11:18	51.9
04/25/2012 11:19	51.3
04/25/2012 11:20	50.2
04/25/2012 11:21	49.6
04/25/2012 11:22	48.3
04/25/2012 11:23	47.0
04/25/2012 11:24	47.2
04/25/2012 11:25	48.3
04/25/2012 11:26	50.1
04/25/2012 11:27	49.7
04/25/2012 11:28	48.4
04/25/2012 11:29	48.7
04/25/2012 11:30	50.3
04/25/2012 11:31	51.9
04/25/2012 11:32	52.5
04/25/2012 11:33	52.6
04/25/2012 11:34	52.3
04/25/2012 11:35	51.2
04/25/2012 11:36	51.1
04/25/2012 11:37	50.8
04/25/2012 11:38	49.9
04/25/2012 11:39	47.3
04/25/2012 11:40	45.4
04/25/2012 11:41	44.3
04/25/2012 11:42	44.9
04/25/2012 11:43	46.8

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 11:44	46.7
04/25/2012 11:45	46.5
04/25/2012 11:46	48.1
04/25/2012 11:47	52.0
04/25/2012 11:48	53.2
04/25/2012 11:49	52.5
04/25/2012 11:50	51.6
04/25/2012 11:51	51.9
04/25/2012 11:52	51.1
04/25/2012 11:53	51.9
04/25/2012 11:54	51.0
04/25/2012 11:55	49.0
04/25/2012 11:56	47.7
04/25/2012 11:57	45.2
04/25/2012 11:58	44.3
04/25/2012 11:59	45.6
04/25/2012 12:00	44.8
04/25/2012 12:01	43.6
04/25/2012 12:02	43.3
04/25/2012 12:03	44.7
04/25/2012 12:04	47.9
04/25/2012 12:05	49.5
04/25/2012 12:06	51.2
04/25/2012 12:07	51.9
04/25/2012 12:08	51.3
04/25/2012 12:09	49.4
04/25/2012 12:10	47.2
04/25/2012 12:11	44.4
04/25/2012 12:12	42.1
04/25/2012 12:13	39.7
04/25/2012 12:14	39.4
04/25/2012 12:15	42.1
04/25/2012 12:16	45.0
04/25/2012 12:17	47.1
04/25/2012 12:18	46.6
04/25/2012 12:19	46.6
04/25/2012 12:20	49.7
04/25/2012 12:21	52.7
04/25/2012 12:22	54.4
04/25/2012 12:23	57.4
04/25/2012 12:24	53.0
04/25/2012 12:25	51.9
04/25/2012 12:26	52.4
04/25/2012 12:27	52.0
04/25/2012 12:28	50.9
04/25/2012 12:29	46.9
04/25/2012 12:30	46.4
04/25/2012 12:31	47.7
04/25/2012 12:32	46.4
04/25/2012 12:33	45.8

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 12:34	46.9
04/25/2012 12:35	50.2
04/25/2012 12:36	52.4
04/25/2012 12:37	53.3
04/25/2012 12:38	53.0
04/25/2012 12:39	52.4
04/25/2012 12:40	51.0
04/25/2012 12:41	51.2
04/25/2012 12:42	51.5
04/25/2012 12:43	51.9
04/25/2012 12:44	51.9
04/25/2012 12:45	50.2
04/25/2012 12:46	47.8
04/25/2012 12:47	43.3
04/25/2012 12:48	39.2
04/25/2012 12:49	41.2
04/25/2012 12:50	44.5
04/25/2012 12:51	47.9
04/25/2012 12:52	50.6
04/25/2012 12:53	52.0
04/25/2012 12:54	56.6
04/25/2012 12:55	57.3
04/25/2012 12:56	59.1
04/25/2012 12:57	59.9
04/25/2012 12:58	56.0
04/25/2012 12:59	52.0
04/25/2012 13:00	52.2
04/25/2012 13:01	54.2
04/25/2012 13:02	55.7
04/25/2012 13:03	53.3
04/25/2012 13:04	49.4
04/25/2012 13:05	47.7
04/25/2012 13:06	48.8
04/25/2012 13:07	51.5
04/25/2012 13:08	54.2
04/25/2012 13:09	55.3
04/25/2012 13:10	55.8
04/25/2012 13:11	55.5
04/25/2012 13:12	55.9
04/25/2012 13:13	56.4
04/25/2012 13:14	57.9
04/25/2012 13:15	52.6
04/25/2012 13:16	50.9
04/25/2012 13:17	51.3
04/25/2012 13:18	51.0
04/25/2012 13:19	49.5
04/25/2012 13:20	47.8
04/25/2012 13:21	48.7
04/25/2012 13:22	51.7
04/25/2012 13:23	54.5

