Report No. 21656

Report:

Covanta Durham York Renewable Energy Limited Partnership
May 2016 Emission Testing Program
at the Durham York Energy Centre

Date: June 13, 2016



ORTECH

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1	May 30, 2016	None
2	June 13, 2016	Incorporated Region and Auditor Comments into Report

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EXECUTIVE SUMMARY

ORTECH Consulting Inc. (ORTECH) completed an emission testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between May 2 and May 11, 2016. The emission testing program was performed to satisfy the agreement the facility has with the Regions of Durham and York to conduct emission testing twice per year.

Ontario Ministry of the Environment and Climate Change (MOECC) Amended Environmental Compliance Approval (ECA) No. 7306-8FDKNX Section 7(1) states that "the owner shall perform annual source testing, in accordance with the procedures and schedule outlined in the attached Schedule E, to determine the rates of emissions of the test contaminants from the stack. The program shall be conducted not later than six months after the commencement date of operation of the facility/equipment and subsequent source testing programs shall be conducted once every calendar year thereafter." The initial source testing program under Amended ECA No. 7306-8FDKNX was conducted in September/October 2015.

Source testing was performed on the Baghouse (BH) Outlet of Boiler No. 1 and BH Outlet of Boiler No. 2 for the test contaminants listed in Schedule D of the ECA.

Triplicate emission tests were completed for particulate matter, metals, semi-volatile organic compounds, aldehydes, acid gases, volatile organic compounds and combustion gases at the BH Outlet of each Boiler. The contaminant groups included in the emission test program and the reference test methods used are summarized below:

Test Groups	Reference Method
Particulate and Metals	US EPA Method 29
$PM_{2.5}$/PM_{10} and Condensable Particulate	US EPA Methods 201A and 202
Semi-Volatile Organic Compounds	Environment Canada Method EPS 1/RM/2
Volatile Organic Compounds	US EPA SW-846 Method 0030
Aldehydes	CARB Method 430
Halides and Ammonia	US EPA Method 26A
Combustion Gases:	
Oxygen and Carbon Dioxide	Facility CEM
Carbon Monoxide	Facility CEM
Sulphur Dioxide	Facility CEM
Nitrogen Oxides	Facility CEM
Total Hydrocarbons	ORTECH per US EPA Method 25A

Schedule C of ECA No. 7306-8FDKNX lists in-stack limits for the emissions of various compounds. In-stack emissions limits are given for particulate matter, mercury, cadmium, lead, dioxins and furans and organic matter for comparison with the results from compliance source testing. In-stack emission limits are also given for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide calculated as the rolling arithmetic average of data measured by a CEMS.

Since relative accuracy and system bias testing performed in the Fall of 2015 demonstrated that the DYEC CEMS met the performance parameters detailed in Schedule F of the ECA, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide. Note the DYEC CEMS data for the six days when isokinetic testing was performed at each unit was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. A seventh day of testing was conducted at Boiler No. 2, however only three hours of single point sampling were conducted. Concentration data measured by ORTECH between April 19 and April 20, 2016 was used to assess against the total hydrocarbons (organic matter) in-stack emissions limit detailed in Schedule C of the ECA.

Consistent with the approach commonly required by the MOECC for compliance emission testing programs, the following results are conservative in the sense that when the analytical result is reported to be below the detection limit, the full detection limit is used to calculate emission data and is shown by a “<” symbol. Also, when one or both Boiler results are reported to be below the detection limit, the detection limit was used to conservatively estimate the total emission rate for the Main Stack.

The MOECC “Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality”, dated April 2012, provides a new framework for calculating dioxin and furan toxicity equivalent concentrations which includes emission data for 12 dioxin-like PCBs. The dioxins, furans and dioxin-like PCBs toxicity equivalent emission data was also calculated using half the detection limit for those compounds not detected. The half detection limit data was only used to assess against the dispersion modelling Point of Impingement limit. The toxicity equivalent concentrations calculated using the full detection limit, for those compounds less than the reportable detection limit, was used to assess against the in-stack limit detailed in Schedule C of the ECA.

The average results for the tests conducted at the Boiler No. 1 BH Outlet and Boiler No. 2 BH Outlet, along with the respective in-stack emission limits, are summarized in the following table:

Parameter	Limit	Boiler No. 1	Boiler No. 2	Combined Boilers
Power Output (MWh/day)*	-	-	-	378 (7)
Average Combustion Zone Temp. (°C)*	-	1216	1246	1231 (8)
Steam (tonnes/day)*	-	749	797	1546 (7)
MSW Combusted (tonnes/day)*	-	189	209	398 (7)
NOx Reagent Injection Rate (liters/day)*	-	644	1076	1720 (7)
Carbon Injection (kg/day)*	-	114	117	231 (7)
Lime Injection (kg/day)*	-	3801	4476	8277 (7)
Stack Temperature (°C)	-	142	140	141 (8)
Moisture Content (%)	-	16.1	15.6	15.9 (8)
Velocity (m/s)	-	16.7	17.3	-
Static Pressure (kPa)	-	-2.76	-2.47	-2.62 (8)
Absolute Pressure (kPa)	-	97.9	98.1	98.0 (8)
Actual Flowrate (m^3/s)	-	24.7	25.6	-
Dry Reference Flowrate (Rm^3/s) (1)	-	14.4	15.1	29.5 (7)
Oxygen (%)*	-	7.38	8.17	7.78 (8)
Carbon Dioxide (%)*	-	11.8	11.3	11.6 (8)
Particulate (mg/Rm^3) (2)	9	<0.62	<0.48	<0.55 (8)
Mercury ($\mu g/Rm^3$) (2)	15	0.44	0.27	0.36 (8)
Cadmium ($\mu g/Rm^3$) (2)	7	<0.043	<0.043	<0.043 (8)
Lead ($\mu g/Rm^3$) (2)	50	0.27	0.22	0.25 (8)
Dioxins and Furans (pg TEQ/Rm^3) (3)	60	<818	<12.1	<415 (8)
Hydrochloric Acid (mg/Rm^3) (4)*	9	5.6	5.4	5.5 (8)
Sulphur Dioxide (mg/Rm^3) (4)*	35	0.2	0	0.1 (8)
Nitrogen Oxides (mg/Rm^3) (4)*	121	111	111	111 (8)
Total Hydrocarbons (ppm, dry) (5)	50	0.8	0.9	0.9 (8)
Carbon Monoxide (mg/Rm^3) (6)*	40	22.5	29.8	26.2 (8)

* based on process data or CEM data provided by Covanta
(1) dry at 25°C and 1 atmosphere
(2) dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
(3) calculated using the NATO/CCMS (1989) toxicity equivalence factors and the full detection limit for those isomers below the analytical detection limit, dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
(4) maximum calculated rolling arithmetic average of 24 hours of data measured by the DYEC CEMS, dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
(5) average of six half-hour tests conducted by ORTECH between April 19 and April 20, 2016 measured at an undiluted location, reported on a dry basis expressed as equivalent methane
(6) maximum calculated rolling arithmetic average of 4 hours of data measured by the DYEC CEMS, dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
(7) total for combined Boilers
(8) average for combined Boilers

The emission data measured at each Boiler BH Outlet during the testing program was combined and used to assess the emissions from the Main Stack against the point of impingement criteria detailed in Ontario Regulation 419/05.

The CALPUFF dispersion modelling results for the May 2016 emission testing program are provided in the following tables based on calculated ground level point of impingement concentrations for the average total Main Stack emissions. As shown in the following tables, the calculated impingement concentrations were well below the allowable impingement concentrations for all of the contaminants. The point of impingement concentration was less than 26.4% of the standard, guideline or upper risk threshold limit provided in Ontario Regulation 419/05 for each contaminant.

A scenario provided in the DYEC Emission Summary and Dispersion Modelling (ESDM) Report includes emissions from silo loading and the standby generator (Scenario H). The predominant contaminants from these sources are particulate from the silo loading and nitrogen oxides from the generator. These two contaminants were assessed and it was determined that, since the Main Stack emissions presented in this report are less than those in the ESDM Report, dispersion modelling would show a decrease in the point of impingement concentration for these two contaminants. As a result, additional dispersion modelling for Scenario H was not conducted.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for
Inorganic Compounds

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate	Boiler No. 2 BH Outlet Average Emission Rate	Total Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour			1.00 g/s	1.29 μg/m^3			
Base Case - 1 hour			1.00 g/s	25.1 μg/m^3			
Base Case - 1/2 hour			1.00 g/s	30.1 μg/m^3			
Base Case - 30 day			1.00 g/s	0.117 μg/m^3			
Filterable Particulate Matter	<12.1 mg/s	<9.23 mg/s	<21.3 mg/s	0.028 μg/m^3	120 μg/m^3	0.023	S
Hydrogen Chloride *	77.9 mg/s	77.5 mg/s	155 mg/s	0.20 μg/m^3	20 μg/m^3	1.00	S
Hydrogen Fluoride	<2.49 mg/s	<2.54 mg/s	<5.03 mg/s	0.0065 μg/m^3	0.86 μg/m^3	0.75	S
Hydrogen Fluoride	<2.49 mg/s	<2.54 mg/s	<5.03 mg/s	0.00059 μg/m^3	0.34 μg/m^3	0.17	S - 30 day
Ammonia	6.07 mg/s	42.8 mg/s	48.9 mg/s	0.063 μg/m^3	100 μg/m^3	0.063	S
Sulphur Dioxide **	0 g/s	0 g/s	0 g/s	0 μg/m^3	275 μg/m^3	<0.0001	S
Sulphur Dioxide **	0 g/s	0 g/s	0 g/s	0 μg/m^3	690 μg/m^3	<0.0001	S - 1 hour
Nitrogen Oxides **	2.12 g/s	2.08 g/s	4.20 g/s	5.42 μg/m^3	200 μg/m^3	2.71	S
Nitrogen Oxides **	2.12 g/s	2.08 g/s	4.20 g/s	105 μg/m^3	400 μg/m^3	26.4	S - 1 hour
Carbon Monoxide **	0.29 g/s	0.33 g/s	0.62 g/s	18.6 μg/m^3	6000 μg/m^3	0.31	S - 1/2 hour

S - Standard
G - Guideline
URT - Upper Risk Threshold
* Measured by ORTECH using the acid gases test train.
** Emission data calculated using the CEM data measured by DYEC and the volumetric flowrates measured by ORTECH between May 2-4 and May 9-11, 2016.
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for Semi-Volatile Organic Compounds

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate	Boiler No. 2 BH Outlet Average Emission Rate	Total Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour			1.00 g/s	1.29 μg/m^3			
Base Case - 1 hour			1.00 g/s	25.1 μg/m^3			
Dioxins, Furans and Dioxin-Like PCBs (TEQ)*	14.5 ng TEQ/s	0.22 ng TEQ/s	14.7 ng TEQ/s	0.019 pg TEQ/m^3	1 pg TEQ/m^3	1.90	URT
Naphthalene	<1.25 μg/s	<1.25 μg/s	<2.50 μg/s	0.0000032 μg/m^3	22.5 μg/m^3	<0.0001	G
Biphenyl	<1.25 μg/s	<1.25 μg/s	<2.50 μg/s	0.000063 μg/m^3	60 μg/m^3	0.00010	G - 1 hour
Benzo (a) pyrene	<0.63 μg/s	<0.62 μg/s	<1.25 μg/s	0.0000016 μg/m^3	0.0011 μg/m^3	0.15	G
1,2-Dichlorobenzene	<0.63 μg/s	<0.62 μg/s	<1.25 μg/s	0.000031 μg/m^3	30500 μg/m^3	<0.0001	G - 1 hour
1,4-Dichlorobenzene	<0.63 μg/s	<0.62 μg/s	<1.25 μg/s	0.0000016 μg/m^3	95 μg/m^3	<0.0001	S
1,2,4-Trichlorobenzene	<0.63 μg/s	<0.62 μg/s	<1.25 μg/s	0.0000016 μg/m^3	400 μg/m^3	<0.0001	G
Pentachlorophenol	1.17 μg/s	0.84 μg/s	2.01 μg/s	0.0000026 μg/m^3	20 μg/m^3	<0.0001	G

S - Standard
G - Guideline
URT - Upper Risk Threshold

* Calculated using the WHO (O. Reg. 419/05) toxicity equivalence factors and half the detection limit for those isomers not detected in quantities greater than the reportable detection limit.
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for
Metals

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate		Boiler No. 2 BH Outlet Average Emission Rate		Total Average Emission Rate		Calculated Impingement Concentration		Allowable Impingement Concentration		Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour					1.00	g/s	1.29	µg/m³				
Antimony	<0.0033	mg/s	<0.0034	mg/s	<0.0067	mg/s	0.0000086	µg/m³	25	µg/m³	<0.0001	S
Arsenic	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.3	µg/m³	0.00072	G
Barium (as water soluble)	0.031	mg/s	0.028	mg/s	0.059	mg/s	0.000077	µg/m³	10	µg/m³	0.00077	G
Beryllium	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.01	µg/m³	0.022	S
Cadmium	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.025	µg/m³	0.0086	S
Chromium	0.063	mg/s	0.037	mg/s	0.099	mg/s	0.00013	µg/m³	1.5	µg/m³	0.0086	G
Cobalt	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.1	µg/m³	0.0022	G
Copper	0.030	mg/s	0.032	mg/s	0.062	mg/s	0.000080	µg/m³	50	µg/m³	0.00016	S
Lead	0.0052	mg/s	0.0043	mg/s	0.0094	mg/s	0.000012	µg/m³	0.5	µg/m³	0.0024	S
Manganese (as compounds)	0.024	mg/s	0.022	mg/s	0.045	mg/s	0.000058	µg/m³	2.5	µg/m³	0.0023	G
Mercury	0.0086	mg/s	0.0052	mg/s	0.014	mg/s	0.000018	µg/m³	2	µg/m³	0.00089	S
Molybdenum	0.15	mg/s	0.19	mg/s	0.34	mg/s	0.00044	µg/m³	120	µg/m³	0.00037	G
Nickel	0.067	mg/s	0.081	mg/s	0.15	mg/s	0.00019	µg/m³	2	µg/m³	0.0095	S
Selenium	<0.0038	mg/s	<0.0055	mg/s	<0.0093	mg/s	0.000012	µg/m³	10	µg/m³	0.00012	G
Silver	<0.0017	mg/s	<0.0017	mg/s	<0.0033	mg/s	0.0000043	µg/m³	1	µg/m³	0.00043	S
Vanadium	<0.00063	mg/s	<0.00063	mg/s	<0.0013	mg/s	0.0000016	µg/m³	2	µg/m³	<0.0001	S
Zinc	0.038	mg/s	0.014	mg/s	0.053	mg/s	0.000068	µg/m³	120	µg/m³	<0.0001	S

S - Standard
G - Guideline
URT - Upper Risk Threshold
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for
Volatile Organic Compounds

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate	Boiler No. 2 BH Outlet Average Emission Rate	Total Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour			1.00 g/s	1.29 µg/m³			
Base Case - 1 hour			1.00 g/s	25.1 µg/m³			
Acetone	0.045 mg/s	0.098 mg/s	0.14 mg/s	0.00018 µg/m³	11880 µg/m³	<0.0001	S
Benzene	0.026 mg/s	0.020 mg/s	0.046 mg/s	0.000059 µg/m³	100 µg/m³	<0.0001	URT
Bromoform	<0.0096 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	55 µg/m³	<0.0001	G
Bromomethane	<0.010 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	1350 µg/m³	<0.0001	G
1,3-Butadiene	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	300 µg/m³	<0.0001	URT
2-Butanone	<0.025 mg/s	<0.028 mg/s	<0.053 mg/s	0.000068 µg/m³	1000 µg/m³	<0.0001	S
Carbon Tetrachloride	<0.011 mg/s	<0.012 mg/s	<0.023 mg/s	0.000030 µg/m³	2.4 µg/m³	0.0012	S
Chloroform	0.026 mg/s	0.020 mg/s	0.046 mg/s	0.000059 µg/m³	1 µg/m³	0.0059	S
Cumene (Isopropylbenzene)	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	400 µg/m³	<0.0001	S
Dichlorodifluoromethane	<0.024 mg/s	<0.017 mg/s	<0.041 mg/s	0.000053 µg/m³	500000 µg/m³	<0.0001	G
trans,1,2-Dichloroethene	<0.0068 mg/s	<0.0077 mg/s	<0.015 mg/s	0.000019 µg/m³	105 µg/m³	<0.0001	G
Ethylbenzene	<0.0096 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	1000 µg/m³	<0.0001	S
Ethylene Dibromide	<0.0068 mg/s	<0.0077 mg/s	<0.015 mg/s	0.000019 µg/m³	3 µg/m³	0.00062	G
Mesitylene (1,3,5-Trimethylbenzene)	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	220 µg/m³	<0.0001	S
Methylene Chloride	<0.019 mg/s	<0.016 mg/s	<0.035 mg/s	0.000045 µg/m³	220 µg/m³	<0.0001	G
Styrene	<0.0082 mg/s	<0.0094 mg/s	<0.018 mg/s	0.000023 µg/m³	400 µg/m³	<0.0001	S
Tetrachloroethene	<0.012 mg/s	<0.020 mg/s	<0.032 mg/s	0.000041 µg/m³	360 µg/m³	<0.0001	S
Toluene	0.029 mg/s	0.047 mg/s	0.076 mg/s	0.000098 µg/m³	2000 µg/m³	<0.0001	G
1,1,1-Trichloroethane	<0.0096 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	115000 µg/m³	<0.0001	S
Trichloroethene	<0.0075 mg/s	<0.0084 mg/s	<0.016 mg/s	0.000021 µg/m³	12 µg/m³	0.00017	S
Trichlorotrifluoroethane	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	800000 µg/m³	<0.0001	S
Trichlorofluoromethane	<0.0071 mg/s	<0.0077 mg/s	<0.015 mg/s	0.000019 µg/m³	6000 µg/m³	<0.0001	G
Total Xylenes	<0.020 mg/s	<0.023 mg/s	<0.043 mg/s	0.000055 µg/m³	730 µg/m³	<0.0001	S
Vinyl Chloride	<0.0089 mg/s	<0.010 mg/s	<0.019 mg/s	0.000024 µg/m³	1 µg/m³	0.0024	S
Acetaldehyde	<0.92 mg/s	<1.03 mg/s	<1.95 mg/s	0.0025 µg/m³	500 µg/m³	0.00050	S
Formaldehyde	0.81 mg/s	<0.41 mg/s	<1.22 mg/s	0.0016 µg/m³	65 µg/m³	0.0024	S
Acrolein	<0.92 mg/s	<1.03 mg/s	<1.95 mg/s	0.0025 µg/m³	0.4 µg/m³	0.63	S
Acrolein	<0.92 mg/s	<1.03 mg/s	<1.95 mg/s	0.049 µg/m³	4.5 µg/m³	1.09	S - 1 hour

S - Standard
G - Guideline
URT - Upper Risk Threshold
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

In summary, the key results of the emission testing program are:

- The facility was maintained within the operational parameters defined by the amended ECA that constitutes normal operation during the stack test periods. Testing was conducted at a steam production rate of greater than 1623 tonnes of steam per day for the two Boilers combined, with the exception of May 5, 2016. On May 5, 2016 feed was stopped at Boiler No. 1 at 13:28 however no testing was conducted on Boiler No. 1 on May 5. The maximum continuous rating for the facility is 1614.7 tonnes of steam per day for the two Boilers combined (33.64 tonnes of steam per hour for each Boiler).

- The in-stack concentrations of the components listed in the ECA were all below the concentration limits provided in the ECA with the exception of dioxins and furans measured at the Baghouse Outlet of Boiler No. 1.

- Using CALPUFF dispersion modelling techniques, the predicted maximum point of impingement concentrations, based on the average test results for both boilers, show DYEC to be operating well below the standards in Regulation 419/05 (Schedule 3) under the Ontario Environmental Protection Act and other MOECC criteria including guidelines, upper risk thresholds and "to be updated" guidelines.

Tables referenced in this report for the tests conducted at Boiler No. 1 BH Outlet and Boiler No. 2 BH Outlet are provided in Appendix 1 and Appendix 2, respectively.

1. INTRODUCTION

ORTECH Consulting Inc. (ORTECH) completed an emission testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between May 2 and May 11, 2016. The emission testing program was performed to satisfy the agreement the facility has with the Regions of Durham and York to conduct emission testing twice per year.

Ontario Ministry of the Environment and Climate Change (MOECC) Amended Environmental Compliance Approval (ECA) No. 7306-8FDKNX Section 7(1) states that “the owner shall perform annual source testing, in accordance with the procedures and schedule outlined in the attached Schedule E, to determine the rates of emissions of the test contaminants from the stack. The program shall be conducted not later than six months after the commencement date of operation of the facility/equipment and subsequent source testing programs shall be conducted once every calendar year thereafter.” The initial source testing program under Amended ECA No. 7306-8FDKNX was conducted in September/October 2015.

Source testing was performed on the Baghouse (BH) Outlet of Boiler No. 1 and BH Outlet of Boiler No. 2 for the test contaminants listed in Schedule D of the ECA.

The triplicate emission tests were conducted at each location between May 2 and May 11, 2016.

2. PROCESS DESCRIPTION

DYEC is a thermal treatment facility with a maximum thermal treatment rate of 140,000 tonnes/year of municipal solid waste (MSW), as established by the Amended ECA. The maximum continuous rating (MCR) for the facility is defined as 218 tonnes per day, per unit, of MSW with a heat content of 13 MJ/kg per train. The steam production MCR is 33.64 tonnes per hour for each Boiler.

The facility was built to operate on a continuous basis; 24 hours/day, seven days/weeks, 365 days/year. Waste may be delivered six days per week between 7:00 am to 7:00 pm. The proposed operating schedule may be adjusted depending on demand and facility needs within the established setup indicated in the ECA (i.e., waste can only be received from Monday to Saturday – excluding statutory holidays, and between 7:00 am and 7:00 pm – ECA’s Condition 4(1)(b)).

MSW arrives at the facility via covered refuse trucks and is deposited in a storage pit within the receiving building. Facility operators manage MSW by moving and mixing MSW within the storage pit with the overhead grapple cranes. The MSW is lifted from the pit by crane and fed into the fuel hopper for each thermal treatment train.

The facility consists of two thermal treatment trains, each equipped with independently operated boilers/furnaces and air pollution control equipment. The treated exhaust gases are vented to a common 87.6 m stack and released to atmosphere.

2.1 Control Equipment

Flue gasses pass through a dry recirculating type scrubber for acid control and a fabric filter for particulate control. A Selective Non-Catalytic Reduction System (SNCR) with ammonia injection is used for NO_X control. Powdered carbon is injected for mercury, and dioxin and furan control between the dry recirculating type scrubber and the fabric filter.

2.2 Continuous Emission Monitoring Systems

Continuous Emissions Monitors are installed in the vertical ductwork between the economizer and dry recirculating type scrubber (location referred to as the Scrubber Inlet), and in the vertical ductwork between the fabric filter and the ID fan (location referred to as the BH Outlet).

A summary of the CEMS installed at each location is provided below:

Unit	Location	Analyzer Manufacturer	Model No.	Serial No.	Parameter	Range
1	Scrubber Inlet	Environmental SA	MIR 9000	2684	CO (Low)	0-500 ppm
					CO (High)	0-2000 ppm
					HCl	0-1500 ppm
					O_2 (Dry)	0-25%
		Ametek	RM CEM O_2/IQ	10217710-2	O_2 (Wet)	0-25%
1	BH Outlet	Environmental SA	MIR 9000	2686	NO_X	0-500 ppm
					SO_2	0-200 ppm
					HCl	0-100 ppm
					HF	0-100 ppm
					O_2 (Dry)	0-25%
					CO_2	0-25%
		Ametek	RM CEM O_2/IQ	10217710-1	O_2 (Wet)	0-25%
		Tethys	EXM400	F130304	NH_3	0-50 ppm
		OSI	OFS-2000W	13020629	Flow	0-40 m/s
		Teledyne	Light Hawk 560	5602492	Opacity	0-100%
		Environmental SA	Graphite 52M	647	THC	0-100 ppm
		Environmental SA	Amesa	1825-269	Dioxin/Furan	0-10 ng/m^3
2	Scrubber Inlet	Environmental SA	MIR 9000	2685	CO (Low)	0-500 ppm
					CO (High)	0-2000 ppm
					HCl	0-1500 ppm
					O_2 (Dry)	0-25%
		Ametek	RM CEM O2/IQ	10218084-1	O_2 (Wet)	0-25%
2	BH Outlet	Environmental SA	MIR 9000	2687	NO_X	0-500 ppm
					SO_2	0-200 ppm
					HCl	0-100 ppm
					HF	0-100 ppm
					O_2 (Dry)	0-25%
					CO_2	0-25%
		Ametek	RM CEM O2/IQ	10218084-2	O_2 (Wet)	0-25%
		Tethys	EXM400	F130303	NH_3	0-50 ppm
		OSI	OFS-2000W	13020633	Flow	0-40 m/s
		Teledyne	Light Hawk 560	5602493	Opacity	0-100%
		Environmental SA	Graphite 52M	648	THC	0-100 ppm
		Environmental SA	Amesa	1825-284	Dioxin/Furan	0-10 ng/m^3

3. SAMPLING LOCATIONS

The BH Outlet sampling ports are located on the vertical circular ductwork between the baghouse outlet and the ID Fan inlet. There are two 6-inch ports, located 90 degrees apart, at the same elevation. A third port is located approximately 0.6 meters above the two sampling ports and 45 degrees apart. The two 6-inch sampling ports were used for isokinetic sampling; the third port was used for non-isokinetic sampling.

The BH Outlet duct has an inside diameter of 1.37 meters (54 inches) at the sampling ports. The two six inch ports are approximately 4.4 duct diameters (6.1 meters) downstream and 0.68 duct diameters (0.94 meters) upstream from the nearest flow disturbances.

The sampling ports are located at a "non-ideal" location as defined by the Ontario Source Testing Code. An "ideal" location is defined as being at least eight stack diameters downstream and at least two stack diameters upstream of flow disturbances.

Cyclonic flow checks were performed by ORTECH at the BH Outlet and Scrubber Inlet sampling locations on each Boiler on September 22, 2015. The cyclonic flow checks were performed using an S-type pitot tube and manometer following the procedures detailed in Ontario Source Testing Code Method 1. Briefly, the pitot tube was positioned at each sampling point so that the planes of the face openings were parallel to the cross-sectional axis of the duct. The pitot tube was then rotated about its longitudinal axis until the manometer reading was zero. The absolute value of the rotational angle was recorded to the nearest degree at each point. The average of the recorded angles was calculated at each location. If the average angle is less than 15°, cyclonic flow is not present and sampling may proceed as normal.

The results for the cyclonic flow checks are summarized below:

Sampling Location	Performance Specification	Average Angle (°)	Cyclonic Flow Present
Boiler No. 1 Scrubber Inlet	Average <15°	6.6	No
Boiler No. 2 Scrubber Inlet	Average <15°	8.4	No
Boiler No. 1 BH Outlet	Average <15°	8.8	No
Boiler No. 2 BH Outlet	Average <15°	8.1	No

In addition, reverse flow was not observed at any point at any of the four sample locations during the cyclonic flow checks or during any test.

4. SAMPLING PROCEDURES

4.1 General

This section outlines the sampling procedures as well as pre-test and on site internal quality assurance/quality control (QA/QC) procedures which were utilized in the testing program. The procedures described in this section ensured that representative samples were collected and that the integrity of the collected samples was maintained. The use of these sampling procedures significantly reduced the possibility of sample contamination from external sources. Sample handling and documentation requirements were key factors in this program.