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 13:24	58.5
04/25/2012 13:25	59.7
04/25/2012 13:26	56.6
04/25/2012 13:27	61.6
04/25/2012 13:28	60.2
04/25/2012 13:29	56.6
04/25/2012 13:30	56.4
04/25/2012 13:31	55.8
04/25/2012 13:32	55.1
04/25/2012 13:33	53.5
04/25/2012 13:34	51.6
04/25/2012 13:35	52.0
04/25/2012 13:36	53.3
04/25/2012 13:37	53.9
04/25/2012 13:38	53.4
04/25/2012 13:39	53.2
04/25/2012 13:40	55.8
04/25/2012 13:41	61.1
04/25/2012 13:42	60.6
04/25/2012 13:43	54.9
04/25/2012 13:44	53.9
04/25/2012 13:45	53.5
04/25/2012 13:46	53.2
04/25/2012 13:47	51.6
04/25/2012 13:48	49.6
04/25/2012 13:49	48.0
04/25/2012 13:50	47.4
04/25/2012 13:51	47.1
04/25/2012 13:52	47.5
04/25/2012 13:53	49.0
04/25/2012 13:54	52.9
04/25/2012 13:55	53.9
04/25/2012 13:56	54.0
04/25/2012 13:57	52.7
04/25/2012 13:58	50.8
04/25/2012 13:59	49.2
04/25/2012 14:00	46.5
04/25/2012 14:01	43.7
04/25/2012 14:02	43.1
04/25/2012 14:03	44.4
04/25/2012 14:04	45.5
04/25/2012 14:05	45.8
04/25/2012 14:06	47.0
04/25/2012 14:07	50.7
04/25/2012 14:08	56.2
04/25/2012 14:09	57.2
04/25/2012 14:10	52.5
04/25/2012 14:11	53.0
04/25/2012 14:12	53.6
04/25/2012 14:13	51.6

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 14:14	47.2
04/25/2012 14:15	45.0
04/25/2012 14:16	46.4
04/25/2012 14:17	47.5
04/25/2012 14:18	47.3
04/25/2012 14:19	48.0

Period Average =	51.5
Period Max Value =	62.7
Period Min Value =	39.2
Period Totals =	1.2607E+4
Period % Recovery =	100.0

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/25/2012 15:03
End of Report: 04/25/2012 19:06

Validation: All Available Data

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 15:03	51.0
04/25/2012 15:04	50.1
04/25/2012 15:05	50.4
04/25/2012 15:06	51.4
04/25/2012 15:07	52.3
04/25/2012 15:08	56.1
04/25/2012 15:09	58.5
04/25/2012 15:10	58.9
04/25/2012 15:11	59.0
04/25/2012 15:12	58.4
04/25/2012 15:13	56.8
04/25/2012 15:14	51.5
04/25/2012 15:15	49.4
04/25/2012 15:16	47.4
04/25/2012 15:17	47.0
04/25/2012 15:18	47.1
04/25/2012 15:19	48.1
04/25/2012 15:20	50.1
04/25/2012 15:21	55.1
04/25/2012 15:22	58.1
04/25/2012 15:23	58.3
04/25/2012 15:24	54.8
04/25/2012 15:25	53.9
04/25/2012 15:26	53.1
04/25/2012 15:27	51.8
04/25/2012 15:28	48.1
04/25/2012 15:29	46.0
04/25/2012 15:30	45.8
04/25/2012 15:31	48.5
04/25/2012 15:32	51.5
04/25/2012 15:33	51.5
04/25/2012 15:34	50.9
04/25/2012 15:35	52.0
04/25/2012 15:36	54.2
04/25/2012 15:37	59.5
04/25/2012 15:38	61.0
04/25/2012 15:39	55.9
04/25/2012 15:40	54.3
04/25/2012 15:41	53.7