The triplicate emission tests were conducted at the Boiler No. 1 BH Outlet and the Boiler No. 2 BH Outlet from May 2 to May 11, 2016 for each contaminant group. The contaminant groups included in the emission test program and the reference test methods used are summarized below:

Test Groups	Reference Method
Particulate and Metals	US EPA Method 29
$PM_{2.5}$/PM_{10} and Condensable Particulate	US EPA Methods 201A and 202
Semi-Volatile Organic Compounds	Environment Canada Method EPS 1/RM/2
Volatile Organic Compounds	US EPA SW-846 Method 0030
Aldehydes	CARB Method 430
Halides and Ammonia	US EPA Method 26A
Combustion Gases:	
Oxygen and Carbon Dioxide	Facility CEM
Carbon Monoxide	Facility CEM
Sulphur Dioxide	Facility CEM
Nitrogen Oxides	Facility CEM
Total Hydrocarbons	ORTECH per US EPA Method 25A

Since relative accuracy and system bias testing performed in the Fall of 2015 demonstrated that the DYEC CEMS met the performance parameters detailed in Schedule F of the ECA, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide. Total hydrocarbon concentrations measured by ORTECH at Boiler No. 1 BH Outlet on April 20, 2016 and Boiler No. 2 BH Outlet on April 19, 2016 following US EPA Method 25A are also included in the report. The total hydrocarbon data measured by ORTECH was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA.

4.2 Particulate and Metals

Particulate and metals were sampled using the sampling procedures outlined in US EPA Method 29. Major components of the sampling train were as follows:

- A glass nozzle and probe liner assembly
- A quartz fiber filter with a low metal background
- The first impinger was initially empty to collect moisture
- The second and third impingers initially contained 100 mL each of 5% nitric acid/10% hydrogen peroxide solution to collect metals
- The fourth impinger was initially empty
- The fifth and sixth impingers initially contained 100 mL each of 4% potassium permanganate/10% sulphuric acid solution to collect mercury
- The seventh impinger contained silica gel

Each test for particulate matter and metals involved the collection of stack gas sampled isokinetically at twelve points centered on equal areas along each of two traverses (at 90° to each other) of the duct. Each of the twenty-four points was sampled for 7.5 minutes for a total actual sampling time of one hundred and eighty minutes.

At 2.5 minute time increments throughout each test the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

The particulate and metals field data sheets are provided in Appendix 3.

At the start and finish of sampling each traverse the sampling train was leak-checked. A valid leak-check as specified by the sampling method is a leakage rate of less than 0.00057 cubic meters per minute (m^3/min) or 4% of the estimated sampling rate, whichever is less. All of the leak-checks, as detailed on the field data sheets, were acceptable.

A blank train was prepared and samples recovered in a manner identical to the test sampling trains for each Boiler.

4.3 Particle Size Distribution

Particle Size Distribution (PSD) tests were performed at each of the sample locations in accordance with the test procedures described in US EPA Method 201A using PM_{10} and $PM_{2.5}$ combined cyclone heads and US EPA Method 202. Sampling was conducted for approximately one hundred and twenty minutes at six points across each traverse of the duct using isokinetic dwell time sampling. At approximately ten minute time increments throughout each test the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the PSD tests performed at each sample location are provided collectively in Appendix 4.

A blank train was prepared and samples recovered in a manner identical to the test sampling trains for each Boiler.

4.4 Semi-Volatile Organic Compounds

Semi-volatile organic compounds (SVOC), including dioxins and furans, polychlorinated biphenyls (PCBs), chlorobenzenes (CBs), chlorophenols (CPs) and polycyclic aromatic hydrocarbons (PAHs) were sampled using the sampling train and sampling procedures outlined in Environment Canada Report EPS 1/RM/2. Major components of the sampling train were as follows:

- A glass nozzle and probe liner assembly
- A clean and proven glass fiber filter was used
- Amberlite XAD-2 sorbent resin was used in a trap to collect semi-volatile organics
- The first impinger was initially empty
- The second impinger contained 100 mL of ethylene glycol
- The third impinger was initially empty
- The fourth impinger contained silica gel

All test train and auxiliary glassware were cleaned according to the methods as outlined in Environment Canada EPS 1/RM/2 except that the methods were modified by combining proofing extracts prior to analysis for the target analytes.

Each test for semi-volatile organic compounds involved the collection of stack gas sampled isokinetically at twelve points centered on equal areas along each of two traverses (at 90° to each other) of the duct. Each of the twenty-four points was sampled for fifteen minutes for a total actual sampling time of three hundred and sixty minutes.

At five minute time increments throughout each test the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger outlet temperatures
- XAD-2 trap outlet temperature
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the SVOC tests are provided in Appendix 5.

At the start and finish of sampling each traverse the sampling train was leak-checked. A valid leak-check as specified by the sampling method is a leakage rate of less than 0.00057 m^3/min or 4% of the estimated average sampling rate, whichever is less. All of the leak-checks for the tests reported, as detailed on the field data sheets, were acceptable.

A blank train was prepared in a manner identical to the test trains for each Boiler. It was assembled, transported and left at the sampling site for a period of time equal to the test trains. The blank train was treated at the sampling site in the same manner as the test trains and a gas volume was drawn through the blank train approximately equal to the leak-check volume for the test trains.

4.5 Acid Gases

Hydrogen fluoride, hydrogen chloride and ammonia were sampled together using the sampling train and sampling procedures outlined in US EPA Method 26A. Major components of the test train were as follows:

- A glass nozzle and probe liner assembly
- The first and second impingers contained 100 ml of 0.1N H_2SO_4
- The third impinger was initially empty
- The fourth impinger contained silica gel

Each test for acid gases involved the collection of stack gas sampled isokinetically at a single point in the duct for sixty minutes. Since the test train was not being used to sample for particulate matter, the MOECC verbally approved the use of single point sampling prior to the start of the acid gas tests.

At five minute time increments throughout each test the following information was measured and recorded on field data sheets:

- Elapsed sampling time
- Dry gas meter volume
- Pitot tube pressure
- Stack gas temperature
- Probe, oven and impinger temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the acid gases tests are provided in Appendix 6.

At the start and finish of each test the sampling train was leak-checked. A valid leak-check as specified by the sampling method is a leakage rate of less than 0.00057 m^3/min or 4% of the estimated average sampling rate, whichever is less.

A blank train was prepared and samples recovered in a manner identical to the test sampling trains for each Boiler.

4.6 Volatile Organic Compounds

Volatile Organic Compound (VOC) sampling was performed in accordance with US EPA SW-846 Method 0030. Briefly, the sampling method involved withdrawing a sample of the stack gas through a heated glass lined sampling probe containing a glass wool plug to remove particulate material. The sample was then passed through a water cooled condenser and a Tenax GC adsorbent tube, as the primary volatile organic collection device. Condensate was collected in an initial condensate trap and the sample was then drawn through a second condenser and a combined secondary Tenax GC/charcoal adsorbent tube, as the secondary volatile organic collection device. The sampled gas stream then passed through a silica gel trap to remove any remaining traces of moisture prior to the rotameter, pump and dry gas meter.

During each test, three twenty minute runs were completed at an approximate flowrate of 1 L/min. A fourth run was also conducted during each test and the tube pair was archived in case a sample was lost during desorption or analysis. Analyses from the three runs performed were combined and used to calculate test average results.

At five minute time increments throughout sampling each pair of tubes, the following information was measured and recorded:

- Elapsed sampling time
- Dry gas meter volume
- Stack gas temperature
- Probe and first condenser outlet temperatures
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

The sampling train components were cleaned using the procedures in US EPA SW-846 Method 0030, Volatile Organic Sampling Train (VOST).

Field data sheets for the VOST tests are provided in Appendix 7.

Blank tube samples analyzed for the program included three pairs of field blank tubes, a trip blank pair of tubes and one laboratory blank pair of tubes.

4.7 Aldehydes

Some of the compounds listed as VOC's (acetaldehyde, formaldehyde and acrolein) are more commonly classified as aldehydes. These compounds were captured in a separate test train in accordance with CARB Method 430.

Major components of the test train were as follows:

- A glass probe liner assembly was used.
- The first and second impingers contained approximately 10 ml of 0.05% 2,4-dinitrophenylhydrazine (DNPH) in 2N HCl
- The third impinger was initially empty
- The fourth impinger contained silica gel

A single test for aldehydes involved the collection of gas sampled at a single point in the duct at a sampling flowrate of approximately 0.5 liters per minute for sixty minutes.

At five minute time increments throughout each test, the following information was measured and recorded for the train:

- Elapsed sampling time
- Dry gas meter volume
- Stack gas temperature
- Probe, oven and impinger outlet temperatures
- Dry gas meter temperature
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the aldehyde tests are provided in Appendix 8.

4.8 Combustion Gases

In September 2015 relative accuracy and system bias testing was conducted on the Continuous Emission Monitoring Systems (CEMS) installed at the Scrubber Inlet and BH Outlet of each Boiler. Relative accuracy and system bias testing was conducted again for the THC analyzers in April 2016 as the analyzers were moved from the Scrubber Inlet to the BH Outlet sample location. The DYEC CEMS met the performance parameters detailed in Schedule F of the ECA. Therefore, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide.

Combustion gases, including carbon dioxide, carbon monoxide, hydrogen chloride, nitrogen oxides, oxygen, sulphur dioxide and total hydrocarbons, were measured continuously at the BH Outlet during the emission testing program by the DYEC CEMs. Oxygen was also measured continuously by the DYEC CEMS at the Scrubber Inlet.

DYEC provided 1-hour average concentrations for each clock hour using the 1-minute combustion gas data measured by the DYEC CEMs from May 2 to May 11, 2016. The data provided was adjusted to 11% oxygen using the oxygen measured by the CEMs for each clock hour. A 24-hour rolling average was determined for hydrogen chloride, nitrogen oxides and sulphur dioxide using the calculated 1-hour average data to compare to the in-stack emission limits stated in the ECA. A 4-hour rolling average was determined for carbon monoxide using the calculated 1-hour average data to compare to the in-stack emission limit stated in the ECA.

Total hydrocarbon concentrations measured by ORTECH at Boiler No. 1 BH Outlet on April 20, 2016 and Boiler No. 2 BH Outlet on April 19, 2016 following US EPA Method 25A are also included in the report. The total hydrocarbon data measured by ORTECH was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA.

5. SAMPLE RECOVERY AND ANALYSIS

All sample analysis was performed by Maxxam (Mississauga location). Copies of Sample Logs/Chain of Custody Forms for all samples submitted for chemical analysis are provided in Appendix 9.

5.1 Particulate and Metals

Before loading of the field test trains commenced, recovery data sheets were prepared to record initial weights of the test train components. These sheets were also used during sample recovery to record final weights and determine moisture gains and sample volumes. The particulate and metals train recovery data sheets are provided in Appendix 10.

Following the conclusion of each test performed with the metals train, the probe was disconnected and all openings sealed with Teflon tape. The test trains, including the probes, were taken to the on-site ORTECH mobile laboratory for sample recovery. The train recovery procedure is briefly described as follows.

The test trains were visually inspected to ensure that no damage occurred during transportation. The condition of the test train was noted. Filter and impinger content colors were recorded. The filter housing was disassembled and the filter carefully transferred to its pre-test petri dish with the use of Teflon coated tweezers.

All the impingers were wiped dry on the outside then weighed and the results used to determine the stack gas moisture content.

The front half of the sampling train was brushed and rinsed thoroughly with acetone. A nylon bristle probe brush was used to assist in dislodging particulate material which may have adhered to the inside surfaces of the nozzle and probe assembly. The front half was then rinsed in triplicate using 0.1 N nitric acid but no brushing was performed.

The contents of the first four impingers were combined. Triplicate rinses of the impingers and connecting glassware back to and including the Teflon filter support was performed with 0.1 N nitric acid and combined with the impinger solution sample.

The contents of the fifth and sixth impingers were combined. The impingers with connecting glassware were then rinsed in triplicate with approximately 100 mL of fresh potassium permanganate solution followed by a triplicate rinse with 100 mL of distilled, de-ionized water. All of the glassware rinses were added to the sample container.

Any brown residue which was present in the fifth and sixth impingers was removed by incrementally rinsing with small amounts of 8 N hydrochloric acid. These acid rinses were added to a separate sample bottle which initially contained 150 mL of distilled, de-ionized water. The impingers were then rinsed with distilled, de-ionized water into the same sample container.

Each sample container was sealed, labeled and the fluid level marked (where appropriate) once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were delivered to the analytical laboratory for analysis.

The test samples were prepared and analyzed for metals according to EPA Method 29 (modified). It should be noted that the metals sampling and analysis procedures (US EPA Method 29) are validated for only 17 metals including Sb, As, Ba, Be, Cd, Co, Cr, Cu, Pb, Mn, Hg, Ni, P, Se, Ag, Tl and Zn. However, the method was used for all metals included in the program.

The inorganic analytical report is provided in Appendix 11.

5.2 Particle Size Distribution

Prior to loading the field test trains, recovery data sheets were prepared to record initial weights of the test train components. These sheets were also used during sample recovery to record final weights and determine moisture gains and sample volumes. The train recovery data sheets are provided in Appendix 12.

The particle size distribution (PSD) samples were recovered in much the same way as the particulate samples from the particulate and metals train Following the conclusion of each test performed with the PSD trains, the probe was disconnected and all openings sealed with Teflon tape. The sample recoveries were performed in the on-site ORTECH sample recovery trailer.

The test trains were visually inspected to ensure that no damage during movement had occurred. The recovery procedure is briefly described as follows.

The condition of the test train was noted and the filter and impinger colours were recorded. The nozzle, PM_{10} cyclone walls, collection cup and outside of the exit stem was brushed and rinsed thoroughly with acetone into a glass sample container to determine particulate greater than PM_{10}. The PM_{10} cup and connecting parts were rinsed with acetone in a glass sample container to determine particulate less than PM_{10} but greater than $PM_{2.5}$. The $PM_{2.5}$ cup and connecting parts up to the back-up filter were rinsed with acetone in a glass sample container to determine particulate less than $PM_{2.5}$. The back-up filter was transferred to its original petri dish.

The impingers were wiped dry on the outside then weighed and the results used to determine the stack gas moisture content. The back half of the sampling train was then purged with nitrogen at 14 lpm for 1 hour as soon as possible after the completion of each test.

The back-half of the sampling train was recovered following the procedures detailed in US EPA Method 202 for condensable particulate. The contents of the first impinger were poured into a glass sample bottle and rinses of the impinger and connecting glassware were performed with water which was added to the sample. The glassware was then rinsed with acetone and the rinse was repeated in duplicate with hexane. The acetone and hexane rinses were combined into a single glass sample bottle.

Each sample container was sealed, labeled and the fluid level marked (where appropriate) once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were delivered to the analytical laboratory for analysis.

The particle size results are presented in the inorganic analytical report in Appendix 11 and the condensable particulate matter analytical report is provided in Appendix 13.

5.3 Semi-Volatile Organic Compounds

Prior to loading the field test trains, recovery data sheets were prepared to record initial weights of the test train components. These sheets were also used during sample recovery to record final weights and determine moisture gains and sample volumes. The train recovery data sheets are provided in Appendix 14.

Following the conclusion of each test performed with the semi-volatile organics train, the probe was disconnected and all openings sealed with Teflon tape. The test trains, including the probes, were taken to the on-site ORTECH mobile laboratory for sample recovery. The train recovery procedure is briefly described as follows.

The condition of the test train was noted. Filter, XAD-2 trap and impinger content colours were recorded. The filter housing was disassembled and the filter carefully transferred, with the use of Teflon coated tweezers, to a piece of pre-cleaned aluminum foil. The filter was then folded in half onto itself within the foil, the foil ends crimped, then placed in a pre-cleaned glass petri dish. Both the foil containing the filter and the glass Petri dish were labeled.

All of the impingers were wiped dry on the outside then weighed and the results used to determine the stack gas moisture content.

The front half of the sampling train, up to but not including the trap, was brushed and rinsed thoroughly with acetone. A Teflon probe brush was used to assist in dislodging particulate material that may have adhered to the inside surfaces of the cyclone bypass and filter top assembly. This front half rinse was then repeated using hexane, with no brushing, and all rinsing was combined with the probe rinse sample.

The XAD-2 trap was drained of excess cooling water and weighed. The ends were then sealed with Teflon tape and the trap was labeled and wrapped in aluminum foil.

The contents of the first three impingers were combined in a pre-cleaned amber glass sample bottle. Triplicate rinses of the impingers and connecting glassware back to and including the trap bottom u-tube were performed first with HPLC water, which was added to the impinger solution sample, and then with acetone followed by hexane. The acetone and hexane rinses were combined in a separate sample bottle from the impinger solutions.

Due to the design of ORTECH's glassware, the filter bottom, filter bottom u-tube and trap inlet stem were not soaked for five minutes in each of acetone and hexane. Instead, these pieces of glassware were given extra rinses with each of the solvents. Also, since ORTECH uses a one piece trap and condenser, the five minute soak of this component was performed by the analytical laboratory.

Each sample container was sealed and labeled once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form then refrigerated until they were delivered to Maxxam for analysis.

Semi-volatile organic analyses were performed on single composite extracts for each test according to EPS 1/RM/3 and EPS 1/RM/23. These methods were modified slightly to include other semi-volatile organic compounds following the Environment Canada NITEP/Mid-Connecticut combustion test procedures.

The SVOC analytical report is provided in Appendix 15.

5.4 Acid Gases

Following the conclusion of each test performed with the acid gas train, the probe was disconnected and all openings sealed with Teflon tape. The test trains were taken to the on-site ORTECH mobile laboratory for sample recovery. The train recovery procedure is briefly described as follows.

The test trains were visually inspected to ensure that no damage occurred during transportation. The condition of the test train was noted and the impinger content colors were recorded. All the impingers were wiped dry on the outside then weighed and the results used to determine the stack gas moisture content.

The contents of the first three impingers were combined. Triplicate rinses of the impingers and connecting glassware back to and including the Teflon filter support was performed with high purity water and combined with the impinger solution sample.

Each sample container was sealed, labeled and the fluid level marked (where appropriate) once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were transported to the laboratory for analysis.

Analysis for hydrogen fluoride, hydrogen chloride and ammonia was performed via ion chromatography.

Train recovery data sheets are provided in Appendix 16. The acid gases analytical results are presented the inorganic analytical report in Appendix 11.

5.5 Volatile Organics Train Recovery

Following the conclusion of each tube pair run performed with the volatile organic sampling train (VOST), the tubes were removed from the train, capped and placed in appropriately labeled test tubes which were also capped. The tubes were sent to Maxxam for volatile organic compound (VOC) analysis.

The VOST samples were analyzed via SW846 Method 5041A/8260B. Briefly, after spiking with internal and surrogate standards, the traps were thermally desorbed through a clam shell heater then through a chilled aqueous purge to remove the bulk of the moisture onto a secondary trap. These secondary traps are further dried using a counter current flow of helium. The secondary traps are then thermally desorbed into a VOC sample concentrator and again the VOCs are thermally transferred/concentrated onto a GC column. The VOC compounds are separated via gas chromatography (GC) and analyzed via GC/MS.

The condensate collected from each tube pair run was carefully transferred to a glass bottle and combined as a single sample for each sampling location. The condensate samples were archived for future analysis if necessary.

The VOST analytical report is provided in Appendix 17.

5.6 Aldehydes

Following the conclusion of each test performed with the Aldehyde Train the probe was disconnected and all openings were sealed with Teflon tape. The test train was then recovered on site in the ORTECH sample recovery trailer. The train recovery procedure is briefly described as follows.

The condition of the test train was noted. All the impingers were wiped dry and weighed. The contents of the impingers were transferred into a glass sample container. The probe and impingers were rinsed with a small amount of DNPH then rinsed with a small amount of high purity water into the same sample container.

Each sample container was sealed, labeled and the fluid level marked (where appropriate) once that portion of the recovery was completed. The samples were then checked against the master sample log/chain of custody form and refrigerated until they were transported to the laboratory for analysis.

Analysis for formaldehyde, acetaldehyde and acrolein was performed via LC/UV. The sample recovery data sheets are provided in Appendix 18 and the analytical results are presented in Appendix 19.

6. INTERNAL AND EXTERNAL QA/QC PROGRAM

6.1 General

As with other emission testing programs conducted by ORTECH, a comprehensive internal quality assurance/quality control (QA/QC) program was included.

Blank sampling trains were recovered and analyzed or reagent blanks were analyzed using the same procedures as the test trains to provide background concentrations of the emission test components.

6.2 Pre-Test Activities

Prior to the commencement of the emission testing program, the following activities were performed:

- Preparation, pre-cleaning and proofing of the manual stack sampling trains and sample containers.
- Preparation and quality checks of chemicals, reagents, filters and XAD-2 adsorbent resin.
- Calibration of all sampling and monitoring equipment.
- Development (and review) of data acquisition, data reduction and summary procedures.
- Development of internal QA/QC field data sheets.
- Review of equipment calibration logs.
- Review of proposed field and laboratory procedures.

All proving data for the Semi-Volatile Organics Train glassware and auxiliary equipment was deemed acceptable prior to the test program.

A combined proof rinse of all of the sampling probes used as part of the Semi-Volatile Organics Train was also submitted to the analytical laboratory for analysis. The proving data for the combined probe rinses was also acceptable.

For each batch of VOST tubes, a minimum of 1 pair in 10 was analyzed to demonstrate an absence of significant background contaminants from the tubes prior to the test program.

The proof data for the semi-volatile organics glassware, including the combined probe rinse, and VOST tubes is provided in Appendix 20.

All equipment used in the field testing program was calibrated and checked prior to the field testing program. Pertinent equipment calibration data is supplied in Appendix 21.

As part of ORTECH's internal QA/QC, data acquisition, data reduction and summary procedures were already in place and periodic spot checks of the computer programs were performed using known data sets.

6.3 Emission Testing QA/QC Results

Prior to the field testing program, preliminary testing was completed. Preliminary testing involved collecting data necessary to perform the required calculations for choosing a nozzle size to permit isokinetic sampling.

The internal diameter of each duct was measured and the appropriate number of sampling points was marked on each sampling probe.

The following general QA/QC criteria were satisfied for each of the test trains where applicable:

- All sampling equipment was cleaned and proven clean (where applicable) prior to the commencement of the field testing program.
- All sampling equipment passed a visual and operational check prior to use in the field.
- Oil filled manometer gauges which had been properly leveled and zeroed were used to measure the velocity pressure.
- All sampling data was recorded in ink on preformatted data sheets at least once every 5 minutes and at least twice during sampling each traverse point.
- Any unusual occurrences were noted during each test on the appropriate data form.
- The field team leader reviewed all calibration and sampling data forms daily.

- Only tapered edge sampling nozzles and S-type pitot tubes that had been visually inspected and caliper measured, and deemed acceptable, were used for sampling.
- Each leg of the S-type pitot was leak-checked before the start of testing. The leak-checks were all acceptable (no leak detected).
- Each entire sampling train met acceptable leak-check criteria before and after each test, and during any move from one sampling traverse to another. If a test did not meet the leak-check criteria the test was voided and repeated.
- The S-type pitot tube and sampling nozzle were maintained parallel to the flow during testing and care was taken to ensure that they did not scrape the ports when being inserted and removed from the stack.
- The probe and filter components were maintained at 120°C $\pm$ 14°C during testing. If the probe or filter temperature was outside of the acceptable range the test was halted until the temperature could be brought back into the acceptable range.
- Covanta was responsible for monitoring process operations during testing and notified ORTECH when testing was to proceed.

6.4 Sample Recovery, Handling and Custody

ORTECH's sample identification scheme and system for handling and processing samples was initiated as part of ORTECH's sample tracking system for stack emission samples. All samples were identified by a unique sample number comprised of a series of numbers and letters. A master sample log/chain of custody form was maintained by the QA/QC designate and was made available to the ORTECH personnel designated to perform the sample recovery for a specific sampling train. Once a sample was collected it was labeled and checked against the sample log by the QA/QC designate.

The information contained within the sample number and the sample log enabled the sampling, recovery, data reduction and report writing personnel to easily determine the test date, test number, test type and train sample identification for a given sample. To ensure continuity, the analytical laboratory was requested to use the ORTECH number for sample identification.

The ORTECH personnel responsible for shipping samples used the master sample log/chain of custody form to document the transfer of the samples to the appropriate analytical laboratory. Appropriate care was taken when shipping the samples in order to maintain sample integrity. Once the samples and master sample log/chain of custody forms were received by the analytical laboratory, the laboratory personnel verified that all samples had been received and their integrity maintained. The laboratory personnel then signed the master log and made a photocopy which ORTECH personnel received as a record of the chain of custody for the samples.

6.5 Analytical Results

It should be noted that due to the design of ORTECH's semi-volatile organic sampling train glassware, the filter bottom, filter bottom u-tube and trap inlet stems are not soaked with each of the required solvents (acetone and hexane) during test train recovery. Instead, these components of the test train were given additional rinses with each of the required solvents. Also, because ORTECH uses a one piece condenser and XAD-2 trap, this component of the test train was Teflon sealed and wrapped with foil prior to being transported to the analytical laboratory where it was given the required five minute soaking with each of acetone and hexane. This is consistent with all SVOC test programs conducted by ORTECH and approved by the MOECC.

Analyses for the present emission testing program were performed using acceptable laboratory procedures in accordance with the specified analytical protocols. Adherence to the prescribed QA/QC procedures ensured data of consistent and measurable quality. Analytical quality control focused on the use of control standards to provide a measure of analytical accuracy. Replicate analysis (usually duplicate analysis) of the same sample was used as a means of determining precision of the various analytical procedures. Also specific acceptance criteria were defined for various analytical operations including calibrations, control standard analysis, drift checks, blanks, etc.

The following general QA/QC procedures were incorporated into the analytical effort:

- the on-site Field Supervisor reviewed all data and QA/QC data on a daily basis for completeness and acceptability
- master sample logs were maintained for all samples collected
- analytical QA/QC data was tabulated by the analytical laboratories using appropriate charts or forms
- all hard copy raw data was maintained in organized files

The condensable particulate matter analytical report indicated that two of the secondary filters were torn. Note it is typical for filters to have small tears around the edges. This is primarily caused by the edges of the filter being compressed between the filter housing requiring the use of Teflon tweezers to remove it. There should be minimal impact to data quality caused by the small tears.

Specific analytical QA/QC procedures are presented in the analytical reports and are briefly summarized below.

6.5.1 Metals Sample Analysis QA/QC

The analysis of the Method 29 stack samples involved sample digestion followed by Inductively Coupled Argon Plasma Mass Spectroscopy (ICP-MS) analysis. The analysis for mercury employed cold vapour atomic absorption (CVAA). The analytical QA/QC is described as follows and the results are provided in the analytical report.

ICPMS Analysis

The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. Specific QA/QC results are summarized below:

- One duplicate sample analysis was performed for this program on Test No. 1 at Boiler No. 1 BH Outlet. The relative percent difference was less than 7.3% well within the acceptable limit of less than ±20%, for elements that are greater than 5 times the minimum detection limit.
- One blank spike (performed as a pre-digestion spike) was analyzed. All of the recovery results were between 94-112%. The acceptable limit is 85-115% of the true value.
- One matrix spike (performed as a post digestion spike) was analyzed. All of the recovery results were between 89-100%. The acceptable limit is 70-130% of the true value.

The following general analytical QA/QC requirements must also be met or the samples are re-analyzed:

- An instrument calibration check standard was analyzed immediately after the calibration curve and must be within 90%-110% of the actual concentrations.
- Instrument calibration blank check sample were analyzed with every 10 samples and must be within three times the minimum detection limit.
- A continuing calibration check is run every 10 samples and must be within 85%-115% of the actual concentrations.
- Instrument (interference) check sample for ICP-MS analysis was analyzed before and after each analytical run. The value(s) found for the interference check sample must be within 80%-120% of the true value.

Mercury Analysis

The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. Specific QA/QC results are summarized below:

- One duplicate sample analysis was performed. The relative percent difference was less than 3.2% well within the acceptable limit of less than ±20%, for fractions that are greater than 5 times the minimum detection limit.
- One blank spike (performed as a pre-digestion spike) was analyzed. All of the recovery results were between 100-104% within the acceptable limit of 90-110% of the true value.
- One matrix spike (performed as a post digestion spike) was analyzed. All of the recovery results were between 94-103% within the acceptable limit of 85-115% of the true value.

The following general analytical QA/QC requirements must also be met or the samples are re-analyzed:

- A 5 point calibration was performed.
- An instrument check calibration standard was analyzed immediately after the calibration and must be within 90%-110% of the actual concentration
- One mid-range calibration standard was analyzed after 10 samples and at the end of the run and must be within 85%-115% of the actual concentration.
- Instrument calibration blank check sample is analyzed with every 10 samples and must be within three times the minimum detection limit.

6.5.2 Acid Gas Sample Analysis QA/QC

Analyses of the acid gas samples from the Method 26A sampling train involved suppressed ion chromatography-conductivity detection. The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. Specific QA/QC results are summarized below:

- Blank spike samples were analyzed with the test samples. The recovery results of the blank spike samples were 102% for hydrogen chloride, 96% for hydrogen fluoride and 102% for ammonia, within the acceptable range of 90-110%.
- Matrix spike (spike confirmation) samples were analyzed with every 20 samples to confirm the identity of each peak. The recovery results of the matrix spike samples were 97% for hydrogen chloride, 91% for hydrogen fluoride and 102% for ammonia, within the acceptable range of 80-120%.

The following general analytical QA/QC requirements must also be met or the samples are re-analyzed:

- A 6 point calibration bracketing the expected range.
- An instrument check calibration standard was analyzed immediately after the calibration and must be within 90%-110% of the actual concentration.
- A complete set of calibration standards were analyzed at the end of the analysis and must be within 10% of the true value.
- One mid-range calibration standard was analyzed after 10 samples and at the end of the run and must be within 90%-110% of the actual concentration.
- Instrument calibration blank check samples were analyzed with every 10 samples and must be within three times the minimum detection limit for each ion.

6.5.3 Aldehyde Sample Analysis QA/QC

Analysis for formaldehyde, acetaldehyde and acrolein was performed via LC/UV. Laboratory control samples, a spike sample and a travel spike sample were analyzed with the test samples. The recoveries for the travel spike were 28.8% for acrolein, 95.6% for formaldehyde and 93.0% for acetaldehyde.

The concentration of formaldehyde detected in the blank sample was similar to the concentrations detected in the test samples. The test results for formaldehyde may be elevated due to the high blank results.

Acrolein was not detected in any of the test or blank train samples in quantities greater than the reportable detection limit.

6.5.4 SVOC Sample Analysis QA/QC

The combined filter, probe rinse, Amberlite XAD-2 cartridge, impinger solutions and associated rinse and soaking solutions for each of the semi-volatile organics trains were analyzed together as one sample per test.

After extraction of the dioxin and furan train samples, staff at Maxxam added internal standards to all samples prior to analysis and surrogate standards were added to the filters and XAD resin prior to extraction. The analytical reports include the lists of the analytical surrogate standards and internal standards used. The analysis of samples involved complex sample extraction and cleanup, followed by GC/MS or HRMS/MS analysis.

The quality assurance activities conducted by the analytical laboratory are detailed in the Quality Assurance Report provided in the analytical report. The report notes that there was a low recovery for D10-Anthracene surrogate for Test No. 3 at BH Outlet No. 1 and Test No. 2 at BH Outlet No. 2. However, the report also states the overall quality control for this analysis meets acceptability criteria.

All other QA/QC activities met the performance specifications as stated in the analytical report. The dioxin and furan surrogate recoveries were between 61-127%.

The analytical laboratory report identifies responses in the chlorinated diphenylether channel that elute at similar retention times to 2,3,4,7,8-pentachlorodibenzofuran, 1,2,3,7,8,9-hexachlorodibenzofuran and octachlorodibenzofuran isomer test results. This response produces a positive bias on these isomers. This response was not seen in the blank train samples or in the laboratory blank which indicates that it is not an artifact in the solvents, glassware, XAD-2 or the instrument used for analysis.

6.5.5 Volatile Organic Compound Analysis QA/QC

Prior to sampling VOST tube pairs were cleaned and conditioned under helium sweep (approximately 50 mL/min flow) through each tube in an oven at 280°C for at least 12 hours. One VOST pair was analyzed and proven clean for every 10 pairs cleaned. VOST tubes were end-capped and stored sealed in individual screw-capped vials at 4°C between conditioning and shipment to the field.

A field blank and a laboratory method blank were analyzed with the test sample tubes that were taken in the field. VOST tubes were desorbed and analyzed, combined as pairs, according to SW846 Method 5041A/8260B.

The analytical report includes the list of surrogate standards used. The surrogate recoveries for each of the surrogates should be between 50-150%. The recoveries for each sample were between 89-132%.

7. RESULTS AND DISCUSSION

Emission tests were completed for particulate matter, particle size distribution, condensable particulate matter, metals, semi-volatile organic compounds, aldehydes, acid gases and volatile organic compounds at the Boiler No. 1 BH Outlet and Boiler No. 2 BH Outlet.

Combustion gases, including hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide were measured during the emission testing program by the DYEC CEMS. Total hydrocarbon concentrations were also measured by ORTECH at Boiler No. 1 BH Outlet on April 20, 2016 and Boiler No. 2 BH Outlet on April 19, 2016.

Tables referenced in this report for the tests conducted at Boiler No. 1 BH Outlet and Boiler No. 2 BH Outlet between May 2 and May 11, 2016 are provided in Appendix 1 and Appendix 2, respectively.

Detailed test schedules are provided in Table 1 and Table 2.

7.1 Stack Gas Sampling Parameters

Emission test calculations for the particulate and metals, particle size, acid gases, and SVOC tests conducted at the Boiler No. 1 BH Outlet are provided in Appendix 22 to Appendix 25, respectively.

Emission test calculations for the particulate and metals, particle size, acid gases, and SVOC tests conducted at the Boiler No. 2 BH Outlet are provided in Appendix 26 to Appendix 29, respectively.

Stack gas sampling parameters for the tests conducted at each location are summarized in Table 3. These parameters include calibration data, nozzle diameter, dry gas volume sampled and average percentage of isokineticity for each test.

7.2 Stack Gas Physical Parameters

Stack gas physical parameters for tests conducted at each location are presented in Table 4. The average values from the isokinetic tests at each site are summarized below:

Stack Gas Parameter*	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Gas Temperature (°C)	142	140
Moisture by Volume (%)	16.1	15.6
Velocity (m/s)	16.7	17.3
Static Pressure (kPa)	-2.76	-2.47
Absolute Pressure (kPa)	97.9	98.1
Carbon Dioxide by Volume (%)**	11.8	11.3
Oxygen by Volume (%)**	7.38	8.17

* Excludes Acid Gases tests as testing was conducted at a single point in the duct
** dry basis, measured by DYEC CEMS

7.3 Volumetric Flowrate Data

Stack gas volumetric flowrates for the tests conducted at each location are presented in Table 5. The average flowrate values from the tests at each site are summarized below:

Stack Gas Parameter*	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Flowrate (m^3/s)	24.7	25.6
Dry Reference Flowrate (Rm^3/s)**	14.4	15.1
Dry Adjusted Flowrate (Rm^3/s)***	19.6	19.4
Wet Reference Flowrate (Rm^3/s)**	17.1	17.9

* Excludes Acid Gases tests as testing was conducted at a single point in the duct
** at 25°C and 1 atmosphere
*** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

7.4 Particulate Emission Data

Filterable particulate emission data obtained from each of the particulate and metals tests conducted at each location is presented in Table 6.

Average particulate emission data for each location is summarized below:

Particulate Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (mg/m^3)	<0.49	<0.36
Dry Reference Conc. (mg/Rm^3)*	<0.84	<0.61
Dry Adjusted Conc. (mg/Rm^3)**	<0.62	<0.48
Wet Reference Conc. (mg/Rm^3)*	<0.71	<0.52
Emission Rate (mg/s)	<12.1	<9.23

* at 25°C and 1 atmosphere
** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The ECA stipulates maximum in-stack limits for the emissions of various compounds including particulate matter. The particulate dry adjusted concentration at the Boiler No. 1 BH Outlet (<0.62 mg/Rm^3, adjusted to 11% oxygen) and the Boiler No. 2 BH Outlet (<0.48 mg/Rm^3, adjusted to 11% oxygen) were well below the maximum limit (9 mg/Rm^3, adjusted to 11% oxygen) stated in the ECA.

The amount of particulate detected in the blank sampling train filter and acetone probe rinse samples for Boiler No. 1 was 1.80 mg and 0.7 mg, respectively. The amount of particulate detected in the blank sampling train filter and acetone probe rinse samples for Boiler No. 2 was 1.5 mg and 0.5 mg, respectively. Although these levels are significant relative to the amount detected in the test trains, the blank analysis was not subtracted from the test sample analyses during calculation of the particulate emission data.

Note particulate was not detected, in quantities greater than the analytical detection limit (0.3 mg), on the Test No. 3 filter for Boiler No. 1 and all of the filters for Boiler No. 2. The detection limit was used to determine emission data.

Particle size distribution tests were also conducted at each location. PM_{10} and $PM_{2.5}$ emission data is detailed in Table 7 for each location. Average emission data for each BH Outlet location is summarized below:

PM_{10} and $PM_{2.5}$ Emission Parameter	PM_{10}		$PM_{2.5}$	
	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2
Actual Conc. (mg/m^3)	<0.88	<2.43	<0.60	<0.52
Dry Reference Conc. (mg/Rm^3)*	<1.53	<4.08	<1.04	<0.87
Dry Adjusted Conc. (mg/Rm^3)**	<1.10	<3.21	<0.75	<0.68
Wet Reference Conc. (mg/Rm^3)*	<1.28	<3.46	<0.87	<0.73
Emission Rate (mg/s)	<22.7	<63.1	<15.5	<13.4

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Although the particle size distribution tests and the particulate and metals tests were conducted on different days, it is noted that the PM_{10} and $PM_{2.5}$ emission data was greater than the total particulate emission data measured using the particulate and metals test trains. This is mainly due to the higher detection limits and the smaller sample volume for the particle size test trains relative to the particulate and metals trains. The data was not blank corrected.

Condensable particulate emission data obtained from the back-half of each of the particle size distribution tests conducted at each location is presented in Table 8. Average condensable particulate emission data for each BH Outlet location is summarized below:

Condensable Particulate Emission Parameter	Inorganic Fraction		Organic Fraction	
	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2
Actual Conc. (mg/m^3)	6.77	6.92	<0.58	0.77
Dry Reference Conc. (mg/Rm^3)*	11.7	11.6	<1.01	1.30
Dry Adjusted Conc. (mg/Rm^3)**	8.42	9.14	<0.73	1.02
Wet Reference Conc. (mg/Rm^3)*	9.80	9.85	<0.84	1.10
Emission Rate (mg/s)	174	180	<15.0	20.0

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The amount of condensable particulate detected in the blank sampling train for Boiler No. 1 was 6.5 mg for the inorganic fraction. The amount of condensable particulate detected in the blank sampling train for Boiler No. 2 was 7.5 mg for the inorganic fraction. Although these levels are significant relative to the amount detected in the test trains, the blank analysis was not subtracted from the test sample analyses during calculation of the condensable particulate emission data.

7.5 Acid Gases

Hydrogen chloride, hydrogen fluoride and ammonia emission data for the tests conducted at each location are presented in Table 9. Hydrogen fluoride was not detected in any of the test samples in quantities greater than the reportable detection limit. The reportable detection limit was used to calculate hydrogen fluoride emission data. Hydrogen chloride and ammonia were detected in quantities greater than the reportable detection limit in all of the samples collected.

Average hydrogen chloride, hydrogen fluoride and ammonia emission data for the tests conducted at the BH Outlet of each Boiler is summarized below:

Acid Gases Emission Parameter	Hydrogen Chloride		Hydrogen Fluoride		Ammonia	
	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2
Actual Conc. (mg/m^3)	3.17	2.96	<0.10	<0.097	0.25	1.63
Dry Reference Conc. (mg/Rm^3)*	5.42	5.04	<0.17	<0.17	0.42	2.78
Dry Adjusted Conc. (mg/Rm^3)**	4.02	3.99	<0.13	<0.13	0.31	2.20
Wet Reference Conc. (mg/Rm^3)*	4.54	4.27	<0.15	<0.14	0.35	2.35
Emission Rate (mg/s)	77.9	77.5	<2.49	<2.54	6.07	42.8
Dry Adjusted Conc. (ppm)**	2.70	2.67	<0.16	<0.16	0.45	3.16

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Hydrogen chloride, hydrogen fluoride and ammonia were not detected in the blank samples in quantities greater than the reportable detection limit. The blank analysis was not subtracted from the test sample analyses during calculation of the emission data.

7.6 Combustion Gas Emission Data

Combustion gases, including carbon dioxide, carbon monoxide, hydrogen chloride, nitrogen oxides, oxygen and sulphur dioxide, were measured continuously at the BH Outlet during the emission testing program by the DYEC CEMs. The oxygen, carbon dioxide and carbon monoxide concentrations for each test period were used to calculate the molecular weight of the gas stream. The oxygen concentration data was also used to correct the dry reference concentration data to 11% oxygen.

Oxygen was also measured continuously by the DYEC CEMS at the Scrubber Inlet.

DYEC provided 1-hour average concentrations for each clock hour from May 2 to May 11, 2016. A 24-hour rolling average was determined for hydrogen chloride, nitrogen oxides and sulphur dioxide using the 1-hour average data for the six test days at each unit to compare to the in-stack limits stated in the ECA. A 4-hour rolling average was determined for carbon monoxide using the calculated 1-hour average data for the six test days at each unit to compare to the in-stack limit stated in the ECA.

The minimum, average and maximum 1-hour, 4-hour and 24-hour combustion gas data measured by the DYEC CEMS is summarized in Table 10. The maximum concentration, along with the in-stack limit stated in the ECA, is summarized in the following table for each component.

Combustion Gases Emission Parameter	Limit	Maximum Concentration	
		Boiler No. 1	Boiler No. 2
BH Outlet:			
Oxygen (%, 1-hr)	-	8.93	9.06
Carbon Dioxide (kg/Rm^3, 1-hr)**	-	0.23	0.22
Carbon Monoxide (mg/Rm^3, 4-hr)*	40	22.5	29.8
Sulphur Dioxide (mg/Rm^3, 24-hr)*	35	0.2	0
Nitrogen Oxides (mg/Rm^3, 24-hr)*	121	111	111
Hydrogen Chloride (mg/Rm^3, 24-hr)*	9	5.6	5.4
Total Hydrocarbons (mg/Rm^3, 1-hr)*	-	1	1
Scrubber Inlet:			
Oxygen (%, 1-hr)	-	9	8

* dry at reference conditions, adjusted to 11% oxygen

** dry at reference conditions

Concentration data measured by ORTECH between April 19 and April 20, 2016 at the BH Outlet sampling locations was used to assess against the total hydrocarbons (organic matter) in-stack emissions limit detailed in Schedule C of the ECA. The average THC concentration, along with the in-stack limit stated in the ECA, is summarized in the following table.

Combustion Gases Emission Parameter	Limit	Average Concentration	
		Boiler No. 1	Boiler No. 2
BH Outlet: Total Hydrocarbons (ppm, dry expressed as equivalent methane)	50	0.8	0.9

7.7 Metal Emission Data

Metal analytical results for the tests performed at each location are given in Tables 11, 12 and 13 for Test No. 1, Test No. 2 and Test No. 3, respectively. Metal concentrations and emission rates are shown in Tables 14, 15 and 16 for Test No. 1, Test No. 2 and Test No. 3, respectively.

Summaries of the metal actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates including the coefficients of variation for the tests performed are provided in Tables 17, 18, 19, 20 and 21, respectively. Table 22 summarizes the average metal emission data for the tests performed.

Table 23 summarizes the results from the blank metals trains. The amount of metals detected in the blank trains was significant when compared to the amounts collected in the test trains since most of the metals in the test trains were at or near the detection limit. The emission data was not corrected for the blank data.

The metals analysis of the Method 29 test trains was performed on two separate analytical fractions, the probe and filter hydrofluoric acid digest and analysis of the train impingers and associated rinses. In instances where all analyses were reported to be below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, and the remaining fractions were assigned a value of zero. In instances where any given fraction was detected that value was used to calculate emission data, and the remaining undetected fractions were assigned a value of zero.

The ECA stipulates maximum in-stack limits for the emissions of various compounds including cadmium and lead.

The average cadmium emission data is summarized below:

Cadmium Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (μg/m^3)	<0.034	<0.033
Dry Reference Conc. (μg/Rm^3)*	<0.059	<0.056
Dry Adjusted Conc. (μg/Rm^3)**	<0.043	<0.043
Wet Reference Conc. (μg/Rm^3)*	<0.049	<0.047
Emission Rate (mg/s)	<0.00083	<0.00084

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The average lead emission data is summarized below:

Lead Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (µg/m^3)	0.21	0.17
Dry Reference Conc. (µg/Rm^3)*	0.36	0.28
Dry Adjusted Conc. (µg/Rm^3)**	0.27	0.22
Wet Reference Conc. (µg/Rm^3)*	0.30	0.24
Emission Rate (mg/s)	0.0052	0.0043

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The cadmium and lead dry adjusted concentrations were well below the maximum in-stack emission limits stated in the ECA (7 µg/Rm^3, adjusted to 11% oxygen for cadmium and 50 µg/Rm^3, adjusted to 11% oxygen for lead).

7.8 Mercury Emission Data

Mercury analysis, concentration and emission data are also summarized in the metals emission tables. Mercury was detected in samples from each test, specifically in the impinger sample analysis and the mercury analytical results are not blank corrected.

The average mercury emission data is summarized below:

Mercury Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (µg/m^3)	0.35	0.20
Dry Reference Conc. (µg/Rm^3)*	0.60	0.35
Dry Adjusted Conc. (µg/Rm^3)**	0.44	0.27
Wet Reference Conc. (µg/Rm^3)*	0.50	0.29
Emission Rate (mg/s)	0.0086	0.0052

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The mercury dry adjusted concentrations were well below the maximum in-stack emission limit stated in the ECA of 15 µg/Rm^3, adjusted to 11% oxygen.

7.9 Semi-Volatile Organic Emission Data

The combined filter and probe rinse, and combined Amberlite XAD-2 cartridge and impinger solutions for each of the semi-volatile organics trains were analyzed together (one analysis per test) for semi-volatile organic compounds including select dioxins, furans and polycyclic aromatic hydrocarbons.

7.9.1 Dioxins and Furans Emission Data

Dioxins and furans are groups of chemically related chlorinated organic compounds or congeners. There are seventy-five dioxin congeners and one hundred and thirty five furan congeners. The individual congeners all have different molecular structures and they may also have different molecular formulae. Individual congeners, which have the same molecular formula but different molecular structure, are referred to as isomers. Groups of isomers are referred to as congener groups or homologues. The basic dioxin and furan molecules have the molecular formulae $C_{12}H_8O_2$ and $C_{12}H_8O$, respectively. In chlorinated dioxin and furans, between one and eight chlorine atoms may replace an equal number of hydrogen atoms in the basic molecule.

The following table lists the chlorinated dioxin and furan congener groups, and the number of isomers present in each group:

Congener Group Abbreviation	Number of Chlorine Atoms Per Molecule	Molecular Formula	Number of Isomers Per Congener Group
Dioxins			
M1CDD	1	$C_{12}H_7ClO_2$	2
D2CDD	2	$C_{12}H_6Cl_2O_2$	10
T3CDD	3	$C_{12}H_5Cl_3O_2$	14
T4CDD	4	$C_{12}H_4Cl_4O_2$	22
P5CDD	5	$C_{12}H_3Cl_5O_2$	14
H6CDD	6	$C_{12}H_2Cl_6O_2$	10
H7CDD	7	$C_{12}H_1Cl_7O_2$	2
O8CDD	8	$C_{12}Cl_8O_2$	1
Furans			
M1CDF	1	$C_{12}H_7ClO$	4
D2CDF	2	$C_{12}H_6Cl_2O$	16
T3CDF	3	$C_{12}H_5Cl_3O$	28
T4CDF	4	$C_{12}H_4Cl_4O$	38
P5CDF	5	$C_{12}H_3Cl_5O$	28
H6CDF	6	$C_{12}H_2Cl_6O$	16
H7CDF	7	$C_{12}H_1Cl_7O$	4
O8CDF	8	$C_{12}Cl_8O$	1

In Ontario, the MOECC normally requires that only the higher tetra to octa (T4CDD to O8CDD) dioxin congeners and the higher tetra to octa (T4CDF to O8CDF) furan congeners are included in air emission testing. This is because the lower mono to tri congener groups (M1CDD to T3CDD and M1CDF to T3CDF) are considered to be generally less toxic than the higher congener groups and the test procedures have not been validated for these lower groups. In addition, it is acceptable to the MOECC to use only specific isomers in the higher congener groups to compare emission data with the MOECC criteria for dioxin and furan emissions.

Dioxin and furan congener group analytical results and emission data for the tests performed are given in Table 24 to Table 32. The results are shown as congener groups from T4CDF to O8CDF and T4CDD to O8CDD, as normally required by the MOECC.

The average dioxin and furan congener group emission rates are summarized below:

Dioxin and Furan Congener Emission Parameter	Boiler No. 1		Boiler No. 2	
	Dioxins	Furans	Dioxins	Furans
Actual Conc. (ng/m^3)	27.9	<8.55	0.40	<0.19
Dry Reference Conc. (ng/Rm^3)*	47.9	<14.7	0.67	<0.32
Dry Adjusted Conc. (ng/Rm^3)**	35.5	<10.9	0.51	<0.25
Wet Reference Conc. (ng/Rm^3)*	40.0	<12.3	0.56	<0.27
Emission Rate (ng/s)	667	<204	9.93	<4.80

* at 25°C and 1 atmosphere
** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The amounts of dioxin and furan congeners detected in the blank sampling trains and in the laboratory blank were insignificant when compared to the amounts detected in the test trains. The blank sampling train analytical results are shown in Table 33. The blank analyses were not subtracted from the test sample analyses during calculation of the dioxin and furan congener emission data.

Dioxin, furan and dioxin-like PCB specific isomer analytical results and emission data for the tests performed are given in Table 34 to Table 42. The isomers included in these tables are considered the most toxic of all the dioxin and furan isomers. They are characterized by having chlorine atoms located at the 2, 3, 7 and 8 positions of the basic dioxin and furan molecules.

The blank sampling train analytical results are shown in Table 43. The blank analyses were not subtracted from the test sample analyses during the calculation of the dioxin and furan isomer emission data.

Several schemes have been proposed for calculating dioxin and furan toxic equivalents (TEQ's) in which different factors have been assigned to the various isomers and congener groups. Calculations in this report are based on the method preferred by the MOECC, which uses International Toxicity Equivalency Factors (I-TEFs).

The purpose in calculating dioxin and furan emission rates as toxic equivalents is to provide a means of assessing and comparing the effects of dioxin and furan emission rates for different emission sources. In these calculations, 2,3,7,8-T4CDD, the most toxic of all the dioxin and furan isomers, is assigned an arbitrary value of 1.0 for a toxic equivalency factor.

Then, other dioxin and furan isomers are assigned toxic equivalency factors which are based on their relative toxicity compared with 2,3,7,8-T4CDD. Emission rates for each isomer are multiplied by their assigned factor and the products are summed to provide the toxic equivalency emission rate.

Dioxin and furan TEQ emission data is given in Table 44 to Table 49.

The MOECC "Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality", dated April 2012, provides a new framework for calculating dioxin and furan toxicity equivalent concentrations which includes emission data for 12 dioxin-like PCBs.

Tables 44 to 49 show the dioxins, furans and dioxin-like PCBs toxicity equivalent emission data calculated using the full detection limit for those compounds not detected. Table 50 shows the dioxins, furans and dioxin-like PCBs toxicity equivalent emission data calculated using half the detection limit for those compounds not detected.

The average dioxin, furan and dioxin-like PCBs toxicity equivalent emission data, calculated using the WHO toxicity equivalence factors and half the detection limit is summarized below. As per the MOECC standards and guidelines referenced above, dioxin furan and dioxin-like PCB toxicity equivalent emission data calculated using the WHO toxicity equivalence factors and half the detection limit are used for dispersion modelling analysis for comparison with the point of impingement criteria discussed in Section 8.

Dioxin and Furan Isomer Emission Parameter	Boiler No. 1	Boiler No. 2
Actual Conc. (pg TEQ/m^3)	609	8.95
Dry Reference Conc. (pg TEQ/Rm^3)*	1044	15.2
Dry Adjusted Conc. (pg TEQ/Rm^3)**	774	11.7
Wet Reference Conc. (pg TEQ/Rm^3)*	874	12.7
Emission Rate (ng TEQ/s)	14.5	0.22

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

The average dioxin and furan dry adjusted toxicity equivalent concentration, calculated using the NATO/CCMS (1989) toxicity equivalence factors and the full detection limit (Table 46B) is summarized below. Dioxin and furan toxicity equivalent emission data calculated using the NATO/CCMS (1989) toxicity equivalence factors and the full detection limit are used for comparison with the in-stack emission limits specified in the ECA.

Dioxin and Furan Isomer Emission Parameter	Boiler No. 1	Boiler No. 2
Dry Adjusted Conc. (pg TEQ/Rm^3)*	<818	<12.1

* at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

7.9.2 Chlorobenzene and Chlorophenol Emission Data

As with dioxins and furans, chlorobenzenes and chlorophenols are groups of compounds that have different molecular structures and may also have different numbers of chlorine atoms in the basic molecule. Chlorobenzenes have the structure of the benzene molecule except that between one and six chlorine atoms are substituted for an equal number of hydrogen atoms in the benzene ring. Benzene has the molecular formula C_6H_6. Chlorobenzene congener groups have the molecular formulae C_6H_5Cl, $C_6H_4Cl_2$, $C_6H_3Cl_3$, $C_6H_2Cl_4$, C_6HCl_5 and C_6Cl_6. Chlorophenols have the structure of the phenol molecule except that between one and five chlorine atoms are substituted for an equal number of hydrogen atoms in the benzene ring. Phenol has the molecular formula C_6H_5OH. Chlorophenol congener groups have the molecular formulae C_6H_4ClOH, $C_6H_3Cl_2OH$, $C_6H_2Cl_3OH$, C_6HCl_4OH and C_6Cl_5OH.

Chlorobenzene congener and isomer analytical results and emission data are given in Table 51 to Table 59.

Amounts collected were assumed to be equivalent to the detection limit, where the analytical results were below the method detection limits (<MDL).