Date/Time Printed: 04/26/2012 08:04

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 15:42	53.4
04/25/2012 15:43	52.6
04/25/2012 15:44	51.2
04/25/2012 15:45	48.8
04/25/2012 15:46	50.3
04/25/2012 15:47	53.5
04/25/2012 15:48	54.5
04/25/2012 15:49	54.6
04/25/2012 15:50	57.4
04/25/2012 15:51	61.2
04/25/2012 15:52	60.7
04/25/2012 15:53	61.3
04/25/2012 15:54	59.3
04/25/2012 15:55	57.2
04/25/2012 15:56	56.3
04/25/2012 15:57	55.3
04/25/2012 15:58	56.8
04/25/2012 15:59	59.5
04/25/2012 16:00	60.7
04/25/2012 16:01	56.5
04/25/2012 16:02	60.3
04/25/2012 16:03	63.5
04/25/2012 16:04	63.4
04/25/2012 16:05	63.2
04/25/2012 16:06	60.3
04/25/2012 16:07	59.8
04/25/2012 16:08	56.4
04/25/2012 16:09	52.2
04/25/2012 16:10	53.8
04/25/2012 16:11	57.0
04/25/2012 16:12	59.5
04/25/2012 16:13	56.7
04/25/2012 16:14	59.1
04/25/2012 16:15	63.2
04/25/2012 16:16	59.5
04/25/2012 16:17	60.5
04/25/2012 16:18	56.7
04/25/2012 16:19	57.5
04/25/2012 16:20	52.8
04/25/2012 16:21	52.3
04/25/2012 16:22	52.5
04/25/2012 16:23	52.4
04/25/2012 16:24	53.0
04/25/2012 16:25	53.1
04/25/2012 16:26	54.8
04/25/2012 16:27	56.9
04/25/2012 16:28	56.4
04/25/2012 16:29	54.2
04/25/2012 16:30	54.0
04/25/2012 16:31	56.8

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 16:32	52.8
04/25/2012 16:33	51.9
04/25/2012 16:34	50.6
04/25/2012 16:35	49.0
04/25/2012 16:36	48.3
04/25/2012 16:37	48.7
04/25/2012 16:38	50.3
04/25/2012 16:39	52.2
04/25/2012 16:40	53.0
04/25/2012 16:41	51.1
04/25/2012 16:42	49.9
04/25/2012 16:43	50.0
04/25/2012 16:44	49.1
04/25/2012 16:45	46.5
04/25/2012 16:46	41.1
04/25/2012 16:47	40.2
04/25/2012 16:48	45.4
04/25/2012 16:49	49.9
04/25/2012 16:50	53.0
04/25/2012 16:51	54.9
04/25/2012 16:52	58.2
04/25/2012 16:53	63.6
04/25/2012 16:54	63.6
04/25/2012 16:55	63.6
04/25/2012 16:56	63.1
04/25/2012 16:57	62.6
04/25/2012 16:58	58.7
04/25/2012 16:59	58.2
04/25/2012 17:00	61.8
04/25/2012 17:01	59.6
04/25/2012 17:02	54.9
04/25/2012 17:03	55.0
04/25/2012 17:04	54.4
04/25/2012 17:05	53.9
04/25/2012 17:06	56.9
04/25/2012 17:07	55.6
04/25/2012 17:08	58.1
04/25/2012 17:09	56.5
04/25/2012 17:10	56.9
04/25/2012 17:11	58.0
04/25/2012 17:12	60.4
04/25/2012 17:13	59.8
04/25/2012 17:14	62.7
04/25/2012 17:15	61.4
04/25/2012 17:16	59.3
04/25/2012 17:17	57.1
04/25/2012 17:18	53.9
04/25/2012 17:19	58.0
04/25/2012 17:20	56.4
04/25/2012 17:21	59.0

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 17:22	55.3
04/25/2012 17:23	53.4
04/25/2012 17:24	52.0
04/25/2012 17:25	51.7
04/25/2012 17:26	52.2
04/25/2012 17:27	52.9
04/25/2012 17:28	52.7
04/25/2012 17:29	52.5
04/25/2012 17:30	53.7
04/25/2012 17:31	57.8
04/25/2012 17:32	62.0
04/25/2012 17:33	61.6
04/25/2012 17:34	57.3
04/25/2012 17:35	55.8
04/25/2012 17:36	54.8
04/25/2012 17:37	54.5
04/25/2012 17:38	55.1
04/25/2012 17:39	54.0
04/25/2012 17:40	52.4
04/25/2012 17:41	50.1
04/25/2012 17:42	48.2
04/25/2012 17:43	48.4
04/25/2012 17:44	48.7
04/25/2012 17:45	49.2
04/25/2012 17:46	52.3
04/25/2012 17:47	55.1
04/25/2012 17:48	56.0
04/25/2012 17:49	56.4
04/25/2012 17:50	56.1
04/25/2012 17:51	56.7
04/25/2012 17:52	52.2
04/25/2012 17:53	54.2
04/25/2012 17:54	49.9
04/25/2012 17:55	51.4
04/25/2012 17:56	53.0
04/25/2012 17:57	54.1
04/25/2012 17:58	54.7
04/25/2012 17:59	54.0
04/25/2012 18:00	52.3
04/25/2012 18:01	52.1
04/25/2012 18:02	55.2
04/25/2012 18:03	62.3
04/25/2012 18:04	63.5
04/25/2012 18:05	60.9
04/25/2012 18:06	55.5
04/25/2012 18:07	51.1
04/25/2012 18:08	51.6
04/25/2012 18:09	52.8
04/25/2012 18:10	51.7
04/25/2012 18:11	50.3

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 18:12	47.4
04/25/2012 18:13	44.6
04/25/2012 18:14	44.6
04/25/2012 18:15	46.4
04/25/2012 18:16	47.1
04/25/2012 18:17	48.6
04/25/2012 18:18	52.2
04/25/2012 18:19	55.9
04/25/2012 18:20	56.9
04/25/2012 18:21	54.9
04/25/2012 18:22	53.9
04/25/2012 18:23	51.9
04/25/2012 18:24	49.6
04/25/2012 18:25	49.8
04/25/2012 18:26	49.6
04/25/2012 18:27	49.2
04/25/2012 18:28	49.6
04/25/2012 18:29	50.7
04/25/2012 18:30	51.3
04/25/2012 18:31	51.9
04/25/2012 18:32	54.9
04/25/2012 18:33	58.5
04/25/2012 18:34	59.0
04/25/2012 18:35	58.3
04/25/2012 18:36	53.6
04/25/2012 18:37	52.0
04/25/2012 18:38	56.0
04/25/2012 18:39	56.5
04/25/2012 18:40	51.4
04/25/2012 18:41	50.3
04/25/2012 18:42	49.7
04/25/2012 18:43	49.9
04/25/2012 18:44	52.3
04/25/2012 18:45	54.8
04/25/2012 18:46	58.0
04/25/2012 18:47	61.1
04/25/2012 18:48	59.8
04/25/2012 18:49	63.6
04/25/2012 18:50	65.7
04/25/2012 18:51	64.3
04/25/2012 18:52	61.6
04/25/2012 18:53	59.6
04/25/2012 18:54	58.4
04/25/2012 18:55	59.0
04/25/2012 18:56	59.1
04/25/2012 18:57	56.6
04/25/2012 18:58	54.3
04/25/2012 18:59	57.4
04/25/2012 19:00	61.7
04/25/2012 19:01	62.2

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/25/2012 19:02	63.9
04/25/2012 19:03	61.8
04/25/2012 19:04	62.9
04/25/2012 19:05	64.6
04/25/2012 19:06	64.0

Period Average =	54.9
Period Max Value =	65.7
Period Min Value =	40.2
Period Totals =	1.3388E+4
Period % Recovery =	100.0

Data Summary Report

Company: Covanta Hudson Valley Renewable
Dutchess Co. Resource Recovery
Poughkeepsie, NY 12601

Data Group: All Data Groups
Report Name: No Title
Start of Report: 04/26/2012 08:15
End of Report: 04/26/2012 12:17

Validation: All Available Data

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/26/2012 08:15	49.4
04/26/2012 08:16	53.5
04/26/2012 08:17	53.8
04/26/2012 08:18	53.3
04/26/2012 08:19	56.2
04/26/2012 08:20	55.3
04/26/2012 08:21	59.9
04/26/2012 08:22	57.8
04/26/2012 08:23	59.6
04/26/2012 08:24	54.7
04/26/2012 08:25	52.4
04/26/2012 08:26	52.8
04/26/2012 08:27	53.2
04/26/2012 08:28	54.4
04/26/2012 08:29	52.0
04/26/2012 08:30	49.3
04/26/2012 08:31	50.1
04/26/2012 08:32	53.5
04/26/2012 08:33	58.3
04/26/2012 08:34	59.5
04/26/2012 08:35	60.6
04/26/2012 08:36	60.9
04/26/2012 08:37	61.3
04/26/2012 08:38	61.0
04/26/2012 08:39	59.2
04/26/2012 08:40	57.9
04/26/2012 08:41	58.0
04/26/2012 08:42	60.0
04/26/2012 08:43	60.7
04/26/2012 08:44	60.6
04/26/2012 08:45	58.5
04/26/2012 08:46	56.3
04/26/2012 08:47	55.6
04/26/2012 08:48	52.0
04/26/2012 08:49	53.5
04/26/2012 08:50	55.3
04/26/2012 08:51	57.8
04/26/2012 08:52	55.0
04/26/2012 08:53	57.3