The average total chlorobenzene emission data for each sampling location is presented below:

Chlorobenzenes Emission Parameter	Boiler No. 1	Boiler No. 2
Actual Conc. (ng/m^3)	<262	<249
Dry Reference Conc. (ng/Rm^3)*	<450	<423
Dry Adjusted Conc. (ng/Rm^3)**	<334	<324
Wet Reference Conc. (ng/Rm^3)*	<376	<354
Emission Rate (µg/s)	<6.28	<6.24

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Blank sampling train and laboratory blank analytical results for chlorobenzenes are given in Table 60. All of the blank analyses, for both the blank train and the laboratory blank, were below the reportable detection limits. The blank analyses were not subtracted from the test sample analyses during the calculation of chlorobenzene emission data.

Chlorophenol congener and isomer analytical results and emission data is given in Table 61 to Table 69.

Amounts collected were assumed to be equivalent to the detection limit, where the analytical results were below the method detection limits (<MDL).

The average total chlorophenol emission data for each sampling location is presented below:

Chlorophenol Emission Parameter	Boiler No. 1	Boiler No. 2
Actual Conc. (ng/m^3)	<565	<482
Dry Reference Conc. (ng/Rm^3)*	<970	<819
Dry Adjusted Conc. (ng/Rm^3)**	<719	<627
Wet Reference Conc. (ng/Rm^3)*	<811	<686
Emission Rate (µg/s)	<13.5	<12.1

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Blank sampling train and laboratory blank analytical results for chlorophenols are given in Table 70. All of the blank analyses, for both the blank train and the laboratory blank, were below the reportable detection limits. The blank analyses were not subtracted from the test sample analyses during the calculation of chlorophenol emission data.

7.9.3 Polycyclic Aromatic Hydrocarbon Emission Data

The SVOC samples were also analyzed for select polycyclic aromatic hydrocarbon (PAH) compounds. Dibenzo(a,c)anthracene co-elutes with picene on the GC/MS. The data reported for dibenzo(a,c)anthracene represents the total of the Dibenzo(a,c)anthracene and picene.

None of the PAH compounds were detected in quantities greater than the analytical detection limits for any of the tests performed at either unit.

Analytical results and PAH emission data for the tests performed are provided in Table 71, 72 and Table 73 for Test No. 1, Test No. 2 and Test No. 3, respectively. PAH actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Tables 74 to 78, respectively. A summary of the average emission data is given in Table 79.

Table 80 summarizes the lab blank and blank train PAH analyses. The blank train sample analyses were not subtracted from the test train sample analyses for the purposes of emission rate calculations.

7.10 Aldehydes

Acetaldehyde, formaldehyde and acrolein emission data for the tests conducted at each location is presented in Table 81.

Average acetaldehyde, formaldehyde and acrolein emission data for the tests conducted at the BH Outlet of each Boiler is summarized below:

Aldehydes Emission Parameter	Acetaldehyde		Formaldehyde		Acrolein	
	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2
Actual Conc. (µg/m^3)	<38.9	<40.3	34.3	16.1	<38.9	<40.3
Dry Reference Conc. (µg/Rm^3)*	<66.8	<69.6	58.8	27.9	<66.8	<69.6
Dry Adjusted Conc. (µg/Rm^3)**	<49.5	<53.2	43.6	21.3	<49.5	<53.2
Wet Reference Conc. (µg/Rm^3)*	<56.2	<58.1	49.4	23.3	<56.2	<58.1
Emission Rate (mg/s)	<0.92	<1.03	0.81	0.41	<0.92	<1.03

* at 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Formaldehyde was detected in the blank samples in relatively high quantities in comparison to those found in the test samples. Acetaldehyde was not detected in either of the blank samples. Acrolein was not detected in the blank samples or any of the test samples in quantities greater than the reportable detection limit. The blank analysis was not subtracted from the test sample analyses during calculation of the emission data.

7.11 Volatile Organic Emission Data

Three twenty minute runs were completed for each test at an approximate flowrate of one liter per minute for 20 minutes for volatile organic compounds. One backup pair of tubes was collected for each test and archived in case a sample was lost during the extraction process by the analytical laboratory.

Volatile organic analysis data for the tests is provided in Table 82, 83 and Table 84 for Test No. 1, Test No. 2 and Test No. 3, respectively. These tables indicate the total amount of each compound collected in the combined adsorbent tube samples from each volatile organics sampling train run. Emission data for the tests performed are provided in Table 85, 86 and 87 for Test No. 1, Test No. 2 and Test No. 3, respectively. The average test results of volatile organic actual concentrations, dry reference concentrations, dry adjusted concentrations, wet reference concentrations, and emission rates are shown in Table 88 to 92, respectively. The average volatile organic emission data is summarized in Table 93.

For the purpose of determining average and total analytical results for the VOC compounds, any analyte that was not detected was assigned a value equal to the reportable detection limit for calculation purposes.

Analysis of blank adsorbent tubes is provided in Table 94. The field blank tubes were taken to the test site and uncapped in order to expose the tubes to the ambient environment at the sampling location. The blank adsorbent tube results are generally below the analytical detection limit. Test sample analyses were not blank corrected during the calculation of the emission data.

8. DISPERSION MODELLING

The emission data measured during the testing program was used to assess emissions from the main stack against the point of impingement criteria detailed in Ontario Regulation 419/05 or the applicable MOECC guideline.

Dispersion modelling was completed using the CALPUFF model (Version 5.8.4) and CALPOST model (Version 6.221). The CALPUFF model was selected as it was the model used in the current facility Emission Summary and Dispersion Modelling (ESDM) Report, dated March 2011 (Golder Associates Report Number 10-1151-0343 (3000)) and during the Fall 2015 emission testing program. The MOECC granted a request for the use of CALPUFF in August 2010.

The meteorological data used in the dispersion modelling is the same data used in the ESDM Report and was provided by Golder Associates. Unless otherwise stated, all dispersion modelling parameters are the same as those used in the ESDM Report dispersion modelling Scenario A.

8.1 Source Parameters

The source parameters used in the dispersion modelling are included in the following table. The exit velocity and stack temperature were calculated based on the measurements at each BH Outlet during source testing. The coordinates are UTM NAD 83, Zone 17.

Source ID	Source Description	Release Height (m)	Temp. (K)	Stack Inside Diameter (m)	Exit Velocity (m/s)	X (m)	Y (m)
STCK1	Main Stack	87.6	414	1.7	22.1	680,538	4,860,346

8.2 Modelling Results

The model was run with a unit emission rate generating dispersion factors in µg/m^3 per g/s for the ½-hr, 1-hr, 24-hr and 30-day averaging periods. Meteorological outliers were not removed from the model results. The dispersion factors are presented in the table below.

Averaging Period	½-hr	1-hr	24-hr	30-day
Maximum POI Dispersion Factor (µg/m^3 per g/s)	30.1	25.1	1.29	0.117

For each contaminant, the applicable dispersion factor was multiplied by the total of the average emission rate for each of the two Boilers generated from source testing to obtain the maximum Point of Impingement (POI) concentration. The CALPUFF modelling files are provided on CD in Appendix 30.

The CALPUFF dispersion modelling results for the May 2016 emission testing program are provided in the following tables based on calculated ground level point of impingement concentrations for the average total Main Stack emissions.

The predicted POI concentration, calculated based on the average total emission rate, for each contaminant included in the emission testing program was well below the applicable standard, guideline or upper risk threshold.

A scenario provided in the DYEC Emission Summary and Dispersion Modelling (ESDM) Report includes emissions from silo loading and the standby generator (Scenario H). The predominant contaminants from these sources are particulate from the silo loading and nitrogen oxides from the generator. These two contaminants were assessed and it was determined that, since the Main Stack emissions presented in this report are less than those in the ESDM Report, dispersion modelling would show a decrease in the point of impingement concentration for these two contaminants. As a result, additional dispersion modelling for Scenario H was not conducted.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for Inorganic Compounds

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate	Boiler No. 2 BH Outlet Average Emission Rate	Total Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour			1.00 g/s	1.29 µg/m^3			
Base Case - 1 hour			1.00 g/s	25.1 µg/m^3			
Base Case - 1/2 hour			1.00 g/s	30.1 µg/m^3			
Base Case - 30 day			1.00 g/s	0.117 µg/m^3			
Filterable Particulate Matter	<12.1 mg/s	<9.23 mg/s	<21.3 mg/s	0.028 µg/m^3	120 µg/m^3	0.023	S
Hydrogen Chloride *	77.9 mg/s	77.5 mg/s	155 mg/s	0.20 µg/m^3	20 µg/m^3	1.00	S
Hydrogen Fluoride	<2.49 mg/s	<2.54 mg/s	<5.03 mg/s	0.0065 µg/m^3	0.86 µg/m^3	0.75	S
Hydrogen Fluoride	<2.49 mg/s	<2.54 mg/s	<5.03 mg/s	0.00059 µg/m^3	0.34 µg/m^3	0.17	S - 30 day
Ammonia	6.07 mg/s	42.8 mg/s	48.9 mg/s	0.063 µg/m^3	100 µg/m^3	0.063	S
Sulphur Dioxide **	0 g/s	0 g/s	0 g/s	0 µg/m^3	275 µg/m^3	<0.0001	S
Sulphur Dioxide **	0 g/s	0 g/s	0 g/s	0 µg/m^3	690 µg/m^3	<0.0001	S - 1 hour
Nitrogen Oxides **	2.12 g/s	2.08 g/s	4.20 g/s	5.42 µg/m^3	200 µg/m^3	2.71	S
Nitrogen Oxides **	2.12 g/s	2.08 g/s	4.20 g/s	105 µg/m^3	400 µg/m^3	26.4	S - 1 hour
Carbon Monoxide **	0.29 g/s	0.33 g/s	0.62 g/s	18.6 µg/m^3	6000 µg/m^3	0.31	S - 1/2 hour

S - Standard
G - Guideline
URT - Upper Risk Threshold
* Measured by ORTECH using the acid gases test train.
** Emission data calculated using the CEM data measured by DYEC and the volumetric flowrates measured by ORTECH between May 2-4 and May 9-11, 2016.
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for
Semi-Volatile Organic Compounds

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate	Boiler No. 2 BH Outlet Average Emission Rate	Total Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour			1.00 g/s	1.29 µg/m³			
Base Case - 1 hour			1.00 g/s	25.1 µg/m³			
Dioxins, Furans and Dioxin-Like PCBs (TEQ)*	14.5 ng TEQ/s	0.22 ng TEQ/s	14.7 ng TEQ/s	0.019 pg TEQ/m³	1 pg TEQ/m³	1.90	URT
Naphthalene	<1.25 µg/s	<1.25 µg/s	<2.50 µg/s	0.0000032 µg/m³	22.5 µg/m³	<0.0001	G
Biphenyl	<1.25 µg/s	<1.25 µg/s	<2.50 µg/s	0.000063 µg/m³	60 µg/m³	0.00010	G - 1 hour
Benzo (a) pyrene	<0.63 µg/s	<0.62 µg/s	<1.25 µg/s	0.0000016 µg/m³	0.0011 µg/m³	0.15	G
1,2-Dichlorobenzene	<0.63 µg/s	<0.62 µg/s	<1.25 µg/s	0.000031 µg/m³	30500 µg/m³	<0.0001	G - 1 hour
1,4-Dichlorobenzene	<0.63 µg/s	<0.62 µg/s	<1.25 µg/s	0.0000016 µg/m³	95 µg/m³	<0.0001	S
1,2,4-Trichlorobenzene	<0.63 µg/s	<0.62 µg/s	<1.25 µg/s	0.0000016 µg/m³	400 µg/m³	<0.0001	G
Pentachlorophenol	1.17 µg/s	0.84 µg/s	2.01 µg/s	0.0000026 µg/m³	20 µg/m³	<0.0001	G

S - Standard
G - Guideline
URT - Upper Risk Threshold

* Calculated using the WHO (O. Reg. 419/05) toxicity equivalence factors and half the detection limit for those isomers not detected in quantities greater than the reportable detection limit.
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for Metals

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate		Boiler No. 2 BH Outlet Average Emission Rate		Total Average Emission Rate		Calculated Impingement Concentration		Allowable Impingement Concentration		Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour					1.00	g/s	1.29	µg/m³				
Antimony	<0.0033	mg/s	<0.0034	mg/s	<0.0067	mg/s	0.0000086	µg/m³	25	µg/m³	<0.0001	S
Arsenic	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.3	µg/m³	0.00072	G
Barium (as water soluble)	0.031	mg/s	0.028	mg/s	0.059	mg/s	0.000077	µg/m³	10	µg/m³	0.00077	G
Beryllium	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.01	µg/m³	0.022	S
Cadmium	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.025	µg/m³	0.0086	S
Chromium	0.063	mg/s	0.037	mg/s	0.099	mg/s	0.00013	µg/m³	1.5	µg/m³	0.0086	G
Cobalt	<0.00083	mg/s	<0.00084	mg/s	<0.0017	mg/s	0.0000022	µg/m³	0.1	µg/m³	0.0022	G
Copper	0.030	mg/s	0.032	mg/s	0.062	mg/s	0.000080	µg/m³	50	µg/m³	0.00016	S
Lead	0.0052	mg/s	0.0043	mg/s	0.0094	mg/s	0.000012	µg/m³	0.5	µg/m³	0.0024	S
Manganese (as compounds)	0.024	mg/s	0.022	mg/s	0.045	mg/s	0.000058	µg/m³	2.5	µg/m³	0.0023	G
Mercury	0.0086	mg/s	0.0052	mg/s	0.014	mg/s	0.000018	µg/m³	2	µg/m³	0.00089	S
Molybdenum	0.15	mg/s	0.19	mg/s	0.34	mg/s	0.00044	µg/m³	120	µg/m³	0.00037	G
Nickel	0.067	mg/s	0.081	mg/s	0.15	mg/s	0.00019	µg/m³	2	µg/m³	0.0095	S
Selenium	<0.0038	mg/s	<0.0055	mg/s	<0.0093	mg/s	0.000012	µg/m³	10	µg/m³	0.00012	G
Silver	<0.0017	mg/s	<0.0017	mg/s	<0.0033	mg/s	0.0000043	µg/m³	1	µg/m³	0.00043	S
Vanadium	<0.00063	mg/s	<0.00063	mg/s	<0.0013	mg/s	0.0000016	µg/m³	2	µg/m³	<0.0001	S
Zinc	0.038	mg/s	0.014	mg/s	0.053	mg/s	0.000068	µg/m³	120	µg/m³	<0.0001	S

S - Standard
G - Guideline
URT - Upper Risk Threshold
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

Main Stack with Both Boilers Operating
Regulation 419 Dispersion Modeling Results using CALPUFF for
Volatile Organic Compounds

Contaminant	Boiler No. 1 BH Outlet Average Emission Rate	Boiler No. 2 BH Outlet Average Emission Rate	Total Average Emission Rate	Calculated Impingement Concentration	Allowable Impingement Concentration	Percentage of Allowable Concentration	Status of Allowable Concentration
Base Case - 24 hour			1.00 g/s	1.29 µg/m³			
Base Case - 1 hour			1.00 g/s	25.1 µg/m³			
Acetone	0.045 mg/s	0.098 mg/s	0.14 mg/s	0.00018 µg/m³	11880 µg/m³	<0.0001	S
Benzene	0.026 mg/s	0.020 mg/s	0.046 mg/s	0.000059 µg/m³	100 µg/m³	<0.0001	URT
Bromoform	<0.0096 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	55 µg/m³	<0.0001	G
Bromomethane	<0.010 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	1350 µg/m³	<0.0001	G
1,3-Butadiene	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	300 µg/m³	<0.0001	URT
2-Butanone	<0.025 mg/s	<0.028 mg/s	<0.053 mg/s	0.000068 µg/m³	1000 µg/m³	<0.0001	S
Carbon Tetrachloride	<0.011 mg/s	<0.012 mg/s	<0.023 mg/s	0.000030 µg/m³	2.4 µg/m³	0.0012	S
Chloroform	0.026 mg/s	0.020 mg/s	0.046 mg/s	0.000059 µg/m³	1 µg/m³	0.0059	S
Cumene (Isopropylbenzene)	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	400 µg/m³	<0.0001	S
Dichlorodifluoromethane	<0.024 mg/s	<0.017 mg/s	<0.041 mg/s	0.000053 µg/m³	500000 µg/m³	<0.0001	G
trans,1,2-Dichloroethene	<0.0068 mg/s	<0.0077 mg/s	<0.015 mg/s	0.000019 µg/m³	105 µg/m³	<0.0001	G
Ethylbenzene	<0.0096 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	1000 µg/m³	<0.0001	S
Ethylene Dibromide	<0.0068 mg/s	<0.0077 mg/s	<0.015 mg/s	0.000019 µg/m³	3 µg/m³	0.00062	G
Mesitylene (1,3,5-Trimethylbenzene)	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	220 µg/m³	<0.0001	S
Methylene Chloride	<0.019 mg/s	<0.016 mg/s	<0.035 mg/s	0.000045 µg/m³	220 µg/m³	<0.0001	G
Styrene	<0.0082 mg/s	<0.0094 mg/s	<0.018 mg/s	0.000023 µg/m³	400 µg/m³	<0.0001	S
Tetrachloroethene	<0.012 mg/s	<0.020 mg/s	<0.032 mg/s	0.000041 µg/m³	360 µg/m³	<0.0001	S
Toluene	0.029 mg/s	0.047 mg/s	0.076 mg/s	0.000098 µg/m³	2000 µg/m³	<0.0001	G
1,1,1-Trichloroethane	<0.0096 mg/s	<0.011 mg/s	<0.021 mg/s	0.000027 µg/m³	115000 µg/m³	<0.0001	S
Trichloroethene	<0.0075 mg/s	<0.0084 mg/s	<0.016 mg/s	0.000021 µg/m³	12 µg/m³	0.00017	S
Trichlorotrifluoroethane	<0.017 mg/s	<0.019 mg/s	<0.036 mg/s	0.000046 µg/m³	800000 µg/m³	<0.0001	S
Trichlorofluoromethane	<0.0071 mg/s	<0.0077 mg/s	<0.015 mg/s	0.000019 µg/m³	6000 µg/m³	<0.0001	G
Total Xylenes	<0.020 mg/s	<0.023 mg/s	<0.043 mg/s	0.000055 µg/m³	730 µg/m³	<0.0001	S
Vinyl Chloride	<0.0089 mg/s	<0.010 mg/s	<0.019 mg/s	0.000024 µg/m³	1 µg/m³	0.0024	S
Acetaldehyde	<0.92 mg/s	<1.03 mg/s	<1.95 mg/s	0.0025 µg/m³	500 µg/m³	0.00050	S
Formaldehyde	0.81 mg/s	<0.41 mg/s	<1.22 mg/s	0.0016 µg/m³	65 µg/m³	0.0024	S
Acrolein	<0.92 mg/s	<1.03 mg/s	<1.95 mg/s	0.0025 µg/m³	0.4 µg/m³	0.63	S
Acrolein	<0.92 mg/s	<1.03 mg/s	<1.95 mg/s	0.049 µg/m³	4.5 µg/m³	1.09	S - 1 hour

S - Standard
G - Guideline
URT - Upper Risk Threshold
Note: Unless otherwise stated all allowable limits are 24 hour standards or guidelines.

9. FACILITY PROCESS DATA

Continuous Emission Monitoring (CEM) data was supplied by DYEC personnel for the emission test program. The 1-hour CEM System data was provided for the following process parameters:

- Hydrogen Chloride (mg/Rm^3, adjusted to 11% oxygen)
- Nitrogen Oxides (mg/Rm^3, adjusted to 11% oxygen)
- Sulphur Dioxide (mg/Rm^3, adjusted to 11% oxygen)
- Carbon Monoxide (mg/Rm^3, adjusted to 11% oxygen)
- Oxygen (% volume, dry)
- Carbon Dioxide (kg/Rm^3)
- Total Hydrocarbons (mg/Rm^3, adjusted to 11% oxygen)

DYEC provided 1-hour average concentrations for each clock hour using the 1-minute combustion gas data measured by the DYEC CEMs from May 2 to May 11, 2016. The data provided was adjusted to 11% oxygen using the oxygen measured by the CEMs for each clock hour. A 24-hour rolling average was determined for hydrogen chloride, nitrogen oxides and sulphur dioxide using the calculated 1-hour average data to compare to the in-stack emission limits stated in the ECA. A 4-hour rolling average was determined for carbon monoxide using the calculated 1-hour average data to compare to the in-stack emission limit stated in the ECA.

The combustion gas concentrations, expressed as 1-hour average concentrations, 4-hour rolling average and 24-hour rolling average where applicable, at the Boiler No. 1 BH Outlet and Boiler No. 2 BH Outlet are provided in Appendix 31.

1-minute CEM data provided by DYEC was used to calculate the average oxygen, carbon dioxide and carbon monoxide concentrations for each isokinetic test period. The average oxygen, carbon dioxide and carbon monoxide concentrations were used to calculate the molecular weight of the gas stream. The average oxygen concentrations were also used to adjust the dry reference concentration data to 11% oxygen. The 1-minute data for the isokinetic test periods has been retained by ORTECH and can be provided upon request.

Since relative accuracy and system bias testing demonstrated that the DYEC CEMS met the performance parameters detailed in Schedule F of the ECA, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide.

The DYEC AMESA Dioxin and Furan sampling monitor was operating during the SVOC emission testing conducted on May 5, May 9, May 10 and May 11, 2016. An AMESA sample was collected during each SVOC test period, on the test days specified above, and was submitted to Maxxam for analysis. The volume sampled for each AMESA sample was supplied to ORTECH by Covanta and the emission data was calculated by ORTECH using the volumetric flowrates measured during the corresponding isokinetic SVOC test conducted by ORTECH during the source testing program. The AMESA dioxin and furan emission data and analytical report for the samples collected are provided in Appendix 32.

The AMESA cartridge and the probe rinse sample were collected for each isokinetic test and analyzed separately. The dioxin and furan emission data was calculated in two ways; with the probe rinse and AMESA cartridge combined and with the AMESA cartridge only. A comparison of the dioxin and furan toxicity equivalent factor results, calculated using the NATO/CCMS (1989) toxicity equivalence factors and the full detection limit is summarized below.

Unit No.	Test No.	AMESA with Probe Rinse (pg TEQ/Rm^3*)	AMESA without Probe Rinse (pg TEQ/Rm^3*)	Stack Test (pg TEQ/Rm^3*)
1	1	<869	<430	<1169
1	2	<265	<61.3	<678
1	3	<62.0	<24.3	<606
1	Average	<399	<172	<818
2	1	<150	<12.4	<14.0
2	2	<44.6	<7.54	<9.63
2	3	<99.4	<8.93	<12.6
2	Average	<97.9	<9.62	<12.1

* at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Facility process data was also supplied by DYEC personnel for each test day. The process data is summarized below:

Test Date	Power Output* (MWh/d)	Aux. Fuel Combusted (m^3/d)		Avg. Combustion Zone Temp. (°C)		Steam (tonnes/d)		MSW Combusted (tonnes/d)		NO_X Reagent Inj. Rate (liters/d)		Carbon Inj. Rate (kg/d)		Lime Inj. Rate (kg/d)	
		Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2	Boiler No. 1	Boiler No. 2
02-May-16	388	215	465	1193	1233	754	770	197	204	741	1076	119	117	4100	4288
03-May-16	383	234	441	1214	1242	774	793	200	205	634	1133	119	116	3731	4227
04-May-16	392	845	1124	1232	1244	797	800	196	204	689	993	119	116	3920	4462
5-May-16**	310	3168	0	1220	1243	498	800	112	205	606	870	82	117	2835	4569
09-May-16	387	0	0	1223	1243	810	809	203	210	529	1118	119	118	3800	4527
10-May-16	390	0	0	1211	1264	803	802	207	216	643	1082	119	118	4006	4548
11-May-16	394	0	0	1221	1252	806	802	211	218	664	1258	119	117	4213	4709
Average	378	637	290	1216	1246	749	797	189	209	644	1076	114	117	3801	4476

* Gross turbine output

** Boiler No. 1 stopped feed at 13:28 on May 5, 2016

10. CONCLUSIONS

The main conclusions which can be drawn from the present emission testing program are:

- The facility was maintained within the operational parameters defined by the amended ECA that constitutes normal operation during the stack test periods. Testing was conducted at a steam production rate of greater than 1623 tonnes of steam per day for the two Boilers combined, with the exception of May 5, 2016. On May 5, 2016 feed was stopped at Boiler No. 1 at 13:28 however no testing was conducted on Boiler No. 1 on May 5. The maximum continuous rating for the facility is 1614.7 tonnes of steam per day for the two Boilers combined (33.64 tonnes of steam per hour for each Boiler).

- The in-stack concentrations of the components listed in the ECA were all below the concentration limits provided in the ECA with the exception of dioxins and furans measured at the Baghouse Outlet of Boiler No. 1.

- Using CALPUFF dispersion modelling techniques, the predicted maximum point of impingement concentrations, based on the average test results for both boilers, show DYEC to be operating well below the standards in Regulation 419/05 (Schedule 3) under the Ontario Environmental Protection Act and other MOECC criteria including guidelines, upper risk thresholds and “to be updated” guidelines.

Schedule C of ECA No. 7306-8FDKNX lists in-stack limits for the emissions of various compounds. Emissions limits are given for particulate matter, mercury, cadmium, lead, dioxins and furans and organic matter as the results from compliance source testing. Emission limits are also given for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide calculated as the rolling arithmetic average of data measured by a CEMS.

Since relative accuracy and system bias testing demonstrated that the CEMS met the performance parameters detailed in Schedule F of the ECA, the data recorded by the facility CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide. Note the DYEC CEMS data for the six day test period at each unit was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA.

Concentration data measured by ORTECH between April 19 and April 20, 2016 at the BH Outlet sampling locations was used to assess against the total hydrocarbons (organic matter) in-stack emissions limit detailed in Schedule C of the ECA.