Date/Time Printed: 04/26/2012 13:51

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/26/2012 08:54	57.3
04/26/2012 08:55	60.5
04/26/2012 08:56	62.1
04/26/2012 08:57	63.3
04/26/2012 08:58	62.6
04/26/2012 08:59	61.8
04/26/2012 09:00	61.9
04/26/2012 09:01	62.0
04/26/2012 09:02	62.5
04/26/2012 09:03	62.9
04/26/2012 09:04	62.4
04/26/2012 09:05	61.1
04/26/2012 09:06	59.3
04/26/2012 09:07	57.5
04/26/2012 09:08	57.2
04/26/2012 09:09	56.7
04/26/2012 09:10	56.7
04/26/2012 09:11	56.3
04/26/2012 09:12	57.0
04/26/2012 09:13	58.5
04/26/2012 09:14	58.2
04/26/2012 09:15	59.1
04/26/2012 09:16	59.3
04/26/2012 09:17	60.6
04/26/2012 09:18	60.8
04/26/2012 09:19	59.6
04/26/2012 09:20	58.1
04/26/2012 09:21	56.0
04/26/2012 09:22	50.3
04/26/2012 09:23	51.8
04/26/2012 09:24	54.5
04/26/2012 09:25	54.4
04/26/2012 09:26	55.3
04/26/2012 09:27	55.8
04/26/2012 09:28	51.6
04/26/2012 09:29	53.1
04/26/2012 09:30	54.6
04/26/2012 09:31	52.4
04/26/2012 09:32	51.5
04/26/2012 09:33	52.5
04/26/2012 09:34	54.9
04/26/2012 09:35	59.2
04/26/2012 09:36	59.3
04/26/2012 09:37	58.4
04/26/2012 09:38	56.9
04/26/2012 09:39	53.9
04/26/2012 09:40	51.1
04/26/2012 09:41	55.0
04/26/2012 09:42	53.5
04/26/2012 09:43	54.6

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/26/2012 09:44	53.7
04/26/2012 09:45	48.7
04/26/2012 09:46	47.0
04/26/2012 09:47	46.3
04/26/2012 09:48	47.3
04/26/2012 09:49	48.8
04/26/2012 09:50	48.9
04/26/2012 09:51	48.7
04/26/2012 09:52	50.1
04/26/2012 09:53	53.5
04/26/2012 09:54	55.1
04/26/2012 09:55	52.3
04/26/2012 09:56	56.1
04/26/2012 09:57	55.2
04/26/2012 09:58	54.1
04/26/2012 09:59	50.2
04/26/2012 10:00	52.6
04/26/2012 10:01	55.7
04/26/2012 10:02	51.7
04/26/2012 10:03	49.6
04/26/2012 10:04	48.8
04/26/2012 10:05	47.6
04/26/2012 10:06	49.7
04/26/2012 10:07	54.5
04/26/2012 10:08	54.4
04/26/2012 10:09	52.2
04/26/2012 10:10	54.9
04/26/2012 10:11	52.5
04/26/2012 10:12	54.0
04/26/2012 10:13	54.3
04/26/2012 10:14	55.0
04/26/2012 10:15	56.0
04/26/2012 10:16	52.5
04/26/2012 10:17	53.9
04/26/2012 10:18	52.5
04/26/2012 10:19	49.8
04/26/2012 10:20	49.6
04/26/2012 10:21	51.3
04/26/2012 10:22	54.3
04/26/2012 10:23	51.9
04/26/2012 10:24	54.0
04/26/2012 10:25	57.2
04/26/2012 10:26	58.0
04/26/2012 10:27	56.6
04/26/2012 10:28	52.5
04/26/2012 10:29	53.4
04/26/2012 10:30	55.1
04/26/2012 10:31	54.0
04/26/2012 10:32	54.5
04/26/2012 10:33	53.5