The average results for the tests conducted at the Boiler No. 1 BH Outlet and Boiler No. 2 BH Outlet, along with the respective in-stack emission limits, are summarized in the following table:

Parameter	Limit	Boiler No. 1	Boiler No. 2	Combined Boilers
Power Output (MWh/day)*	-	-	-	378 (7)
Average Combustion Zone Temp. (°C)*	-	1216	1246	1231 (8)
Steam (tonnes/day)*	-	749	797	1546 (7)
MSW Combusted (tonnes/day)*	-	189	209	398 (7)
NOx Reagent Injection Rate (liters/day)*	-	644	1076	1720 (7)
Carbon Injection (kg/day)*	-	114	117	231 (7)
Lime Injection (kg/day)*	-	3801	4476	8277 (7)
Stack Temperature (°C)	-	142	140	141 (8)
Moisture Content (%)	-	16.1	15.6	15.9 (8)
Velocity (m/s)	-	16.7	17.3	-
Static Pressure (kPa)	-	-2.76	-2.47	-2.62 (8)
Absolute Pressure (kPa)	-	97.9	98.1	98.0 (8)
Actual Flowrate (m^3/s)	-	24.7	25.6	-
Dry Reference Flowrate (Rm^3/s) (1)	-	14.4	15.1	29.5 (7)
Oxygen (%)*	-	7.38	8.17	7.78 (8)
Carbon Dioxide (%)*	-	11.8	11.3	11.6 (8)
Particulate (mg/Rm^3) (2)	9	<0.62	<0.48	<0.55 (8)
Mercury (µg/Rm^3) (2)	15	0.44	0.27	0.36 (8)
Cadmium (µg/Rm^3) (2)	7	<0.043	<0.043	<0.043 (8)
Lead (µg/Rm^3) (2)	50	0.27	0.22	0.25 (8)
Dioxins and Furans (pg TEQ/Rm^3) (3)	60	<818	<12.1	<415 (8)
Hydrochloric Acid (mg/Rm^3) (4)*	9	5.6	5.4	5.5 (8)
Sulphur Dioxide (mg/Rm^3) (4)*	35	0.2	0	0.1 (8)
Nitrogen Oxides (mg/Rm^3) (4)*	121	111	111	111 (8)
Total Hydrocarbons (ppm, dry) (5)	50	0.8	0.9	0.9 (8)
Carbon Monoxide (mg/Rm^3) (6)*	40	22.5	29.8	26.2 (8)

* based on process data or CEM data provided by Covanta

(1) dry at 25°C and 1 atmosphere

(2) dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

(3) calculated using the NATO/CCMS (1989) toxicity equivalence factors and the full detection limit for those isomers below the analytical detection limit, dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

(4) maximum calculated rolling arithmetic average of 24 hours of data measured by the DYEC CEMS, dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

(5) average of six half-hour tests conducted by ORTECH between April 19 and April 20, 2016 measured at an undiluted location, reported on a dry basis expressed as equivalent methane

(6) maximum calculated rolling arithmetic average of 4 hours of data measured by the DYEC CEMS, dry at 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

(7) total for combined Boilers

(8) average for combined Boilers

APPENDIX 1

Boiler No. 1 BH Outlet
Data Tables
(95 pages)

TABLE 1
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Isokinetic Sampling Train Test Schedules

Particulate and Metals Trains

Test Number	Test Date	Sampling Period Start	Finish	Sampling Time* min
1	May 2, 2016	10:45	14:16	180
2	May 2, 2016	15:00	18:14	180
3	May 4, 2016	14:56	18:05	180

Paticle Size Distribution Trains

Test Number	Test Date	Sampling Period Start	Finish	Sampling Time* min
1	May 3, 2016	10:03	12:05	119.5
2	May 3, 2016	13:37	15:47	119.75
3	May 3, 2016	17:10	19:11	119.75

Acid Gases Trains

Test Number	Test Date	Sampling Period Start	Finish	Sampling Time* min
1	May 2, 2016	11:09	12:09	60
2	May 2, 2016	12:47	13:47	60
3	May 2, 2016	15:01	16:01	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period Start	Finish	Sampling Time* min
1	May 9, 2016	10:05	16:12	360
2	May 10, 2016	8:53	15:05	360
3	May 11, 2016	8:20	14:28	360

* Actual sampling time excluding leak-checks, traverse changes and process down time.

TABLE 2
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Compounds Test Schedules

Acrolein and Aldehydes Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 9, 2016	10:14	11:14	60
2	May 9, 2016	11:24	12:24	60
3	May 9, 2016	12:33	13:33	60

Volatile Organic Compounds Trains

Test Number	Tube Pair	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	1	May 10, 2016	8:54	9:14	20
	2	May 10, 2016	9:23	9:43	20
	3	May 10, 2016	9:51	10:11	20
	4	May 10, 2016	10:19	10:39	20
2	1	May 10, 2016	10:49	11:09	20
	2	May 10, 2016	11:15	11:35	20
	3	May 10, 2016	11:45	12:05	20
	4	May 10, 2016	12:12	12:32	20
3	1	May 10, 2016	12:44	13:04	20
	2	May 10, 2016	13:13	13:33	20
	3	May 10, 2016	13:44	14:04	20
	4	May 10, 2016	14:39	14:59	20

TABLE 3
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Stack Gas Sampling Parameters

Particulate and Metals Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.841	0.983	6.45	3.427	100.9
2	0.841	0.983	6.45	3.513	100.0
3	0.841	0.983	6.43	3.321	100.6

Paticle Size Distribution Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.846	0.983	4.50	1.234	103.3
2	0.846	0.983	4.50	1.225	109.1
3	0.846	0.983	4.50	1.213	107.5

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.841	0.980	6.48	1.181	100.3
2	0.841	0.980	6.48	1.158	100.0
3	0.841	0.980	6.48	1.124	98.6

Semi-Volatile Organic Compounds Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.841	0.983	6.43	6.539	100.5
2	0.841	0.983	6.43	6.656	100.7
3	0.841	0.983	6.43	6.860	100.8

* Dry at 25°C and 1 atmosphere

TABLE 4
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Stack Gas Physical Parameters

Particulate and Metals Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	143	16.2	16.5	-2.32	98.4	11.7	7.46
2	141	15.3	16.8	-2.32	98.4	11.2	7.75
3	143	15.6	16.3	-3.04	96.7	11.7	7.09
Average	142	15.7	16.5	-2.56	97.8	11.6	7.43

Paticle Size Distribution Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	141	16.8	18.2	-3.01	97.3	11.6	7.40
2	140	15.8	16.9	-3.01	97.2	12.2	6.82
3	141	16.3	17.2	-3.01	97.0	11.8	7.22
Average	141	16.3	17.4	-3.01	97.2	11.9	7.15

Acid Gases Trains **

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	145	16.5	17.1	-2.32	98.4	12.0	7.17
2	142	16.2	16.7	-2.32	98.4	11.7	7.53
3	141	15.1	16.1	-2.32	98.4	11.8	7.24
Average	143	15.9	16.6	-2.32	98.4	11.8	7.31

Semi-Volatile Organics Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	143	16.1	15.9	-2.57	98.5	11.8	7.51
2	143	16.1	16.1	-2.81	98.7	11.8	7.67
3	143	16.5	16.7	-2.79	98.6	11.9	7.53
Average	143	16.2	16.2	-2.72	98.6	11.8	7.57

* Dry basis, measured by the DYEC CEMS

** Sampling was conducted isokinetically at a single point in the duct.

TABLE 5
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Stack Gas Volumetric Flowrates

Particulate and Metals Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	24.4	14.2	19.3	17.0
2	24.9	14.7	19.5	17.4
3	24.1	13.9	19.4	16.5
Average	24.4	14.3	19.4	16.9

Paticle Size Distribution Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	26.8	15.4	21.0	18.5
2	24.9	14.5	20.6	17.2
3	25.3	14.6	20.2	17.4
Average	25.7	14.8	20.6	17.7

Acid Gases Trains ***

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	25.3	14.6	20.3	17.5
2	24.6	14.4	19.4	17.2
3	23.9	14.2	19.5	16.7
Average	24.6	14.4	19.7	17.1

Semi-Volatile Organics Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	23.5	13.7	18.5	16.3
2	23.8	13.9	18.6	16.6
3	24.6	14.3	19.4	17.2
Average	23.9	14.0	18.8	16.7

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** Sampling was conducted isokinetically at a single point in the duct. Volumetric flowrates from the corresponding particulate and metals tests were used to calculate emission data.

TABLE 6
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Particulate Emission Data

Test No.	Particulate Collected Probe Rinse mg	Main Filter mg	Total mg	Dry Gas Volume Sampled Rm^3*	Particulate Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Particulate Emission Rate mg/s
1	3.1	1.30	4.40	3.427	0.75	1.28	0.95	1.08	18.3
2	1.9	1.20	3.10	3.513	0.52	0.88	0.66	0.75	13.0
3	0.9	<0.30	<1.20	3.321	<0.21	<0.36	<0.26	<0.31	<5.02
Average					<0.49	<0.84	<0.62	<0.71	<12.1

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 7
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
$PM_{2.5}$ and PM_{10} Emission Data

$PM_{2.5}$

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	$PM_{2.5}$ Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	<1.6	1.234	<0.75	<1.30	<0.95	<1.08	<20.0
2	<0.5	1.225	<0.24	<0.41	<0.29	<0.34	<5.91
3	<1.7	1.213	<0.81	<1.40	<1.01	<1.17	<20.4
Average			<0.60	<1.04	<0.75	<0.87	<15.5
Blank	<0.5						

PM_{10}

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	PM_{10} Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	<2.1	1.234	<0.98	<1.70	<1.25	<1.42	<26.2
2	<1.0	1.225	<0.47	<0.82	<0.57	<0.69	<11.8
3	<2.5	1.213	<1.19	<2.06	<1.49	<1.72	<30.1
Average			<0.88	<1.53	<1.10	<1.28	<22.7
Blank	<1.0						

* At 25 °C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 8
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Condensable Particulate Emission Data

Inorganic Condensable Particulate

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Inorganic Condensable Particulate Concentration: Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	15	1.234	7.00	12.2	8.91	10.1	187
2	16	1.225	7.60	13.1	9.18	11.0	189
3	12	1.213	5.70	9.89	7.16	8.28	144
Average			6.77	11.7	8.42	9.80	174
Blank	6.5						

Organic Condensable Particulate

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Organic Condensable Particulate Concentration: Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	1.2	1.234	0.56	0.97	0.71	0.81	15.0
2	<1.0	1.225	<0.47	<0.82	<0.57	<0.69	<11.8
3	1.5	1.213	0.71	1.24	0.89	1.03	18.0
Average			<0.58	<1.01	<0.73	<0.84	<15.0
Blank	<1.0						

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 9
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Halides and Ammonia Emission Data

Hydrogen Chloride

Test No.	HCl Collected µg	Dry Volume Sampled Rm^3*	Hydrogen Chloride Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	HCl Emission Rate mg/s
1	4400	1.181	2.17	3.73	2.74	3.11	52.9
2	7500	1.158	3.77	6.48	4.77	5.41	92.0
3	6800	1.124	3.57	6.05	4.56	5.11	88.9
Average			3.17	5.42	4.02	4.54	77.9
Blank	<200						

Hydrogen Fluoride

Test No.	HF Collected µg	Dry Volume Sampled Rm^3*	Hydrogen Fluoride Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	HF Emission Rate mg/s
1	<200	1.181	<0.099	<0.17	<0.12	<0.14	<2.40
2	<200	1.158	<0.10	<0.17	<0.13	<0.14	<2.45
3	<200	1.124	<0.11	<0.18	<0.13	<0.15	<2.62
Average			<0.10	<0.17	<0.13	<0.15	<2.49
Blank	<200						

Ammonia

Test No.	Ammonia Collected µg	Dry Volume Sampled Rm^3*	Ammonia Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Ammonia Emission Rate mg/s
1	227	1.181	0.11	0.19	0.14	0.16	2.72
2	529	1.158	0.27	0.46	0.34	0.38	6.48
3	689	1.124	0.36	0.61	0.46	0.52	9.01
Average			0.25	0.42	0.31	0.35	6.07
Blank	<23.6						

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 10
Covanta - Durham York Energy Centre
Boiler No. 1
Combustion Gas Analyses

Data measured by the DYEC CEMS from May 2 to May 4, 2016 and May 9 to May 11, 2016

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (%, 1 hr Avg)	6.42	7.52	8.93
BH Outlet	Carbon Dioxide (kg/Rm^3, 1 hr Avg) *	0.17	0.21	0.23
BH Outlet	Carbon Monoxide (mg/Rm^3, 1 hr Avg) *	5	15	28
BH Outlet	Carbon Monoxide (mg/Rm^3, 4 hr Avg) *	5.8	14.8	22.5
BH Outlet	Sulphur Dioxide (mg/Rm^3, 1 hr Avg) *	0	0	2
BH Outlet	Sulphur Dioxide (mg/Rm^3, 24 hr Avg) *	0	0	0.2
BH Outlet	Nitrogen Oxides (mg/Rm^3, 1 hr Avg) *	93	108	126
BH Outlet	Nitrogen Oxides (mg/Rm^3, 24 hr Avg) *	105	108	111
BH Outlet	Hydrogen Chloride (mg/Rm^3, 1 hr Avg) *	2	5	10
BH Outlet	Hydrogen Chloride (mg/Rm^3, 24 hr Avg) *	4.2	5.0	5.6
BH Outlet	Total Hydrocarbons (mg/Rm^3, 1 hr Avg) *	0	0	1
Scrubber Inlet	Oxygen (%, 1 hr Avg)	7	8	9

Data measured by the ORTECH CEMS on April 20, 2016

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry) **	0	0.5	1.0
BH Outlet	2	Total Hydrocarbons (ppm dry) **	0.2	1.9	6.6
BH Outlet	3	Total Hydrocarbons (ppm dry) **	0.3	0.8	1.7
BH Outlet	4	Total Hydrocarbons (ppm dry) **	0.2	0.6	1.0
BH Outlet	5	Total Hydrocarbons (ppm dry) **	0.2	0.6	1.0
BH Outlet	6	Total Hydrocarbons (ppm dry) **	0	0.3	0.5
Average		Total Hydrocarbons (ppm dry) **		0.8	

* Reference conditions, dry basis adjusted to 11% oxygen

** Half hour tests reported on a dry basis as equivalent methane

TABLE 11
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Analyses Test No. 1

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	6.4	3.2	9.60
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	30.6	1.36	32.0
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	6.3	6.30
Lead	0.88	0.65	1.53
Manganese	3.1	3.79	6.89
Mercury *	0.018	2.91	2.93
Molybdenum	44.4	<0.25	44.4
Nickel	25.8	1.25	27.1
Selenium	<2.0	<0.50	<0.50
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	12	5.6	17.6
Total			152

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 12
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Analyses Test No. 2

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	<6.0	3.5	3.50
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	2.32	2.31	4.63
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	8.0	8.00
Lead	0.48	0.58	1.06
Manganese	1.5	3.39	4.89
Mercury *	<0.015	2.13	2.13
Molybdenum	20.3	<0.25	20.3
Nickel	1.4	1.31	2.71
Selenium	<2.0	1.15	1.15
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	4.0	4.00
Total			55.5

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 13
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Analyses Test No. 3

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	7.1	2.4	9.50
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	7.15	1.46	8.61
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	7.6	7.60
Lead	0.66	0.46	1.12
Manganese	2.3	2.86	5.16
Mercury *	<0.015	1.13	1.13
Molybdenum	44.1	<0.25	44.1
Nickel	17.2	1.13	18.3
Selenium	<2.0	1.08	1.08
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	6.0	6.00
Total			106

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 14
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 1

Metal	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.80	<0.14	<0.23	<0.17	<0.19	<0.0033
Arsenic	<0.20	<0.034	<0.058	<0.043	<0.049	<0.00083
Barium	9.60	1.63	2.80	2.06	2.34	0.040
Beryllium	<0.20	<0.034	<0.058	<0.043	<0.049	<0.00083
Cadmium	<0.20	<0.034	<0.058	<0.043	<0.049	<0.00083
Chromium	32.0	5.43	9.33	6.86	7.79	0.13
Cobalt	<0.20	<0.034	<0.058	<0.043	<0.049	<0.00083
Copper	6.30	1.07	1.84	1.35	1.54	0.026
Lead	1.53	0.26	0.45	0.33	0.37	0.0063
Manganese	6.89	1.17	2.01	1.48	1.68	0.029
Mercury	2.93	0.50	0.85	0.63	0.71	0.012
Molybdenum	44.4	7.54	13.0	9.53	10.8	0.18
Nickel	27.1	4.59	7.89	5.81	6.59	0.11
Selenium	<0.50	<0.085	<0.15	<0.11	<0.12	<0.0021
Silver	<0.40	<0.068	<0.12	<0.086	<0.097	<0.0017
Thallium	<1.00	<0.17	<0.29	<0.21	<0.24	<0.0041
Vanadium	<0.15	<0.025	<0.044	<0.032	<0.037	<0.00062
Zinc	17.6	2.99	5.14	3.78	4.29	0.073
Total	152	25.8	44.3	32.6	37.0	0.63

Dry Gas Volume Sampled (Rm³*) :	3.427
Actual Flowrate (m³/s) :	24.4
Dry Reference Flowrate (Rm³/s*) :	14.2
Dry Adjusted Flowrate (Rm³/s**) :	19.3
Wet Reference Flowrate (Rm³/s*) :	17.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 15
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 2

Metal	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.80	<0.13	<0.23	<0.17	<0.19	<0.0033
Arsenic	<0.20	<0.034	<0.057	<0.043	<0.048	<0.00084
Barium	3.50	0.59	1.00	0.75	0.84	0.015
Beryllium	<0.20	<0.034	<0.057	<0.043	<0.048	<0.00084
Cadmium	<0.20	<0.034	<0.057	<0.043	<0.048	<0.00084
Chromium	4.63	0.78	1.32	0.99	1.11	0.019
Cobalt	<0.20	<0.034	<0.057	<0.043	<0.048	<0.00084
Copper	8.00	1.34	2.28	1.72	1.92	0.033
Lead	1.06	0.18	0.30	0.23	0.25	0.0044
Manganese	4.89	0.82	1.39	1.05	1.18	0.020
Mercury	2.13	0.36	0.61	0.46	0.51	0.0089
Molybdenum	20.3	3.41	5.78	4.36	4.88	0.085
Nickel	2.71	0.46	0.77	0.58	0.65	0.011
Selenium	1.15	0.19	0.33	0.25	0.28	0.0048
Silver	<0.40	<0.067	<0.11	<0.086	<0.096	<0.0017
Thallium	<1.00	<0.17	<0.28	<0.21	<0.24	<0.0042
Vanadium	<0.15	<0.025	<0.043	<0.032	<0.036	<0.00063
Zinc	4.00	0.67	1.14	0.86	0.96	0.017
Total	55.5	9.33	15.8	11.9	13.4	0.23

Dry Gas Volume Sampled (Rm³*) :	3.513
Actual Flowrate (m³/s) :	24.9
Dry Reference Flowrate (Rm³/s*) :	14.7
Dry Adjusted Flowrate (Rm³/s**) :	19.5
Wet Reference Flowrate (Rm³/s*) :	17.4

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 16
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 3

Metal	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.80	<0.14	<0.24	<0.17	<0.20	<0.0033
Arsenic	<0.20	<0.035	<0.060	<0.043	<0.051	<0.00084
Barium	9.50	1.65	2.86	2.05	2.41	0.040
Beryllium	<0.20	<0.035	<0.060	<0.043	<0.051	<0.00084
Cadmium	<0.20	<0.035	<0.060	<0.043	<0.051	<0.00084
Chromium	8.61	1.50	2.59	1.86	2.18	0.036
Cobalt	<0.20	<0.035	<0.060	<0.043	<0.051	<0.00084
Copper	7.60	1.32	2.29	1.64	1.93	0.032
Lead	1.12	0.19	0.34	0.24	0.28	0.0047
Manganese	5.16	0.90	1.55	1.11	1.31	0.022
Mercury	1.13	0.20	0.34	0.24	0.29	0.0047
Molybdenum	44.1	7.66	13.3	9.51	11.2	0.18
Nickel	18.3	3.18	5.52	3.95	4.65	0.077
Selenium	1.08	0.19	0.33	0.23	0.27	0.0045
Silver	<0.40	<0.069	<0.12	<0.086	<0.10	<0.0017
Thallium	<1.00	<0.17	<0.30	<0.22	<0.25	<0.0042
Vanadium	<0.15	<0.026	<0.045	<0.032	<0.038	<0.00063
Zinc	6.00	1.04	1.81	1.29	1.52	0.025
Total	106	18.4	31.9	22.8	26.8	0.44

Dry Gas Volume Sampled (Rm³*) :	3.321
Actual Flowrate (m³/s) :	24.1
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	19.4
Wet Reference Flowrate (Rm³/s*) :	16.5

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 17
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Metal Actual Concentrations

Metal	Actual Concentration Test No. 1 µg/m³	Test No. 2 µg/m³	Test No. 3 µg/m³	Average µg/m³	Coefficient of Variation %
Antimony	<0.14	<0.13	<0.14	<0.14	1.7
Arsenic	<0.034	<0.034	<0.035	<0.034	1.7
Barium	1.63	0.59	1.65	1.29	47.1
Beryllium	<0.034	<0.034	<0.035	<0.034	1.7
Cadmium	<0.034	<0.034	<0.035	<0.034	1.7
Chromium	5.43	0.78	1.50	2.57	97.5
Cobalt	<0.034	<0.034	<0.035	<0.034	1.7
Copper	1.07	1.34	1.32	1.24	12.2
Lead	0.26	0.18	0.19	0.21	20.5
Manganese	1.17	0.82	0.90	0.96	19.1
Mercury	0.50	0.36	0.20	0.35	42.9
Molybdenum	7.54	3.41	7.66	6.20	39.0
Nickel	4.59	0.46	3.18	2.74	76.7
Selenium	<0.085	0.19	0.19	<0.16	39.3
Silver	<0.068	<0.067	<0.069	<0.068	1.7
Thallium	<0.17	<0.17	<0.17	<0.17	1.7
Vanadium	<0.025	<0.025	<0.026	<0.026	1.7
Zinc	2.99	0.67	1.04	1.57	79.4
Total	25.8	9.33	18.4	17.8	46.2

TABLE 18
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Metal Dry Reference Concentrations

Metal	Dry Reference Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	<0.23	<0.23	<0.24	<0.23	2.8
Arsenic	<0.058	<0.057	<0.060	<0.059	2.8
Barium	2.80	1.00	2.86	2.22	47.7
Beryllium	<0.058	<0.057	<0.060	<0.059	2.8
Cadmium	<0.058	<0.057	<0.060	<0.059	2.8
Chromium	9.33	1.32	2.59	4.41	97.5
Cobalt	<0.058	<0.057	<0.060	<0.059	2.8
Copper	1.84	2.28	2.29	2.13	12.0
Lead	0.45	0.30	0.34	0.36	20.8
Manganese	2.01	1.39	1.55	1.65	19.4
Mercury	0.85	0.61	0.34	0.60	42.7
Molybdenum	13.0	5.78	13.3	10.7	39.7
Nickel	7.89	0.77	5.52	4.73	76.7
Selenium	<0.15	0.33	0.33	<0.27	39.1
Silver	<0.12	<0.11	<0.12	<0.12	2.8
Thallium	<0.29	<0.28	<0.30	<0.29	2.8
Vanadium	<0.044	<0.043	<0.045	<0.044	2.8
Zinc	5.14	1.14	1.81	2.69	79.5
Total	44.3	15.8	31.9	30.7	46.6

* At 25°C and 1 atmosphere

TABLE 19
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Metal Dry Adjusted Concentrations

Metal	Dry Adjusted Concentration				Coefficient
	Test No. 1 µg/Rm³**	Test No. 2 µg/Rm³**	Test No. 3 µg/Rm³**	Average µg/Rm³**	of Variation %
Antimony	<0.17	<0.17	<0.17	<0.17	0.3
Arsenic	<0.043	<0.043	<0.043	<0.043	0.3
Barium	2.06	0.75	2.05	1.62	46.5
Beryllium	<0.043	<0.043	<0.043	<0.043	0.3
Cadmium	<0.043	<0.043	<0.043	<0.043	0.3
Chromium	6.86	0.99	1.86	3.24	97.9
Cobalt	<0.043	<0.043	<0.043	<0.043	0.3
Copper	1.35	1.72	1.64	1.57	12.2
Lead	0.33	0.23	0.24	0.27	20.6
Manganese	1.48	1.05	1.11	1.21	19.1
Mercury	0.63	0.46	0.24	0.44	43.4
Molybdenum	9.53	4.36	9.51	7.80	38.2
Nickel	5.81	0.58	3.95	3.45	76.8
Selenium	<0.11	0.25	0.23	<0.20	39.3
Silver	<0.086	<0.086	<0.086	<0.086	0.3
Thallium	<0.21	<0.21	<0.22	<0.22	0.3
Vanadium	<0.032	<0.032	<0.032	<0.032	0.3
Zinc	3.78	0.86	1.29	1.98	79.7
Total	32.6	11.9	22.8	22.4	46.1

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 20
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Metal Wet Reference Concentrations

Metal	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	<0.19	<0.19	<0.20	<0.20	2.8
Arsenic	<0.049	<0.048	<0.051	<0.049	2.8
Barium	2.34	0.84	2.41	1.86	47.5
Beryllium	<0.049	<0.048	<0.051	<0.049	2.8
Cadmium	<0.049	<0.048	<0.051	<0.049	2.8
Chromium	7.79	1.11	2.18	3.70	97.0
Cobalt	<0.049	<0.048	<0.051	<0.049	2.8
Copper	1.54	1.92	1.93	1.80	12.5
Lead	0.37	0.25	0.28	0.30	20.2
Manganese	1.68	1.18	1.31	1.39	18.8
Mercury	0.71	0.51	0.29	0.50	42.3
Molybdenum	10.8	4.88	11.2	8.96	39.5
Nickel	6.59	0.65	4.65	3.96	76.4
Selenium	<0.12	0.28	0.27	<0.22	39.5
Silver	<0.097	<0.096	<0.10	<0.098	2.8
Thallium	<0.24	<0.24	<0.25	<0.25	2.8
Vanadium	<0.037	<0.036	<0.038	<0.037	2.8
Zinc	4.29	0.96	1.52	2.26	78.9
Total	37.0	13.4	26.8	25.7	46.1

* At 25°C and 1 atmosphere

TABLE 21
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Metal Emission Rates

Metal	Emission Rate				Coefficient
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	of Variation %
Antimony	<0.0033	<0.0033	<0.0033	<0.0033	0.6
Arsenic	<0.00083	<0.00084	<0.00084	<0.00083	0.6
Barium	0.040	0.015	0.040	0.031	46.2
Beryllium	<0.00083	<0.00084	<0.00084	<0.00083	0.6
Cadmium	<0.00083	<0.00084	<0.00084	<0.00083	0.6
Chromium	0.13	0.019	0.036	0.063	97.5
Cobalt	<0.00083	<0.00084	<0.00084	<0.00083	0.6
Copper	0.026	0.033	0.032	0.030	12.7
Lead	0.0063	0.0044	0.0047	0.0052	20.1
Manganese	0.029	0.020	0.022	0.024	18.6
Mercury	0.012	0.0089	0.0047	0.0086	43.1
Molybdenum	0.18	0.085	0.18	0.15	37.9
Nickel	0.11	0.011	0.077	0.067	76.6
Selenium	<0.0021	0.0048	0.0045	<0.0038	39.6
Silver	<0.0017	<0.0017	<0.0017	<0.0017	0.6
Thallium	<0.0041	<0.0042	<0.0042	<0.0042	0.6
Vanadium	<0.00062	<0.00063	<0.00063	<0.00063	0.6
Zinc	0.073	0.017	0.025	0.038	79.2
Total	0.63	0.23	0.44	0.43	45.7

TABLE 22
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Metal Emission Data

Metal	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.14	<0.23	<0.17	<0.20	<0.0033
Arsenic	<0.034	<0.059	<0.043	<0.049	<0.00083
Barium	1.29	2.22	1.62	1.86	0.031
Beryllium	<0.034	<0.059	<0.043	<0.049	<0.00083
Cadmium	<0.034	<0.059	<0.043	<0.049	<0.00083
Chromium	2.57	4.41	3.24	3.70	0.063
Cobalt	<0.034	<0.059	<0.043	<0.049	<0.00083
Copper	1.24	2.13	1.57	1.80	0.030
Lead	0.21	0.36	0.27	0.30	0.0052
Manganese	0.96	1.65	1.21	1.39	0.024
Mercury	0.35	0.60	0.44	0.50	0.0086
Molybdenum	6.20	10.7	7.80	8.96	0.15
Nickel	2.74	4.73	3.45	3.96	0.067
Selenium	<0.16	<0.27	<0.20	<0.22	<0.0038
Silver	<0.068	<0.12	<0.086	<0.098	<0.0017
Thallium	<0.17	<0.29	<0.22	<0.25	<0.0042
Vanadium	<0.026	<0.044	<0.032	<0.037	<0.00063
Zinc	1.57	2.69	1.98	2.26	0.038
Total	17.8	30.7	22.4	25.7	0.43

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 23
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Blank Train Metal Analyses

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	17.9	2.0	19.9
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	2.06	0.81	2.87
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	3.7	3.70
Lead	<0.40	0.31	0.31
Manganese	<1.5	1.94	1.94
Mercury *	<0.015	0.72	0.72
Molybdenum	32.6	<0.25	32.6
Nickel	<1.0	1.55	1.55
Selenium	<2.0	<0.50	<0.50
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	<2.5	<10.0
Total			77.2

* Hydrofluoric acid digest not included in the total.
** Includes the permanganate impingers.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). Where all values are reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate the total collected in the blank, the remaining fractions are assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate the total collected in the blank.

TABLE 24
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	5900	0.53	0.90	0.67	0.76	12.4
Pentachlorodibenzo-p-dioxins	52200	4.65	7.98	5.91	6.71	109
Hexachlorodibenzo-p-dioxins	173000	15.4	26.5	19.6	22.2	362
Heptachlorodibenzo-p-dioxins	125000	11.1	19.1	14.2	16.1	262
Octachlorodibenzo-p-dioxin	35800	3.19	5.47	4.05	4.60	75.0
Total	391900	34.9	59.9	44.4	50.4	821

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	9090	0.81	1.39	1.03	1.17	19.0
Pentachlorodibenzofurans	22100	1.97	3.38	2.50	2.84	46.3
Hexachlorodibenzofurans	47800	4.26	7.31	5.41	6.14	100
Heptachlorodibenzofurans	40100	3.58	6.13	4.54	5.15	84.0
Octachlorodibenzofuran	<9500	<0.85	<1.45	<1.08	<1.22	<19.9
Total	<128590	<11.5	<19.7	<14.6	<16.5	<269

Dry Gas Volume Sampled (Rm³*) :	6.539
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 25
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	4680	0.41	0.70	0.53	0.59	9.77
Pentachlorodibenzo-p-dioxins	33400	2.93	5.02	3.75	4.20	69.8
Hexachlorodibenzo-p-dioxins	118000	10.4	17.7	13.2	14.8	246
Heptachlorodibenzo-p-dioxins	93200	8.18	14.0	10.5	11.7	195
Octachlorodibenzo-p-dioxin	28400	2.49	4.27	3.19	3.57	59.3
Total	277680	24.4	41.7	31.2	34.9	580

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	6560	0.58	0.99	0.74	0.83	13.7
Pentachlorodibenzofurans	15100	1.32	2.27	1.70	1.90	31.5
Hexachlorodibenzofurans	31700	2.78	4.76	3.56	3.99	66.2
Heptachlorodibenzofurans	27900	2.45	4.19	3.13	3.51	58.3
Octachlorodibenzofuran	<7700	<0.68	<1.16	<0.86	<0.97	<16.1
Total	<88960	<7.81	<13.4	<9.99	<11.2	<186

Dry Gas Volume Sampled (Rm³*) :	6.656
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 26
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	3280	0.28	0.48	0.35	0.40	6.84
Pentachlorodibenzo-p-dioxins	27000	2.29	3.94	2.90	3.27	56.3
Hexachlorodibenzo-p-dioxins	104000	8.81	15.2	11.2	12.6	217
Heptachlorodibenzo-p-dioxins	126000	10.7	18.4	13.5	15.3	263
Octachlorodibenzo-p-dioxin	27200	2.30	3.97	2.92	3.30	56.7
Total	287480	24.4	41.9	30.9	34.8	599

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate ng/s
Tetrachlorodibenzofurans	5090	0.43	0.74	0.55	0.62	10.6
Pentachlorodibenzofurans	11200	0.95	1.63	1.20	1.36	23.3
Hexachlorodibenzofurans	27700	2.35	4.04	2.98	3.36	57.7
Heptachlorodibenzofurans	23700	2.01	3.45	2.55	2.87	49.4
Octachlorodibenzofuran	<7500	<0.64	<1.09	<0.81	<0.91	<15.6
Total	<75190	<6.37	<11.0	<8.08	<9.11	<157

Dry Gas Volume Sampled (Rm^3*) :	6.860
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.3
Dry Adjusted Flowrate (Rm^3/s**) :	19.4
Wet Reference Flowrate (Rm^3/s*) :	17.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 27
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.53	0.41	0.28	0.40	30.7
Pentachlorodibenzo-p-dioxins	4.65	2.93	2.29	3.29	37.2
Hexachlorodibenzo-p-dioxins	15.4	10.4	8.81	11.5	30.0
Heptachlorodibenzo-p-dioxins	11.1	8.18	10.7	10.0	16.0
Octachlorodibenzo-p-dioxin	3.19	2.49	2.30	2.66	17.6
Total	34.9	24.4	24.4	27.9	21.9

Furans

Congener Group	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
Tetrachlorodibenzofurans	0.81	0.58	0.43	0.61	31.6
Pentachlorodibenzofurans	1.97	1.32	0.95	1.41	36.5
Hexachlorodibenzofurans	4.26	2.78	2.35	3.13	32.1
Heptachlorodibenzofurans	3.58	2.45	2.01	2.68	30.2
Octachlorodibenzofuran	<0.85	<0.68	<0.64	<0.72	15.6
Total	<11.5	<7.81	<6.37	<8.55	30.7

TABLE 28
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.90	0.70	0.48	0.69	30.6
Pentachlorodibenzo-p-dioxins	7.98	5.02	3.94	5.65	37.1
Hexachlorodibenzo-p-dioxins	26.5	17.7	15.2	19.8	29.9
Heptachlorodibenzo-p-dioxins	19.1	14.0	18.4	17.2	16.1
Octachlorodibenzo-p-dioxin	5.47	4.27	3.97	4.57	17.5
Total	59.9	41.7	41.9	47.9	21.9

Furans

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	1.39	0.99	0.74	1.04	31.5
Pentachlorodibenzofurans	3.38	2.27	1.63	2.43	36.4
Hexachlorodibenzofurans	7.31	4.76	4.04	5.37	32.0
Heptachlorodibenzofurans	6.13	4.19	3.45	4.59	30.1
Octachlorodibenzofuran	<1.45	<1.16	<1.09	<1.23	15.5
Total	<19.7	<13.4	<11.0	<14.7	30.7

* At 25°C and 1 atmosphere

TABLE 29
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.67	0.53	0.35	0.52	30.7
Pentachlorodibenzo-p-dioxins	5.91	3.75	2.90	4.19	37.1
Hexachlorodibenzo-p-dioxins	19.6	13.2	11.2	14.7	29.9
Heptachlorodibenzo-p-dioxins	14.2	10.5	13.5	12.7	15.5
Octachlorodibenzo-p-dioxin	4.05	3.19	2.92	3.39	17.5
Total	44.4	31.2	30.9	35.5	21.7

Furans

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	1.03	0.74	0.55	0.77	31.5
Pentachlorodibenzofurans	2.50	1.70	1.20	1.80	36.4
Hexachlorodibenzofurans	5.41	3.56	2.98	3.98	31.9
Heptachlorodibenzofurans	4.54	3.13	2.55	3.41	30.1
Octachlorodibenzofuran	<1.08	<0.86	<0.81	<0.92	15.5
Total	<14.6	<9.99	<8.08	<10.9	30.6

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 30
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.76	0.59	0.40	0.58	31.0
Pentachlorodibenzo-p-dioxins	6.71	4.20	3.27	4.73	37.6
Hexachlorodibenzo-p-dioxins	22.2	14.8	12.6	16.6	30.4
Heptachlorodibenzo-p-dioxins	16.1	11.7	15.3	14.4	16.1
Octachlorodibenzo-p-dioxin	4.60	3.57	3.30	3.82	18.0
Total	50.4	34.9	34.8	40.0	22.3

Furans

Congener Group	Wet reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	1.17	0.83	0.62	0.87	32.0
Pentachlorodibenzofurans	2.84	1.90	1.36	2.03	36.9
Hexachlorodibenzofurans	6.14	3.99	3.36	4.50	32.5
Heptachlorodibenzofurans	5.15	3.51	2.87	3.85	30.6
Octachlorodibenzofuran	<1.22	<0.97	<0.91	<1.03	16.0
Total	<16.5	<11.2	<9.11	<12.3	31.2

* At 25°C and 1 atmosphere

TABLE 31
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	12.4	9.77	6.84	9.66	28.6
Pentachlorodibenzo-p-dioxins	109	69.8	56.3	78.5	35.2
Hexachlorodibenzo-p-dioxins	362	246	217	275	28.0
Heptachlorodibenzo-p-dioxins	262	195	263	240	16.3
Octachlorodibenzo-p-dioxin	75.0	59.3	56.7	63.7	15.6
Total	821	580	599	667	20.1

Furans

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzofurans	19.0	13.7	10.6	14.5	29.5
Pentachlorodibenzofurans	46.3	31.5	23.3	33.7	34.5
Hexachlorodibenzofurans	100	66.2	57.7	74.7	30.0
Heptachlorodibenzofurans	84.0	58.3	49.4	63.9	28.1
Octachlorodibenzofuran	<19.9	<16.1	<15.6	<17.2	13.6
Total	<269	<186	<157	<204	28.7

TABLE 32
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	0.40	0.69	0.52	0.58	9.66
Pentachlorodibenzo-p-dioxins	3.29	5.65	4.19	4.73	78.5
Hexachlorodibenzo-p-dioxins	11.5	19.8	14.7	16.6	275
Heptachlorodibenzo-p-dioxins	10.0	17.2	12.7	14.4	240
Octachlorodibenzo-p-dioxin	2.66	4.57	3.39	3.82	63.7
Total	27.9	47.9	35.5	40.0	667

Furans

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	0.61	1.04	0.77	0.87	14.5
Pentachlorodibenzofurans	1.41	2.43	1.80	2.03	33.7
Hexachlorodibenzofurans	3.13	5.37	3.98	4.50	74.7
Heptachlorodibenzofurans	2.68	4.59	3.41	3.85	63.9
Octachlorodibenzofuran	<0.72	<1.23	<0.92	<1.03	17.2
Total	<8.55	<14.7	<10.9	<12.3	204

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 33
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Blank Dioxin and Furan Congener Group Analyses

Dioxins

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzo-p-dioxins	<7.0	<7.8
Pentachlorodibenzo-p-dioxins	<8.7	<7.2
Hexachlorodibenzo-p-dioxins	<11	<9.1
Heptachlorodibenzo-p-dioxins	10.6	<5.9
Octachlorodibenzo-p-dioxin	28.2	25.4
Total	<65.5	<55.4

Furans

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzofurans	<6.2	<3.9
Pentachlorodibenzofurans	<8.0	<5.8
Hexachlorodibenzofurans	<6.0	<6.0
Heptachlorodibenzofurans	<4.8	<6.1
Octachlorodibenzofuran	<6.3	<6.0
Total	<31.3	<27.8

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 34
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	Total Collected pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	54.7	4.88	8.37	6.19	7.03	0.11
12378-pentachlorodibenzo-p-dioxin	1180	105	180	134	152	2.47
123478-hexachlorodibenzo-p-dioxin	4510	402	690	511	580	9.45
123678-hexachlorodibenzo-p-dioxin	14700	1311	2248	1665	1889	30.8
123789-hexachlorodibenzo-p-dioxin	22900	2042	3502	2593	2943	48.0
1234678-heptachlorodibenzo-p-dioxin	62100	5536	9497	7033	7982	130
Octachlorodibenzo-p-dioxin	35800	3192	5475	4054	4602	75.0
2378-tetrachlorodibenzofuran	309	27.5	47.3	35.0	39.7	0.65
12378-pentachlorodibenzofuran	978	87.2	150	111	126	2.05
23478-pentachlorodibenzofuran	<3400	<303	<520	<385	<437	<7.12
123478-hexachlorodibenzofuran	11200	999	1713	1268	1440	23.5
123678-hexachlorodibenzofuran	5630	502	861	638	724	11.8
234678-hexachlorodibenzofuran	10100	900	1545	1144	1298	21.2
123789-hexachlorodibenzofuran	<750	<66.9	<115	<84.9	<96.4	<1.57
1234678-heptachlorodibenzofuran	20200	1801	3089	2288	2596	42.3
1234789-heptachlorodibenzofuran	4670	416	714	529	600	9.78
Octachlorodibenzofuran	<9500	<847	<1453	<1076	<1221	<19.9
PCB 81	240	21.4	36.7	27.2	30.8	0.50
PCB 77	540	48.1	82.6	61.2	69.4	1.13
PCB 123	<110	<9.81	<16.8	<12.5	<14.1	<0.23
PCB 118	3200	285	489	362	411	6.70
PCB 114	<97	<8.65	<14.8	<11.0	<12.5	<0.20
PCB 105	1300	116	199	147	167	2.72
PCB 126	920	82.0	141	104	118	1.93
PCB 167	230	20.5	35.2	26.0	29.6	0.48
PCB 156 + PCB 157	1300	116	199	147	167	2.72
PCB 169	840	74.9	128	95.1	108	1.76
PCB 189	1400	125	214	159	180	2.93
Total Dioxins & Furans Only	<207982	<18542	<31806	<23554	<26733	<436
Total PCBs Only	<10177	<907	<1556	<1153	<1308	<21.3
Total Dioxins & Furans and PCBs	<218159	<19450	<33363	<24706	<28041	<457

Dry Gas Volume Sampled (Rm^3*) :	6.539
Actual Flowrate (m^3/s) :	23.5
Dry Reference Flowrate (Rm^3/s*) :	13.7
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	16.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 35
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	Total Collected pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	26.0	2.28	3.91	2.92	3.27	0.054
12378-pentachlorodibenzo-p-dioxin	703	61.7	106	78.9	88.4	1.47
123478-hexachlorodibenzo-p-dioxin	2960	260	445	332	372	6.18
123678-hexachlorodibenzo-p-dioxin	8490	745	1276	953	1068	17.7
123789-hexachlorodibenzo-p-dioxin	9870	866	1483	1108	1242	20.6
1234678-heptachlorodibenzo-p-dioxin	46300	4063	6956	5198	5825	96.7
Octachlorodibenzo-p-dioxin	28400	2492	4267	3189	3573	59.3
2378-tetrachlorodibenzofuran	243	21.3	36.5	27.3	30.6	0.51
12378-pentachlorodibenzofuran	575	50.5	86.4	64.6	72.3	1.20
23478-pentachlorodibenzofuran	<2000	<175	<300	<225	<252	<4.18
123478-hexachlorodibenzofuran	7670	673	1152	861	965	16.0
123678-hexachlorodibenzofuran	3690	324	554	414	464	7.71
234678-hexachlorodibenzofuran	6200	544	931	696	780	12.9
123789-hexachlorodibenzofuran	<460	<40.4	<69.1	<51.6	<57.9	<0.96
1234678-heptachlorodibenzofuran	14100	1237	2118	1583	1774	29.4
1234789-heptachlorodibenzofuran	3250	285	488	365	409	6.79
Octachlorodibenzofuran	<7700	<676	<1157	<865	<969	<16.1
PCB 81	160	14.0	24.0	18.0	20.1	0.33
PCB 77	390	34.2	58.6	43.8	49.1	0.81
PCB 123	<67	<5.88	<10.1	<7.52	<8.43	<0.14
PCB 118	2100	184	316	236	264	4.39
PCB 114	<120	<10.5	<18.0	<13.5	<15.1	<0.25
PCB 105	810	71.1	122	90.9	102	1.69
PCB 126	520	45.6	78.1	58.4	65.4	1.09
PCB 167	<180	<15.8	<27.0	<20.2	<22.6	<0.38
PCB 156 + PCB 157	920	80.7	138	103	116	1.92
PCB 169	600	52.6	90.1	67.4	75.5	1.25
PCB 189	1100	96.5	165	124	138	2.30
Total Dioxins & Furans Only	<142637	<12516	<21430	<16015	<17944	<298
Total PCBs Only	<6967	<611	<1047	<782	<876	<14.5
Total Dioxins & Furans and PCBs	<149604	<13127	<22477	<16797	<18821	<312

Dry Gas Volume Sampled (Rm³*) :	6.656
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 36
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	Total Collected pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	24.5	2.08	3.57	2.63	2.97	0.051
12378-pentachlorodibenzo-p-dioxin	545	46.2	79.4	58.6	66.1	1.14
123478-hexachlorodibenzo-p-dioxin	2730	231	398	293	331	5.69
123678-hexachlorodibenzo-p-dioxin	7400	627	1079	795	897	15.4
123789-hexachlorodibenzo-p-dioxin	9470	802	1380	1018	1148	19.7
1234678-heptachlorodibenzo-p-dioxin	90100	7635	13134	9681	10920	188
Octachlorodibenzo-p-dioxin	27200	2305	3965	2923	3296	56.7
2378-tetrachlorodibenzofuran	181	15.3	26.4	19.4	21.9	0.38
12378-pentachlorodibenzofuran	445	37.7	64.9	47.8	53.9	0.93
23478-pentachlorodibenzofuran	<1500	<127	<219	<161	<182	<3.13
123478-hexachlorodibenzofuran	6160	522	898	662	747	12.8
123678-hexachlorodibenzofuran	2920	247	426	314	354	6.09
234678-hexachlorodibenzofuran	5710	484	832	614	692	11.9
123789-hexachlorodibenzofuran	<330	<28.0	<48.1	<35.5	<40.0	<0.69
1234678-heptachlorodibenzofuran	12000	1017	1749	1289	1454	25.0
1234789-heptachlorodibenzofuran	2820	239	411	303	342	5.88
Octachlorodibenzofuran	<7500	<636	<1093	<806	<909	<15.6
PCB 81	120	10.2	17.5	12.9	14.5	0.25
PCB 77	330	28.0	48.1	35.5	40.0	0.69
PCB 123	<74	<6.27	<10.8	<7.95	<8.97	<0.15
PCB 118	1100	93.2	160	118	133	2.29
PCB 114	84	7.12	12.2	9.03	10.2	0.18
PCB 105	500	42.4	72.9	53.7	60.6	1.04
PCB 126	370	31.4	53.9	39.8	44.8	0.77
PCB 167	130	11.0	19.0	14.0	15.8	0.27
PCB 156 + PCB 157	<520	<44.1	<75.8	<55.9	<63.0	<1.08
PCB 169	430	36.4	62.7	46.2	52.1	0.90
PCB 189	<680	<57.6	<99.1	<73.1	<82.4	<1.42
Total Dioxins & Furans Only	<177036	<15002	<25807	<19023	<21456	<369
Total PCBs Only	<4338	<368	<632	<466	<526	<9.04
Total Dioxins & Furans and PCBs	<181374	<15369	<26439	<19489	<21981	<378

Dry Gas Volume Sampled (Rm^3*) :	6.860
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.3
Dry Adjusted Flowrate (Rm^3/s**) :	19.4
Wet Reference Flowrate (Rm^3/s*) :	17.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 37
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1 pg/m³	Test No. 2 pg/m³	Test No. 3 pg/m³	Average pg/m³	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	4.88	2.28	2.08	3.08	50.7
12378-pentachlorodibenzo-p-dioxin	105	61.7	46.2	71.0	43.1
123478-hexachlorodibenzo-p-dioxin	402	260	231	298	30.7
123678-hexachlorodibenzo-p-dioxin	1311	745	627	894	40.9
123789-hexachlorodibenzo-p-dioxin	2042	866	802	1237	56.4
1234678-heptachlorodibenzo-p-dioxin	5536	4063	7635	5745	31.3
Octachlorodibenzo-p-dioxin	3192	2492	2305	2663	17.6
2378-tetrachlorodibenzofuran	27.5	21.3	15.3	21.4	28.5
12378-pentachlorodibenzofuran	87.2	50.5	37.7	58.5	44.0
23478-pentachlorodibenzofuran	<303	<175	<127	<202	45.0
123478-hexachlorodibenzofuran	999	673	522	731	33.3
123678-hexachlorodibenzofuran	502	324	247	358	36.5
234678-hexachlorodibenzofuran	900	544	484	643	35.0
123789-hexachlorodibenzofuran	<66.9	<40.4	<28.0	<45.1	44.1
1234678-heptachlorodibenzofuran	1801	1237	1017	1352	29.9
1234789-heptachlorodibenzofuran	416	285	239	313	29.4
Octachlorodibenzofuran	<847	<676	<636	<719	15.6
PCB 81	21.4	14.0	10.2	15.2	37.5
PCB 77	48.1	34.2	28.0	36.8	28.1
PCB 123	<9.81	<5.88	<6.27	<7.32	29.6
PCB 118	285	184	93.2	188	51.2
PCB 114	<8.65	<10.5	7.12	<8.77	19.5
PCB 105	116	71.1	42.4	76.4	48.5
PCB 126	82.0	45.6	31.4	53.0	49.3
PCB 167	20.5	<15.8	11.0	<15.8	30.1
PCB 156 + PCB 157	116	80.7	<44.1	<80.2	44.8
PCB 169	74.9	52.6	36.4	54.7	35.3
PCB 189	125	96.5	<57.6	<93.0	36.3
Total Dioxins & Furans Only	<18542	<12516	<15002	<15353	19.7
Total PCBs Only	<907	<611	<368	<629	43.0
Total Dioxins & Furans and PCBs	<19450	<13127	<15369	<15982	20.1

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 38
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	8.37	3.91	3.57	5.28	50.7
12378-pentachlorodibenzo-p-dioxin	180	106	79.4	122	43.0
123478-hexachlorodibenzo-p-dioxin	690	445	398	511	30.7
123678-hexachlorodibenzo-p-dioxin	2248	1276	1079	1534	40.8
123789-hexachlorodibenzo-p-dioxin	3502	1483	1380	2122	56.4
1234678-heptachlorodibenzo-p-dioxin	9497	6956	13134	9862	31.5
Octachlorodibenzo-p-dioxin	5475	4267	3965	4569	17.5
2378-tetrachlorodibenzofuran	47.3	36.5	26.4	36.7	28.4
12378-pentachlorodibenzofuran	150	86.4	64.9	100	43.9
23478-pentachlorodibenzofuran	<520	<300	<219	<346	45.0
123478-hexachlorodibenzofuran	1713	1152	898	1254	33.2
123678-hexachlorodibenzofuran	861	554	426	614	36.4
234678-hexachlorodibenzofuran	1545	931	832	1103	35.0
123789-hexachlorodibenzofuran	<115	<69.1	<48.1	<77.3	44.0
1234678-heptachlorodibenzofuran	3089	2118	1749	2319	29.8
1234789-heptachlorodibenzofuran	714	488	411	538	29.3
Octachlorodibenzofuran	<1453	<1157	<1093	<1234	15.5
PCB 81	36.7	24.0	17.5	26.1	37.4
PCB 77	82.6	58.6	48.1	63.1	28.0
PCB 123	<16.8	<10.1	<10.8	<12.6	29.5
PCB 118	489	316	160	322	51.2
PCB 114	<14.8	<18.0	12.2	<15.0	19.3
PCB 105	199	122	72.9	131	48.4
PCB 126	141	78.1	53.9	90.9	49.2
PCB 167	35.2	<27.0	19.0	<27.1	30.0
PCB 156 + PCB 157	199	138	<75.8	<138	44.7
PCB 169	128	90.1	62.7	93.8	35.2
PCB 189	214	165	<99.1	<159	36.2
Total Dioxins & Furans Only	<31806	<21430	<25807	<26348	19.8
Total PCBs Only	<1556	<1047	<632	<1078	42.9
Total Dioxins & Furans and PCBs	<33363	<22477	<26439	<27426	20.1

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 39
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	6.19	2.92	2.63	3.92	50.5
12378-pentachlorodibenzo-p-dioxin	134	78.9	58.6	90.4	43.0
123478-hexachlorodibenzo-p-dioxin	511	332	293	379	30.6
123678-hexachlorodibenzo-p-dioxin	1665	953	795	1138	40.7
123789-hexachlorodibenzo-p-dioxin	2593	1108	1018	1573	56.2
1234678-heptachlorodibenzo-p-dioxin	7033	5198	9681	7304	30.9
Octachlorodibenzo-p-dioxin	4054	3189	2923	3389	17.5
2378-tetrachlorodibenzofuran	35.0	27.3	19.4	27.2	28.5
12378-pentachlorodibenzofuran	111	64.6	47.8	74.4	43.8
23478-pentachlorodibenzofuran	<385	<225	<161	<257	44.9
123478-hexachlorodibenzofuran	1268	861	662	930	33.2
123678-hexachlorodibenzofuran	638	414	314	455	36.4
234678-hexachlorodibenzofuran	1144	696	614	818	34.9
123789-hexachlorodibenzofuran	<84.9	<51.6	<35.5	<57.3	44.0
1234678-heptachlorodibenzofuran	2288	1583	1289	1720	29.8
1234789-heptachlorodibenzofuran	529	365	303	399	29.3
Octachlorodibenzofuran	<1076	<865	<806	<915	15.5
PCB 81	27.2	18.0	12.9	19.3	37.4
PCB 77	61.2	43.8	35.5	46.8	28.0
PCB 123	<12.5	<7.52	<7.95	<9.31	29.4
PCB 118	362	236	118	239	51.1
PCB 114	<11.0	<13.5	9.03	<11.2	20.0
PCB 105	147	90.9	53.7	97.3	48.4
PCB 126	104	58.4	39.8	67.4	49.2
PCB 167	26.0	<20.2	14.0	<20.1	30.1
PCB 156 + PCB 157	147	103	<55.9	<102	44.7
PCB 169	95.1	67.4	46.2	69.6	35.3
PCB 189	159	124	<73.1	<118	36.3
Total Dioxins & Furans Only	<23554	<16015	<19023	<19530	19.4
Total PCBs Only	<1153	<782	<466	<800	42.9
Total Dioxins & Furans and PCBs	<24706	<16797	<19489	<20331	19.8

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 40
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	7.03	3.27	2.97	4.42	51.2
12378-pentachlorodibenzo-p-dioxin	152	88.4	66.1	102	43.5
123478-hexachlorodibenzo-p-dioxin	580	372	331	428	31.2
123678-hexachlorodibenzo-p-dioxin	1889	1068	897	1285	41.3
123789-hexachlorodibenzo-p-dioxin	2943	1242	1148	1778	56.9
1234678-heptachlorodibenzo-p-dioxin	7982	5825	10920	8242	31.0
Octachlorodibenzo-p-dioxin	4602	3573	3296	3824	18.0
2378-tetrachlorodibenzofuran	39.7	30.6	21.9	30.7	28.9
12378-pentachlorodibenzofuran	126	72.3	53.9	84.0	44.4
23478-pentachlorodibenzofuran	<437	<252	<182	<290	45.5
123478-hexachlorodibenzofuran	1440	965	747	1050	33.7
123678-hexachlorodibenzofuran	724	464	354	514	36.9
234678-hexachlorodibenzofuran	1298	780	692	923	35.5
123789-hexachlorodibenzofuran	<96.4	<57.9	<40.0	<64.8	44.5
1234678-heptachlorodibenzofuran	2596	1774	1454	1942	30.3
1234789-heptachlorodibenzofuran	600	409	342	450	29.8
Octachlorodibenzofuran	<1221	<969	<909	<1033	16.0
PCB 81	30.8	20.1	14.5	21.8	37.9
PCB 77	69.4	49.1	40.0	52.8	28.5
PCB 123	<14.1	<8.43	<8.97	<10.5	30.0
PCB 118	411	264	133	270	51.6
PCB 114	<12.5	<15.1	10.2	<12.6	19.6
PCB 105	167	102	60.6	110	48.9
PCB 126	118	65.4	44.8	76.2	49.7
PCB 167	29.6	<22.6	15.8	<22.7	30.5
PCB 156 + PCB 157	167	116	<63.0	<115	45.1
PCB 169	108	75.5	52.1	78.5	35.7
PCB 189	180	138	<82.4	<134	36.6
Total Dioxins & Furans Only	<26733	<17944	<21456	<22044	20.1
Total PCBs Only	<1308	<876	<526	<903	43.4
Total Dioxins & Furans and PCBs	<28041	<18821	<21981	<22948	20.4