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/26/2012 10:34	51.1
04/26/2012 10:35	49.8
04/26/2012 10:36	50.7
04/26/2012 10:37	52.7
04/26/2012 10:38	56.4
04/26/2012 10:39	52.6
04/26/2012 10:40	54.7
04/26/2012 10:41	54.4
04/26/2012 10:42	54.1
04/26/2012 10:43	55.5
04/26/2012 10:44	59.1
04/26/2012 10:45	56.1
04/26/2012 10:46	55.5
04/26/2012 10:47	53.1
04/26/2012 10:48	51.0
04/26/2012 10:49	50.1
04/26/2012 10:50	50.4
04/26/2012 10:51	51.3
04/26/2012 10:52	51.5
04/26/2012 10:53	50.3
04/26/2012 10:54	48.8
04/26/2012 10:55	48.6
04/26/2012 10:56	47.8
04/26/2012 10:57	47.1
04/26/2012 10:58	47.1
04/26/2012 10:59	49.3
04/26/2012 11:00	50.8
04/26/2012 11:01	51.6
04/26/2012 11:02	54.5
04/26/2012 11:03	54.9
04/26/2012 11:04	53.7
04/26/2012 11:05	54.8
04/26/2012 11:06	52.7
04/26/2012 11:07	53.6
04/26/2012 11:08	50.3
04/26/2012 11:09	50.4
04/26/2012 11:10	49.9
04/26/2012 11:11	49.8
04/26/2012 11:12	48.2
04/26/2012 11:13	47.0
04/26/2012 11:14	47.5
04/26/2012 11:15	49.4
04/26/2012 11:16	52.0
04/26/2012 11:17	56.6
04/26/2012 11:18	59.1
04/26/2012 11:19	54.6
04/26/2012 11:20	55.7
04/26/2012 11:21	59.7
04/26/2012 11:22	57.2
04/26/2012 11:23	57.8

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/26/2012 11:24	53.3
04/26/2012 11:25	52.5
04/26/2012 11:26	52.7
04/26/2012 11:27	52.1
04/26/2012 11:28	50.6
04/26/2012 11:29	48.8
04/26/2012 11:30	50.0
04/26/2012 11:31	53.6
04/26/2012 11:32	59.2
04/26/2012 11:33	57.0
04/26/2012 11:34	57.2
04/26/2012 11:35	61.8
04/26/2012 11:36	61.3
04/26/2012 11:37	57.1
04/26/2012 11:38	56.6
04/26/2012 11:39	53.5
04/26/2012 11:40	53.3
04/26/2012 11:41	51.7
04/26/2012 11:42	49.1
04/26/2012 11:43	49.0
04/26/2012 11:44	51.6
04/26/2012 11:45	53.1
04/26/2012 11:46	54.2
04/26/2012 11:47	55.0
04/26/2012 11:48	58.5
04/26/2012 11:49	60.8
04/26/2012 11:50	62.1
04/26/2012 11:51	61.3
04/26/2012 11:52	58.5
04/26/2012 11:53	54.1
04/26/2012 11:54	52.0
04/26/2012 11:55	52.6
04/26/2012 11:56	51.1
04/26/2012 11:57	50.5
04/26/2012 11:58	52.7
04/26/2012 11:59	54.1
04/26/2012 12:00	55.9
04/26/2012 12:01	55.0
04/26/2012 12:02	58.7
04/26/2012 12:03	62.3
04/26/2012 12:04	61.7
04/26/2012 12:05	59.5
04/26/2012 12:06	55.9
04/26/2012 12:07	52.5
04/26/2012 12:08	53.1
04/26/2012 12:09	52.2
04/26/2012 12:10	50.5
04/26/2012 12:11	51.4
04/26/2012 12:12	52.1
04/26/2012 12:13	51.8

Group#-Channel#	G16-C18
Long Descrip.	SteamLoad
Short Descrip.	2-StmLoad
Units	klb/hr
Range	0-82

04/26/2012 12:14	51.6
04/26/2012 12:15	52.6
04/26/2012 12:16	56.2
04/26/2012 12:17	58.5

Period Average =	54.5
Period Max Value =	63.3
Period Min Value =	46.3
Period Totals =	1.3255E+4
Period % Recovery =	100.0