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 41
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	0.11	0.054	0.051	0.073	48.8
12378-pentachlorodibenzo-p-dioxin	2.47	1.47	1.14	1.69	41.1
123478-hexachlorodibenzo-p-dioxin	9.45	6.18	5.69	7.11	28.7
123678-hexachlorodibenzo-p-dioxin	30.8	17.7	15.4	21.3	38.9
123789-hexachlorodibenzo-p-dioxin	48.0	20.6	19.7	29.4	54.5
1234678-heptachlorodibenzo-p-dioxin	130	96.7	188	138	33.4
Octachlorodibenzo-p-dioxin	75.0	59.3	56.7	63.7	15.6
2378-tetrachlorodibenzofuran	0.65	0.51	0.38	0.51	26.4
12378-pentachlorodibenzofuran	2.05	1.20	0.93	1.39	42.0
23478-pentachlorodibenzofuran	<7.12	<4.18	<3.13	<4.81	43.1
123478-hexachlorodibenzofuran	23.5	16.0	12.8	17.4	31.3
123678-hexachlorodibenzofuran	11.8	7.71	6.09	8.53	34.5
234678-hexachlorodibenzofuran	21.2	12.9	11.9	15.3	33.1
123789-hexachlorodibenzofuran	<1.57	<0.96	<0.69	<1.07	42.1
1234678-heptachlorodibenzofuran	42.3	29.4	25.0	32.3	27.9
1234789-heptachlorodibenzofuran	9.78	6.79	5.88	7.48	27.3
Octachlorodibenzofuran	<19.9	<16.1	<15.6	<17.2	13.6
PCB 81	0.50	0.33	0.25	0.36	35.5
PCB 77	1.13	0.81	0.69	0.88	26.0
PCB 123	<0.23	<0.14	<0.15	<0.17	27.8
PCB 118	6.70	4.39	2.29	4.46	49.5
PCB 114	<0.20	<0.25	0.18	<0.21	18.2
PCB 105	2.72	1.69	1.04	1.82	46.6
PCB 126	1.93	1.09	0.77	1.26	47.4
PCB 167	0.48	<0.38	0.27	<0.38	28.0
PCB 156 + PCB 157	2.72	1.92	<1.08	<1.91	42.9
PCB 169	1.76	1.25	0.90	1.30	33.3
PCB 189	2.93	2.30	<1.42	<2.22	34.3
Total Dioxins & Furans Only	<436	<298	<369	<368	18.8
Total PCBs Only	<21.3	<14.5	<9.04	<15.0	41.1
Total Dioxins & Furans and PCBs	<457	<312	<378	<383	18.9

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 42
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	3.08	5.28	3.92	4.42	0.073
12378-pentachlorodibenzo-p-dioxin	71.0	122	90.4	102	1.69
123478-hexachlorodibenzo-p-dioxin	298	511	379	428	7.11
123678-hexachlorodibenzo-p-dioxin	894	1534	1138	1285	21.3
123789-hexachlorodibenzo-p-dioxin	1237	2122	1573	1778	29.4
1234678-heptachlorodibenzo-p-dioxin	5745	9862	7304	8242	138
Octachlorodibenzo-p-dioxin	2663	4569	3389	3824	63.7
2378-tetrachlorodibenzofuran	21.4	36.7	27.2	30.7	0.51
12378-pentachlorodibenzofuran	58.5	100	74.4	84.0	1.39
23478-pentachlorodibenzofuran	<202	<346	<257	<290	<4.81
123478-hexachlorodibenzofuran	731	1254	930	1050	17.4
123678-hexachlorodibenzofuran	358	614	455	514	8.53
234678-hexachlorodibenzofuran	643	1103	818	923	15.3
123789-hexachlorodibenzofuran	<45.1	<77.3	<57.3	<64.8	<1.07
1234678-heptachlorodibenzofuran	1352	2319	1720	1942	32.3
1234789-heptachlorodibenzofuran	313	538	399	450	7.48
Octachlorodibenzofuran	<719	<1234	<915	<1033	<17.2
PCB 81	15.2	26.1	19.3	21.8	0.36
PCB 77	36.8	63.1	46.8	52.8	0.88
PCB 123	<7.32	<12.6	<9.31	<10.5	<0.17
PCB 118	188	322	239	270	4.46
PCB 114	<8.77	<15.0	<11.2	<12.6	<0.21
PCB 105	76.4	131	97.3	110	1.82
PCB 126	53.0	90.9	67.4	76.2	1.26
PCB 167	<15.8	<27.1	<20.1	<22.7	<0.38
PCB 156 + PCB 157	<80.2	<138	<102	<115	<1.91
PCB 169	54.7	93.8	69.6	78.5	1.30
PCB 189	<93.0	<159	<118	<134	<2.22
Total Dioxins & Furans Only	<15353	<26348	<19530	<22044	<368
Total PCBs Only	<629	<1078	<800	<903	<15.0
Total Dioxins & Furans and PCBs	<15982	<27426	<20331	<22948	<383

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 43
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Blank Dioxin and Furan Specific Isomer Analyses

Specific Isomer	Blank Train pg	Laboratory Blank pg
2378-tetrachlorodibenzo-p-dioxin	<5.7	<5.6
12378-pentachlorodibenzo-p-dioxin	<8.7	<7.2
123478-hexachlorodibenzo-p-dioxin	<6.0	<6.4
123678-hexachlorodibenzo-p-dioxin	<6.0	<6.5
123789-hexachlorodibenzo-p-dioxin	<5.4	<5.8
1234678-heptachlorodibenzo-p-dioxin	10.6	<5.9
Octachlorodibenzo-p-dioxin	28.2	25.4
2378-tetrachlorodibenzofuran	<3.8	<3.9
12378-pentachlorodibenzofuran	<8.0	<5.8
23478-pentachlorodibenzofuran	<8.0	<5.8
123478-hexachlorodibenzofuran	<6.0	<6.0
123678-hexachlorodibenzofuran	<5.5	<5.5
234678-hexachlorodibenzofuran	<6.0	<6.0
123789-hexachlorodibenzofuran	<6.6	<6.6
1234678-heptachlorodibenzofuran	<4.4	<5.6
1234789-heptachlorodibenzofuran	<5.3	<6.8
Octachlorodibenzofuran	<6.3	<6.0
PCB 81	<64	<120
PCB 77	<63	<120
PCB 123	<57	<110
PCB 118	440	<98
PCB 114	<49	<95
PCB 105	<150	<99
PCB 126	<51	<99
PCB 167	<90	<57
PCB 156 + PCB 157	<84	<53
PCB 169	<90	<56
PCB 189	<80	<100
Total Dioxins & Furans Only	<131	<121
Total PCBs Only	<1218	<1007
Total Dioxins & Furans and PCBs	<1349	<1128

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 44
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	4.88	2.28	2.08	3.08
12378-pentachlorodibenzo-p-dioxin	1.000	105	61.7	46.2	71.0
123478-hexachlorodibenzo-p-dioxin	0.100	40.2	26.0	23.1	29.8
123678-hexachlorodibenzo-p-dioxin	0.100	131	74.5	62.7	89.4
123789-hexachlorodibenzo-p-dioxin	0.100	204	86.6	80.2	124
1234678-heptachlorodibenzo-p-dioxin	0.010	55.4	40.6	76.3	57.4
Octachlorodibenzo-p-dioxin	0.0003	0.96	0.75	0.69	0.80
2378-tetrachlorodibenzofuran	0.100	2.75	2.13	1.53	2.14
12378-pentachlorodibenzofuran	0.030	2.62	1.51	1.13	1.75
23478-pentachlorodibenzofuran	0.300	<90.9	<52.6	<38.1	<60.6
123478-hexachlorodibenzofuran	0.100	99.9	67.3	52.2	73.1
123678-hexachlorodibenzofuran	0.100	50.2	32.4	24.7	35.8
234678-hexachlorodibenzofuran	0.100	90.0	54.4	48.4	64.3
123789-hexachlorodibenzofuran	0.100	<6.69	<4.04	<2.80	<4.51
1234678-heptachlorodibenzofuran	0.010	18.0	12.4	10.2	13.5
1234789-heptachlorodibenzofuran	0.010	4.16	2.85	2.39	3.13
Octachlorodibenzofuran	0.0003	<0.25	<0.20	<0.19	<0.22
PCB 81	0.0003	0.0064	0.0042	0.0031	0.0046
PCB 77	0.0001	0.0048	0.0034	0.0028	0.0037
PCB 123	0.00003	<0.00029	<0.00018	<0.00019	<0.00022
PCB 118	0.00003	0.0086	0.0055	0.0028	0.0056
PCB 114	0.00003	<0.00026	<0.00032	0.00021	<0.00026
PCB 105	0.00003	0.0035	0.0021	0.0013	0.0023
PCB 126	0.100	8.20	4.56	3.14	5.30
PCB 167	0.00003	0.00062	<0.00047	0.00033	<0.00047
PCB 156 + PCB 157	0.00003	0.0035	0.0024	<0.0013	<0.0024
PCB 169	0.030	2.25	1.58	1.09	1.64
PCB 189	0.00003	0.0037	0.0029	<0.0017	<0.0028
Total Dioxins & Furans Only		<907	<522	<473	<634
Total PCBs Only		<10.5	<6.16	<4.24	<6.96
Total Dioxins & Furans and PCBs		<918	<528	<477	<641

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 45
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	8.37	3.91	3.57	5.28
12378-pentachlorodibenzo-p-dioxin	1.000	180	106	79.4	122
123478-hexachlorodibenzo-p-dioxin	0.100	69.0	44.5	39.8	51.1
123678-hexachlorodibenzo-p-dioxin	0.100	225	128	108	153
123789-hexachlorodibenzo-p-dioxin	0.100	350	148	138	212
1234678-heptachlorodibenzo-p-dioxin	0.010	95.0	69.6	131	98.6
Octachlorodibenzo-p-dioxin	0.0003	1.64	1.28	1.19	1.37
2378-tetrachlorodibenzofuran	0.100	4.73	3.65	2.64	3.67
12378-pentachlorodibenzofuran	0.030	4.49	2.59	1.95	3.01
23478-pentachlorodibenzofuran	0.300	<156	<90.1	<65.6	<104
123478-hexachlorodibenzofuran	0.100	171	115	89.8	125
123678-hexachlorodibenzofuran	0.100	86.1	55.4	42.6	61.4
234678-hexachlorodibenzofuran	0.100	154	93.1	83.2	110
123789-hexachlorodibenzofuran	0.100	<11.5	<6.91	<4.81	<7.73
1234678-heptachlorodibenzofuran	0.010	30.9	21.2	17.5	23.2
1234789-heptachlorodibenzofuran	0.010	7.14	4.88	4.11	5.38
Octachlorodibenzofuran	0.0003	<0.44	<0.35	<0.33	<0.37
PCB 81	0.0003	0.011	0.0072	0.0052	0.0078
PCB 77	0.0001	0.0083	0.0059	0.0048	0.0063
PCB 123	0.00003	<0.00050	<0.00030	<0.00032	<0.00038
PCB 118	0.00003	0.015	0.0095	0.0048	0.0097
PCB 114	0.00003	<0.00045	<0.00054	0.00037	<0.00045
PCB 105	0.00003	0.0060	0.0037	0.0022	0.0039
PCB 126	0.100	14.1	7.81	5.39	9.09
PCB 167	0.00003	0.0011	<0.00081	0.00057	<0.00081
PCB 156 + PCB 157	0.00003	0.0060	0.0041	<0.0023	<0.0041
PCB 169	0.030	3.85	2.70	1.88	2.81
PCB 189	0.00003	0.0064	0.0050	<0.0030	<0.0048
Total Dioxins & Furans Only		<1556	<894	<814	<1088
Total PCBs Only		<18.0	<10.6	<7.30	<11.9
Total Dioxins & Furans and PCBs		<1574	<905	<821	<1100

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	6.19	2.92	2.63	3.92
12378-pentachlorodibenzo-p-dioxin	1.000	134	78.9	58.6	90.4
123478-hexachlorodibenzo-p-dioxin	0.100	51.1	33.2	29.3	37.9
123678-hexachlorodibenzo-p-dioxin	0.100	166	95.3	79.5	114
123789-hexachlorodibenzo-p-dioxin	0.100	259	111	102	157
1234678-heptachlorodibenzo-p-dioxin	0.010	70.3	52.0	96.8	73.0
Octachlorodibenzo-p-dioxin	0.0003	1.22	0.96	0.88	1.02
2378-tetrachlorodibenzofuran	0.100	3.50	2.73	1.94	2.72
12378-pentachlorodibenzofuran	0.030	3.32	1.94	1.43	2.23
23478-pentachlorodibenzofuran	0.300	<116	<67.4	<48.4	<77.1
123478-hexachlorodibenzofuran	0.100	127	86.1	66.2	93.0
123678-hexachlorodibenzofuran	0.100	63.8	41.4	31.4	45.5
234678-hexachlorodibenzofuran	0.100	114	69.6	61.4	81.8
123789-hexachlorodibenzofuran	0.100	<8.49	<5.16	<3.55	<5.73
1234678-heptachlorodibenzofuran	0.010	22.9	15.8	12.9	17.2
1234789-heptachlorodibenzofuran	0.010	5.29	3.65	3.03	3.99
Octachlorodibenzofuran	0.0003	<0.32	<0.26	<0.24	<0.27
PCB 81	0.0003	0.0082	0.0054	0.0039	0.0058
PCB 77	0.0001	0.0061	0.0044	0.0035	0.0047
PCB 123	0.00003	<0.00037	<0.00023	<0.00024	<0.00028
PCB 118	0.00003	0.011	0.0071	0.0035	0.0072
PCB 114	0.00003	<0.00033	<0.00040	0.00027	<0.00033
PCB 105	0.00003	0.0044	0.0027	0.0016	0.0029
PCB 126	0.100	10.4	5.84	3.98	6.74
PCB 167	0.00003	0.00078	<0.00061	0.00042	<0.00060
PCB 156 + PCB 157	0.00003	0.0044	0.0031	<0.0017	<0.0031
PCB 169	0.030	2.85	2.02	1.39	2.09
PCB 189	0.00003	0.0048	0.0037	<0.0022	<0.0036
Total Dioxins & Furans Only		<1153	<668	<600	<807
Total PCBs Only		<13.3	<7.89	<5.38	<8.86
Total Dioxins & Furans and PCBs		<1166	<676	<605	<816

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46B
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	6.19	2.92	2.63	3.92
12378-pentachlorodibenzo-p-dioxin	0.500	66.8	39.5	29.3	45.2
123478-hexachlorodibenzo-p-dioxin	0.100	51.1	33.2	29.3	37.9
123678-hexachlorodibenzo-p-dioxin	0.100	166	95.3	79.5	114
123789-hexachlorodibenzo-p-dioxin	0.100	259	111	102	157
1234678-heptachlorodibenzo-p-dioxin	0.010	70.3	52.0	96.8	73.0
Octachlorodibenzo-p-dioxin	0.001	4.05	3.19	2.92	3.39
2378-tetrachlorodibenzofuran	0.100	3.50	2.73	1.94	2.72
12378-pentachlorodibenzofuran	0.050	5.54	3.23	2.39	3.72
23478-pentachlorodibenzofuran	0.500	<193	<112	<80.6	<128
123478-hexachlorodibenzofuran	0.100	127	86.1	66.2	93.0
123678-hexachlorodibenzofuran	0.100	63.8	41.4	31.4	45.5
234678-hexachlorodibenzofuran	0.100	114	69.6	61.4	81.8
123789-hexachlorodibenzofuran	0.100	<8.49	<5.16	<3.55	<5.73
1234678-heptachlorodibenzofuran	0.010	22.9	15.8	12.9	17.2
1234789-heptachlorodibenzofuran	0.010	5.29	3.65	3.03	3.99
Octachlorodibenzofuran	0.001	<1.08	<0.86	<0.81	<0.92
Total Dioxins & Furans		<1169	<678	<606	<818
In-Stack Emission Limit					60

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

NATO/CCMS (1989) Toxicity Equivalency Factors

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	7.03	3.27	2.97	4.42
12378-pentachlorodibenzo-p-dioxin	1.000	152	88.4	66.1	102
123478-hexachlorodibenzo-p-dioxin	0.100	58.0	37.2	33.1	42.8
123678-hexachlorodibenzo-p-dioxin	0.100	189	107	89.7	128
123789-hexachlorodibenzo-p-dioxin	0.100	294	124	115	178
1234678-heptachlorodibenzo-p-dioxin	0.010	79.8	58.2	109	82.4
Octachlorodibenzo-p-dioxin	0.0003	1.38	1.07	0.99	1.15
2378-tetrachlorodibenzofuran	0.100	3.97	3.06	2.19	3.07
12378-pentachlorodibenzofuran	0.030	3.77	2.17	1.62	2.52
23478-pentachlorodibenzofuran	0.300	<131	<75.5	<54.5	<87.0
123478-hexachlorodibenzofuran	0.100	144	96.5	74.7	105
123678-hexachlorodibenzofuran	0.100	72.4	46.4	35.4	51.4
234678-hexachlorodibenzofuran	0.100	130	78.0	69.2	92.3
123789-hexachlorodibenzofuran	0.100	<9.64	<5.79	<4.00	<6.48
1234678-heptachlorodibenzofuran	0.010	26.0	17.7	14.5	19.4
1234789-heptachlorodibenzofuran	0.010	6.00	4.09	3.42	4.50
Octachlorodibenzofuran	0.0003	<0.37	<0.29	<0.27	<0.31
PCB 81	0.0003	0.0093	0.0060	0.0044	0.0066
PCB 77	0.0001	0.0069	0.0049	0.0040	0.0053
PCB 123	0.00003	<0.00042	<0.00025	<0.00027	<0.00032
PCB 118	0.00003	0.012	0.0079	0.0040	0.0081
PCB 114	0.00003	<0.00037	<0.00045	0.00031	<0.00038
PCB 105	0.00003	0.0050	0.0031	0.0018	0.0033
PCB 126	0.100	11.8	6.54	4.48	7.62
PCB 167	0.00003	0.00089	<0.00068	0.00047	<0.00068
PCB 156 + PCB 157	0.00003	0.0050	0.0035	<0.0019	<0.0035
PCB 169	0.030	3.24	2.26	1.56	2.36
PCB 189	0.00003	0.0054	0.0042	<0.0025	<0.0040
Total Dioxins & Furans Only		<1308	<749	<677	<911
Total PCBs Only		<15.1	<8.84	<6.07	<10.0
Total Dioxins & Furans and PCBs		<1323	<758	<683	<921

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 48
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	0.11	0.054	0.051	0.073
12378-pentachlorodibenzo-p-dioxin	1.000	2.47	1.47	1.14	1.69
123478-hexachlorodibenzo-p-dioxin	0.100	0.94	0.62	0.57	0.71
123678-hexachlorodibenzo-p-dioxin	0.100	3.08	1.77	1.54	2.13
123789-hexachlorodibenzo-p-dioxin	0.100	4.80	2.06	1.97	2.94
1234678-heptachlorodibenzo-p-dioxin	0.010	1.30	0.97	1.88	1.38
Octachlorodibenzo-p-dioxin	0.0003	0.023	0.018	0.017	0.019
2378-tetrachlorodibenzofuran	0.100	0.065	0.051	0.038	0.051
12378-pentachlorodibenzofuran	0.030	0.061	0.036	0.028	0.042
23478-pentachlorodibenzofuran	0.300	<2.14	<1.25	<0.94	<1.44
123478-hexachlorodibenzofuran	0.100	2.35	1.60	1.28	1.74
123678-hexachlorodibenzofuran	0.100	1.18	0.77	0.61	0.85
234678-hexachlorodibenzofuran	0.100	2.12	1.29	1.19	1.53
123789-hexachlorodibenzofuran	0.100	<0.16	<0.096	<0.069	<0.11
1234678-heptachlorodibenzofuran	0.010	0.42	0.29	0.25	0.32
1234789-heptachlorodibenzofuran	0.010	0.098	0.068	0.059	0.075
Octachlorodibenzofuran	0.0003	<0.0060	<0.0048	<0.0047	<0.0052
PCB 81	0.0003	0.00015	0.00010	0.000075	0.00011
PCB 77	0.0001	0.00011	0.000081	0.000069	0.000088
PCB 123	0.00003	<0.0000069	<0.0000042	<0.0000046	<0.0000052
PCB 118	0.00003	0.00020	0.00013	0.000069	0.00013
PCB 114	0.00003	<0.0000061	<0.0000075	0.0000053	<0.0000063
PCB 105	0.00003	0.000082	0.000051	0.000031	0.000055
PCB 126	0.100	0.19	0.11	0.077	0.13
PCB 167	0.00003	0.000014	<0.000011	0.0000081	<0.000011
PCB 156 + PCB 157	0.00003	0.000082	0.000058	<0.000033	<0.000057
PCB 169	0.030	0.053	0.038	0.027	0.039
PCB 189	0.00003	0.000088	0.000069	<0.000043	<0.000066
Total Dioxins & Furans Only		<21.3	<12.4	<11.6	<15.1
Total PCBs Only		<0.25	<0.15	<0.10	<0.17
Total Dioxins & Furans and PCBs		<21.6	<12.6	<11.7	<15.3

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 49
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	3.08	5.28	3.92	4.42	0.073
12378-pentachlorodibenzo-p-dioxin	71.0	122	90.4	102	1.69
123478-hexachlorodibenzo-p-dioxin	29.8	51.1	37.9	42.8	0.71
123678-hexachlorodibenzo-p-dioxin	89.4	153	114	128	2.13
123789-hexachlorodibenzo-p-dioxin	124	212	157	178	2.94
1234678-heptachlorodibenzo-p-dioxin	57.4	98.6	73.0	82.4	1.38
Octachlorodibenzo-p-dioxin	0.80	1.37	1.02	1.15	0.019
2378-tetrachlorodibenzofuran	2.14	3.67	2.72	3.07	0.051
12378-pentachlorodibenzofuran	1.75	3.01	2.23	2.52	0.042
23478-pentachlorodibenzofuran	<60.6	<104	<77.1	<87.0	<1.44
123478-hexachlorodibenzofuran	73.1	125	93.0	105	1.74
123678-hexachlorodibenzofuran	35.8	61.4	45.5	51.4	0.85
234678-hexachlorodibenzofuran	64.3	110	81.8	92.3	1.53
123789-hexachlorodibenzofuran	<4.51	<7.73	<5.73	<6.48	<0.11
1234678-heptachlorodibenzofuran	13.5	23.2	17.2	19.4	0.32
1234789-heptachlorodibenzofuran	3.13	5.38	3.99	4.50	0.075
Octachlorodibenzofuran	<0.22	<0.37	<0.27	<0.31	<0.0052
PCB 81	0.0046	0.0078	0.0058	0.0066	0.00011
PCB 77	0.0037	0.0063	0.0047	0.0053	0.000088
PCB 123	<0.00022	<0.00038	<0.00028	<0.00032	<0.0000052
PCB 118	0.0056	0.0097	0.0072	0.0081	0.00013
PCB 114	<0.00026	<0.00045	<0.00033	<0.00038	<0.0000063
PCB 105	0.0023	0.0039	0.0029	0.0033	0.000055
PCB 126	5.30	9.09	6.74	7.62	0.13
PCB 167	<0.00047	<0.00081	<0.00060	<0.00068	<0.000011
PCB 156 + PCB 157	<0.0024	<0.0041	<0.0031	<0.0035	<0.000057
PCB 169	1.64	2.81	2.09	2.36	0.039
PCB 189	<0.0028	<0.0048	<0.0036	<0.0040	<0.000066
Total Dioxins & Furans Only	<634	<1088	<807	<911	<15.1
Total PCBs Only	<6.96	<11.9	<8.86	<10.0	<0.17
Total Dioxins & Furans and PCBs	<641	<1100	<816	<921	<15.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 50
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	3.08	5.28	3.92	4.42	0.073
12378-pentachlorodibenzo-p-dioxin	71.0	122	90.4	102	1.69
123478-hexachlorodibenzo-p-dioxin	29.8	51.1	37.9	42.8	0.71
123678-hexachlorodibenzo-p-dioxin	89.4	153	114	128	2.13
123789-hexachlorodibenzo-p-dioxin	124	212	157	178	2.94
1234678-heptachlorodibenzo-p-dioxin	57.4	98.6	73.0	82.4	1.38
Octachlorodibenzo-p-dioxin	0.80	1.37	1.02	1.15	0.019
2378-tetrachlorodibenzofuran	2.14	3.67	2.72	3.07	0.051
12378-pentachlorodibenzofuran	1.75	3.01	2.23	2.52	0.042
23478-pentachlorodibenzofuran	30.3	52.0	38.5	43.5	0.72
123478-hexachlorodibenzofuran	73.1	125	93.0	105	1.74
123678-hexachlorodibenzofuran	35.8	61.4	45.5	51.4	0.85
234678-hexachlorodibenzofuran	64.3	110	81.8	92.3	1.53
123789-hexachlorodibenzofuran	2.25	3.87	2.87	3.24	0.054
1234678-heptachlorodibenzofuran	13.5	23.2	17.2	19.4	0.32
1234789-heptachlorodibenzofuran	3.13	5.38	3.99	4.50	0.075
Octachlorodibenzofuran	0.11	0.19	0.14	0.15	0.0026
PCB 81	0.0046	0.0078	0.0058	0.0066	0.00011
PCB 77	0.0037	0.0063	0.0047	0.0053	0.000088
PCB 123	0.00011	0.00019	0.00014	0.00016	0.0000026
PCB 118	0.0056	0.0097	0.0072	0.0081	0.00013
PCB 114	0.00017	0.00029	0.00021	0.00024	0.0000040
PCB 105	0.0023	0.0039	0.0029	0.0033	0.000055
PCB 126	5.30	9.09	6.74	7.62	0.13
PCB 167	0.00039	0.00068	0.00050	0.00057	0.0000094
PCB 156 + PCB 157	0.0022	0.0037	0.0028	0.0031	0.000052
PCB 169	1.64	2.81	2.09	2.36	0.039
PCB 189	0.0025	0.0043	0.0032	0.0036	0.000059
Total Dioxins & Furans Only	602	1032	765	864	14.4
Total PCBs Only	6.96	11.9	8.86	10.0	0.17
Total Dioxins & Furans and PCBs	609	1044	774	874	14.5

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 51
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Emission Data for Chlorobenzenes
Test No. 1

Specific Isomer	Total Collected µg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate µg/s
1,3-Dichlorobenzene	0.31	27.6	47.4	35.1	39.8	0.65
1,4-Dichlorobenzene	0.31	27.6	47.4	35.1	39.8	0.65
1,2-Dichlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Dichlorobenzene	<0.92	<82.0	<141	<104	<118	<1.93
1,3,5-trichlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
1,2,4-trichlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
1,2,3-trichlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Trichlorobenzene	<0.90	<80.2	<138	<102	<116	<1.89
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
1,2,3,4-tetrachlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Tetrachlorobenzene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
Pentachlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Hexachlorobenzene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Chlorobenzenes	<3.02	<269	<462	<342	<388	<6.33

Dry Gas Volume Sampled (Rm^3*) :	6.539
Actual Flowrate (m^3/s) :	23.5
Dry Reference Flowrate (Rm^3/s*) :	13.7
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	16.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 52
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Emission Data for Chlorobenzenes
Test No. 2

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
1,4-Dichlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
1,2-Dichlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Dichlorobenzene	<0.90	<79.0	<135	<101	<113	<1.88
1,3,5-trichlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
1,2,4-trichlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
1,2,3-trichlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Trichlorobenzene	<0.90	<79.0	<135	<101	<113	<1.88
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
1,2,3,4-tetrachlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Tetrachlorobenzene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
Pentachlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Hexachlorobenzene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Chlorobenzenes	<3.00	<263	<451	<337	<377	<6.27

Dry Gas Volume Sampled (Rm³*) :	6.656
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 53
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Emission Data for Chlorobenzenes
Test No. 3

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
1,4-Dichlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
1,2-Dichlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Dichlorobenzene	<0.90	<76.3	<131	<96.7	<109	<1.88
1,3,5-trichlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
1,2,4-trichlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
1,2,3-trichlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Trichlorobenzene	<0.90	<76.3	<131	<96.7	<109	<1.88
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
1,2,3,4-tetrachlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Tetrachlorobenzene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
Pentachlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Hexachlorobenzene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Chlorobenzenes	<3.00	<254	<437	<322	<364	<6.25

Dry Gas Volume Sampled (Rm³*) :	6.860
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.3
Dry Adjusted Flowrate (Rm³/s**) :	19.4
Wet Reference Flowrate (Rm³/s*) :	17.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 54
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Actual Concentrations for Chlorobenzenes

Specific Isomer	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
1,3-Dichlorobenzene	27.6	<26.3	<25.4	<26.5	4.2
1,4-Dichlorobenzene	27.6	<26.3	<25.4	<26.5	4.2
1,2-Dichlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
Total Dichlorobenzene	<82.0	<79.0	<76.3	<79.1	3.6
1,3,5-trichlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
1,2,4-trichlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
1,2,3-trichlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
Total Trichlorobenzene	<80.2	<79.0	<76.3	<78.5	2.6
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<26.7	<26.3	<25.4	<26.2	2.6
1,2,3,4-tetrachlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
Total Tetrachlorobenzene	<53.5	<52.6	<50.8	<52.3	2.6
Pentachlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
Hexachlorobenzene	<26.7	<26.3	<25.4	<26.2	2.6
Total Chlorobenzenes	<269	<263	<254	<262	2.9

TABLE 55
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dry Reference Concentrations for Chlorobenzenes

Specific Isomer	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
1,3-Dichlorobenzene	47.4	<45.1	<43.7	<45.4	4.1
1,4-Dichlorobenzene	47.4	<45.1	<43.7	<45.4	4.1
1,2-Dichlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
Total Dichlorobenzene	<141	<135	<131	<136	3.5
1,3,5-trichlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
1,2,4-trichlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
1,2,3-trichlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
Total Trichlorobenzene	<138	<135	<131	<135	2.4
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<45.9	<45.1	<43.7	<44.9	2.4
1,2,3,4-tetrachlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
Total Tetrachlorobenzene	<91.8	<90.1	<87.5	<89.8	2.4
Pentachlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
Hexachlorobenzene	<45.9	<45.1	<43.7	<44.9	2.4
Total Chlorobenzenes	<462	<451	<437	<450	2.7

* At 25°C and 1 atmosphere

TABLE 56
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Dry Adjusted Concentrations for Chlorobenzenes

Specific Isomer	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
1,3-Dichlorobenzene	35.1	<33.7	<32.2	<33.7	4.3
1,4-Dichlorobenzene	35.1	<33.7	<32.2	<33.7	4.3
1,2-Dichlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
Total Dichlorobenzene	<104	<101	<96.7	<101	3.7
1,3,5-trichlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
1,2,4-trichlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
1,2,3-trichlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
Total Trichlorobenzene	<102	<101	<96.7	<99.9	2.8
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<34.0	<33.7	<32.2	<33.3	2.8
1,2,3,4-tetrachlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
Total Tetrachlorobenzene	<67.9	<67.4	<64.5	<66.6	2.8
Pentachlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
Hexachlorobenzene	<34.0	<33.7	<32.2	<33.3	2.8
Total Chlorobenzenes	<342	<337	<322	<334	3.1

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 57
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Wet Reference Concentrations for Chlorobenzenes

Specific Isomer	Wet Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
1,3-Dichlorobenzene	39.8	<37.7	<36.4	<38.0	4.6
1,4-Dichlorobenzene	39.8	<37.7	<36.4	<38.0	4.6
1,2-Dichlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
Total Dichlorobenzene	<118	<113	<109	<114	4.0
1,3,5-trichlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
1,2,4-trichlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
1,2,3-trichlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
Total Trichlorobenzene	<116	<113	<109	<113	3.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<38.6	<37.7	<36.4	<37.6	3.0
1,2,3,4-tetrachlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
Total Tetrachlorobenzene	<77.1	<75.5	<72.7	<75.1	3.0
Pentachlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
Hexachlorobenzene	<38.6	<37.7	<36.4	<37.6	3.0
Total Chlorobenzenes	<388	<377	<364	<376	3.3

* At 25°C and 1 atmosphere

TABLE 58
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Emission Rates for Chlorobenzenes

Specific Isomer	Emission Rate Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	Coefficient of Variation %
1,3-Dichlorobenzene	0.65	<0.63	<0.63	<0.63	2.1
1,4-Dichlorobenzene	0.65	<0.63	<0.63	<0.63	2.1
1,2-Dichlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
Total Dichlorobenzene	<1.93	<1.88	<1.88	<1.89	1.5
1,3,5-trichlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
1,2,4-trichlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
1,2,3-trichlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
Total Trichlorobenzene	<1.89	<1.88	<1.88	<1.88	0.3
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.63	<0.63	<0.63	<0.63	0.3
1,2,3,4-tetrachlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
Total Tetrachlorobenzene	<1.26	<1.25	<1.25	<1.25	0.3
Pentachlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
Hexachlorobenzene	<0.63	<0.63	<0.63	<0.63	0.3
Total Chlorobenzenes	<6.33	<6.27	<6.25	<6.28	0.6

TABLE 59
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Emission Data for Chlorobenzenes

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	<26.5	<45.4	<33.7	<38.0	<0.63
1,4-Dichlorobenzene	<26.5	<45.4	<33.7	<38.0	<0.63
1,2-Dichlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
Total Dichlorobenzene	<79.1	<136	<101	<114	<1.89
1,3,5-trichlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
1,2,4-trichlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
1,2,3-trichlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
Total Trichlorobenzene	<78.5	<135	<99.9	<113	<1.88
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<26.2	<44.9	<33.3	<37.6	<0.63
1,2,3,4-tetrachlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
Total Tetrachlorobenzene	<52.3	<89.8	<66.6	<75.1	<1.25
Pentachlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
Hexachlorobenzene	<26.2	<44.9	<33.3	<37.6	<0.63
Total Chlorobenzenes	<262	<450	<334	<376	<6.28

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 60
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorobenzene Blank Analyses

Isomers and Congener Group Totals	Blank Train Total µg	Laboratory Blank Total µg
1,3-Dichlorobenzene	<0.30	<0.30
1,4-Dichlorobenzene	<0.30	<0.30
1,2-Dichlorobenzene	<0.30	<0.30
Total Dichlorobenzene	<0.90	<0.90
1,3,5-trichlorobenzene	<0.30	<0.30
1,2,4-trichlorobenzene	<0.30	<0.30
1,2,3-trichlorobenzene	<0.30	<0.30
Total Trichlorobenzene	<0.90	<0.90
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<0.30
1,2,3,4-tetrachlorobenzene	<0.30	<0.30
Total Tetrachlorobenzene	<0.60	<0.60
Pentachlorobenzene	<0.30	<0.30
Hexachlorobenzene	<0.30	<0.30
Total Chlorobenzenes	<3.00	<3.00

"<" indicates that the amount detected is less than the analytical detection limit (<MDL).
In these cases the value of the detection limit was used to calculate the total collected.

TABLE 61
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 1

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	0.32	28.5	48.9	36.2	41.1	0.67
3-monochlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
4-monochlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Monochlorophenols	<0.92	<82.0	<141	<104	<118	<1.93
2,6-dichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,4 & 2,5-dichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
3,5-dichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,3-dichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
3,4-dichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Dichlorophenols	<1.50	<134	<229	<170	<193	<3.14
2,4,6-trichlorophenol	1.17	104	179	133	150	2.45
2,3,6-trichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,3,5-trichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,4,5-trichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,3,4-trichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
3,4,5-trichlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Trichlorophenols	<2.67	<238	<408	<302	<343	<5.59
2,3,5,6-tetrachlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,3,4,6-tetrachlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2,3,4,5-tetrachlorophenol	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total Tetrachlorophenols	<0.90	<80.2	<138	<102	<116	<1.89
Pentachlorophenol	0.57	50.8	87.2	64.6	73.3	1.19
Total Chlorophenols	<6.56	<585	<1003	<743	<843	<13.7

Dry Gas Volume Sampled (Rm³*) :	6.539
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 62
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 2

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
3-monochlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
4-monochlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Monochlorophenols	<0.90	<79.0	<135	<101	<113	<1.88
2,6-dichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,4 & 2,5-dichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
3,5-dichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,3-dichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
3,4-dichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Dichlorophenols	<1.50	<132	<225	<168	<189	<3.13
2,4,6-trichlorophenol	1.05	92.1	158	118	132	2.19
2,3,6-trichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,3,5-trichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,4,5-trichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,3,4-trichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
3,4,5-trichlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Trichlorophenols	<2.55	<224	<383	<286	<321	<5.33
2,3,5,6-tetrachlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,3,4,6-tetrachlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2,3,4,5-tetrachlorophenol	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total Tetrachlorophenols	<0.90	<79.0	<135	<101	<113	<1.88
Pentachlorophenol	0.55	48.3	82.6	61.8	69.2	1.15
Total Chlorophenols	<6.40	<562	<962	<719	<805	<13.4

Dry Gas Volume Sampled (Rm³*) :	6.656
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 63
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 3

Specific Isomer	Total Collected µg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate µg/s
2-monochlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
3-monochlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
4-monochlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Monochlorophenols	<0.90	<76.3	<131	<96.7	<109	<1.88
2,6-dichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,4 & 2,5-dichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
3,5-dichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,3-dichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
3,4-dichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Dichlorophenols	<1.50	<127	<219	<161	<182	<3.13
2,4,6-trichlorophenol	1.12	94.9	163	120	136	2.33
2,3,6-trichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,3,5-trichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,4,5-trichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,3,4-trichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
3,4,5-trichlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Trichlorophenols	<2.62	<222	<382	<282	<318	<5.46
2,3,5,6-tetrachlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,3,4,6-tetrachlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2,3,4,5-tetrachlorophenol	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total Tetrachlorophenols	<0.90	<76.3	<131	<96.7	<109	<1.88
Pentachlorophenol	0.56	47.5	81.6	60.2	67.9	1.17
Total Chlorophenols	<6.48	<549	<945	<696	<785	<13.5

Dry Gas Volume Sampled (Rm^3*) :	6.860
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.3
Dry Adjusted Flowrate (Rm^3/s**) :	19.4
Wet Reference Flowrate (Rm^3/s*) :	17.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 64
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
2-monochlorophenol	28.5	<26.3	<25.4	<26.8	6.0
3-monochlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
4-monochlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
Total Monochlorophenols	<82.0	<79.0	<76.3	<79.1	3.6
2,6-dichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,4 & 2,5-dichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
3,5-dichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,3-dichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
3,4-dichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
Total Dichlorophenols	<134	<132	<127	<131	2.6
2,4,6-trichlorophenol	104	92.1	94.9	97.1	6.6
2,3,6-trichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,3,5-trichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,4,5-trichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,3,4-trichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
3,4,5-trichlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
Total Trichlorophenols	<238	<224	<222	<228	3.9
2,3,5,6-tetrachlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,3,4,6-tetrachlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
2,3,4,5-tetrachlorophenol	<26.7	<26.3	<25.4	<26.2	2.6
Total Tetrachlorophenols	<80.2	<79.0	<76.3	<78.5	2.6
Pentachlorophenol	50.8	48.3	47.5	48.8	3.6
Total Chlorophenols	<585	<562	<549	<565	3.2

TABLE 65
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
2-monochlorophenol	48.9	<45.1	<43.7	<45.9	5.9
3-monochlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
4-monochlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
Total Monochlorophenols	<141	<135	<131	<136	3.5
2,6-dichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,4 & 2,5-dichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
3,5-dichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,3-dichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
3,4-dichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
Total Dichlorophenols	<229	<225	<219	<224	2.4
2,4,6-trichlorophenol	179	158	163	167	6.6
2,3,6-trichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,3,5-trichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,4,5-trichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,3,4-trichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
3,4,5-trichlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
Total Trichlorophenols	<408	<383	<382	<391	3.8
2,3,5,6-tetrachlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,3,4,6-tetrachlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
2,3,4,5-tetrachlorophenol	<45.9	<45.1	<43.7	<44.9	2.4
Total Tetrachlorophenols	<138	<135	<131	<135	2.4
Pentachlorophenol	87.2	82.6	81.6	83.8	3.5
Total Chlorophenols	<1003	<962	<945	<970	3.1

* At 25°C and 1 atmosphere

TABLE 66
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	36.2	<33.7	<32.2	<34.1	6.0
3-monochlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
4-monochlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
Total Monochlorophenols	<104	<101	<96.7	<101	3.7
2,6-dichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,4 & 2,5-dichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
3,5-dichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,3-dichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
3,4-dichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
Total Dichlorophenols	<170	<168	<161	<166	2.8
2,4,6-trichlorophenol	133	118	120	124	6.3
2,3,6-trichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,3,5-trichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,4,5-trichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,3,4-trichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
3,4,5-trichlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
Total Trichlorophenols	<302	<286	<282	<290	3.8
2,3,5,6-tetrachlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,3,4,6-tetrachlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
2,3,4,5-tetrachlorophenol	<34.0	<33.7	<32.2	<33.3	2.8
Total Tetrachlorophenols	<102	<101	<96.7	<99.9	2.8
Pentachlorophenol	64.6	61.8	60.2	62.2	3.6
Total Chlorophenols	<743	<719	<696	<719	3.2

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 67
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
2-monochlorophenol	41.1	<37.7	<36.4	<38.4	6.4
3-monochlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
4-monochlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
Total Monochlorophenols	<118	<113	<109	<114	4.0
2,6-dichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,4 & 2,5-dichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
3,5-dichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,3-dichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
3,4-dichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
Total Dichlorophenols	<193	<189	<182	<188	3.0
2,4,6-trichlorophenol	150	132	136	139	6.9
2,3,6-trichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,3,5-trichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,4,5-trichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,3,4-trichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
3,4,5-trichlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
Total Trichlorophenols	<343	<321	<318	<327	4.3
2,3,5,6-tetrachlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,3,4,6-tetrachlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
2,3,4,5-tetrachlorophenol	<38.6	<37.7	<36.4	<37.6	3.0
Total Tetrachlorophenols	<116	<113	<109	<113	3.0
Pentachlorophenol	73.3	69.2	67.9	70.1	4.0
Total Chlorophenols	<843	<805	<785	<811	3.6

* At 25°C and 1 atmosphere

TABLE 68
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Emission Rates

Specific Isomer	Emission Rate Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	Coefficient of Variation %
2-monochlorophenol	0.67	<0.63	<0.63	<0.64	4.0
3-monochlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
4-monochlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
Total Monochlorophenols	<1.93	<1.88	<1.88	<1.89	1.5
2,6-dichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,4 & 2,5-dichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
3,5-dichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,3-dichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
3,4-dichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
Total Dichlorophenols	<3.14	<3.13	<3.13	<3.13	0.3
2,4,6-trichlorophenol	2.45	2.19	2.33	2.33	5.6
2,3,6-trichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,3,5-trichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,4,5-trichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,3,4-trichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
3,4,5-trichlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
Total Trichlorophenols	<5.59	<5.33	<5.46	<5.46	2.5
2,3,5,6-tetrachlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,3,4,6-tetrachlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
2,3,4,5-tetrachlorophenol	<0.63	<0.63	<0.63	<0.63	0.3
Total Tetrachlorophenols	<1.89	<1.88	<1.88	<1.88	0.3
Pentachlorophenol	1.19	1.15	1.17	1.17	2.0
Total Chlorophenols	<13.7	<13.4	<13.5	<13.5	1.4

TABLE 69

Covanta - Durham York Energy Centre

Boiler No. 1 BH Outlet

Summary of Emission Data for Chlorophenol Isomer and Congener Groups

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	<26.8	<45.9	<34.1	<38.4	<0.64
3-monochlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
4-monochlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
Total Monochlorophenols	<79.1	<136	<101	<114	<1.89
2,6-dichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,4 & 2,5-dichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
3,5-dichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,3-dichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
3,4-dichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
Total Dichlorophenols	<131	<224	<166	<188	<3.13
2,4,6-trichlorophenol	97.1	167	124	139	2.33
2,3,6-trichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,3,5-trichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,4,5-trichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,3,4-trichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
3,4,5-trichlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
Total Trichlorophenols	<228	<391	<290	<327	<5.46
2,3,5,6-tetrachlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,3,4,6-tetrachlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
2,3,4,5-tetrachlorophenol	<26.2	<44.9	<33.3	<37.6	<0.63
Total Tetrachlorophenols	<78.5	<135	<99.9	<113	<1.88
Pentachlorophenol	48.8	83.8	62.2	70.1	1.17
Total Chlorophenols	<565	<970	<719	<811	<13.5

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 70
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Chlorophenol Blank Analyses

Congener Group	Lab Blank Total µg	Blank Train Total µg
2-monochlorophenol	<0.30	<0.30
3-monochlorophenol	<0.30	<0.30
4-monochlorophenol	<0.30	<0.30
Total Monochlorophenols	<0.90	<0.90
2,6-dichlorophenol	<0.30	<0.30
2,4 & 2,5-dichlorophenol	<0.30	<0.30
3,5-dichlorophenol	<0.30	<0.30
2,3-dichlorophenol	<0.30	<0.30
3,4-dichlorophenol	<0.30	<0.30
Total Dichlorophenols	<1.50	<1.50
2,4,6-trichlorophenol	<0.30	<0.30
2,3,6-trichlorophenol	<0.30	<0.30
2,3,5-trichlorophenol	<0.30	<0.30
2,4,5-trichlorophenol	<0.30	<0.30
2,3,4-trichlorophenol	<0.30	<0.30
3,4,5-trichlorophenol	<0.30	<0.30
Total Trichlorophenols	<1.80	<1.80
2,3,5,6-tetrachlorophenol	<0.30	<0.30
2,3,4,6-tetrachlorophenol	<0.30	<0.30
2,3,4,5-tetrachlorophenol	<0.30	<0.30
Total Tetrachlorophenols	<0.90	<0.90
Pentachlorophenol	<0.30	<0.30
Total Chlorophenols	<5.40	<5.40

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 71
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 1

Compound	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Acenaphthylene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Anthracene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Benzo(a)anthracene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Benzo(b)fluoranthene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Benzo(k)fluoranthene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Benzo(a)fluorene	<1.2	<107	<184	<136	<154	<2.51
Benzo(b)fluorene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
Benzo(g,h,i)perylene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Benzo(a)pyrene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Benzo(e)pyrene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
Biphenyl	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
2-Chloronaphthalene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
Chrysene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Coronene	<1.2	<107	<184	<136	<154	<2.51
Dibenzo(a,c) anthracene + Picene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Dibenz(a,h)anthracene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Dibenzo(a,e)pyrene	<1.2	<107	<184	<136	<154	<2.51
9,10-Dimethylanthracene	<1.2	<107	<184	<136	<154	<2.51
7,12-Dimethylbenzo(a)anthracene	<1.2	<107	<184	<136	<154	<2.51
Fluoranthene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Fluorene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Indeno(1,2,3-cd)pyrene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
2-Methylanthracene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
3-Methylcholanthrene	<1.2	<107	<184	<136	<154	<2.51
1-Methylnaphthalene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
2-Methylnaphthalene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
1-Methylphenanthrene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
9-Methylphenanthrene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Naphthalene	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
Perylene	<1.2	<107	<184	<136	<154	<2.51
Phenanthrene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Pyrene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Quinoline	<1.2	<107	<184	<136	<154	<2.51
Tetralin	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
m-Terphenyl	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
o-Terphenyl	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
p-Terphenyl	<0.60	<53.5	<91.8	<67.9	<77.1	<1.26
Triphenylene	<0.30	<26.7	<45.9	<34.0	<38.6	<0.63
Total	<22.5	<2006	<3441	<2548	<2892	<47.1

Dry Gas Volume Sampled (Rm³*) :	6.539
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 72
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 2

Compound	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Acenaphthylene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Anthracene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Benzo(a)anthracene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Benzo(b)fluoranthene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Benzo(k)fluoranthene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Benzo(a)fluorene	<1.2	<105	<180	<135	<151	<2.51
Benzo(b)fluorene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
Benzo(g,h,i)perylene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Benzo(a)pyrene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Benzo(e)pyrene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
Biphenyl	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
2-Chloronaphthalene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
Chrysene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Coronene	<1.2	<105	<180	<135	<151	<2.51
Dibenzo(a,c) anthracene + Picene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Dibenz(a,h)anthracene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Dibenzo(a,e)pyrene	<1.2	<105	<180	<135	<151	<2.51
9,10-Dimethylanthracene	<1.2	<105	<180	<135	<151	<2.51
7,12-Dimethylbenzo(a)anthracene	<1.2	<105	<180	<135	<151	<2.51
Fluoranthene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Fluorene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Indeno(1,2,3-cd)pyrene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
2-Methylanthracene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
3-Methylcholanthrene	<1.2	<105	<180	<135	<151	<2.51
1-Methylnaphthalene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
2-Methylnaphthalene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
1-Methylphenanthrene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
9-Methylphenanthrene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Naphthalene	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
Perylene	<1.2	<105	<180	<135	<151	<2.51
Phenanthrene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Pyrene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Quinoline	<1.2	<105	<180	<135	<151	<2.51
Tetralin	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
m-Terphenyl	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
o-Terphenyl	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
p-Terphenyl	<0.60	<52.6	<90.1	<67.4	<75.5	<1.25
Triphenylene	<0.30	<26.3	<45.1	<33.7	<37.7	<0.63
Total	<22.5	<1974	<3380	<2526	<2831	<47.0

Dry Gas Volume Sampled (Rm³*) :	6.656
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 73
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 3

Compound	Total Collected µg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate µg/s
Acenaphthene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Acenaphthylene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Anthracene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Benzo(a)anthracene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Benzo(b)fluoranthene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Benzo(k)fluoranthene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Benzo(a)fluorene	<1.2	<102	<175	<129	<145	<2.50
Benzo(b)fluorene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
Benzo(g,h,i)perylene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Benzo(a)pyrene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Benzo(e)pyrene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
Biphenyl	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
2-Chloronaphthalene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
Chrysene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Coronene	<1.2	<102	<175	<129	<145	<2.50
Dibenzo(a,c) anthracene + Picene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Dibenz(a,h)anthracene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Dibenzo(a,e)pyrene	<1.2	<102	<175	<129	<145	<2.50
9,10-Dimethylanthracene	<1.2	<102	<175	<129	<145	<2.50
7,12-Dimethylbenzo(a)anthracene	<1.2	<102	<175	<129	<145	<2.50
Fluoranthene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Fluorene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Indeno(1,2,3-cd)pyrene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
2-Methylanthracene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
3-Methylcholanthrene	<1.2	<102	<175	<129	<145	<2.50
1-Methylnaphthalene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
2-Methylnaphthalene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
1-Methylphenanthrene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
9-Methylphenanthrene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Naphthalene	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
Perylene	<1.2	<102	<175	<129	<145	<2.50
Phenanthrene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Pyrene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Quinoline	<1.2	<102	<175	<129	<145	<2.50
Tetralin	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
m-Terphenyl	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
o-Terphenyl	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
p-Terphenyl	<0.60	<50.8	<87.5	<64.5	<72.7	<1.25
Triphenylene	<0.30	<25.4	<43.7	<32.2	<36.4	<0.63
Total	<22.5	<1907	<3280	<2418	<2727	<46.9

Dry Gas Volume Sampled (Rm^3*) :	6.860
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.3
Dry Adjusted Flowrate (Rm^3/s**) :	19.4
Wet Reference Flowrate (Rm^3/s*) :	17.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 74
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Actual Concentrations

Compound	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
Acenaphthene	<26.7	<26.3	<25.4	<26.2	2.6
Acenaphthylene	<26.7	<26.3	<25.4	<26.2	2.6
Anthracene	<26.7	<26.3	<25.4	<26.2	2.6
Benzo(a)anthracene	<26.7	<26.3	<25.4	<26.2	2.6
Benzo(b)fluoranthene	<26.7	<26.3	<25.4	<26.2	2.6
Benzo(k)fluoranthene	<26.7	<26.3	<25.4	<26.2	2.6
Benzo(a)fluorene	<107	<105	<102	<105	2.6
Benzo(b)fluorene	<53.5	<52.6	<50.8	<52.3	2.6
Benzo(g,h,i)perylene	<26.7	<26.3	<25.4	<26.2	2.6
Benzo(a)pyrene	<26.7	<26.3	<25.4	<26.2	2.6
Benzo(e)pyrene	<53.5	<52.6	<50.8	<52.3	2.6
Biphenyl	<53.5	<52.6	<50.8	<52.3	2.6
2-Chloronaphthalene	<53.5	<52.6	<50.8	<52.3	2.6
Chrysene	<26.7	<26.3	<25.4	<26.2	2.6
Coronene	<107	<105	<102	<105	2.6
Dibenzo(a,c) anthracene + Picene	<26.7	<26.3	<25.4	<26.2	2.6
Dibenz(a,h)anthracene	<26.7	<26.3	<25.4	<26.2	2.6
Dibenzo(a,e)pyrene	<107	<105	<102	<105	2.6
9,10-Dimethylanthracene	<107	<105	<102	<105	2.6
7,12-Dimethylbenzo(a)anthracene	<107	<105	<102	<105	2.6
Fluoranthene	<26.7	<26.3	<25.4	<26.2	2.6
Fluorene	<26.7	<26.3	<25.4	<26.2	2.6
Indeno(1,2,3-cd)pyrene	<26.7	<26.3	<25.4	<26.2	2.6
2-Methylanthracene	<53.5	<52.6	<50.8	<52.3	2.6
3-Methylcholanthrene	<107	<105	<102	<105	2.6
1-Methylnaphthalene	<53.5	<52.6	<50.8	<52.3	2.6
2-Methylnaphthalene	<26.7	<26.3	<25.4	<26.2	2.6
1-Methylphenanthrene	<53.5	<52.6	<50.8	<52.3	2.6
9-Methylphenanthrene	<26.7	<26.3	<25.4	<26.2	2.6
Naphthalene	<53.5	<52.6	<50.8	<52.3	2.6
Perylene	<107	<105	<102	<105	2.6
Phenanthrene	<26.7	<26.3	<25.4	<26.2	2.6
Pyrene	<26.7	<26.3	<25.4	<26.2	2.6
Quinoline	<107	<105	<102	<105	2.6
Tetralin	<53.5	<52.6	<50.8	<52.3	2.6
m-Terphenyl	<53.5	<52.6	<50.8	<52.3	2.6
o-Terphenyl	<53.5	<52.6	<50.8	<52.3	2.6
p-Terphenyl	<53.5	<52.6	<50.8	<52.3	2.6
Triphenylene	<26.7	<26.3	<25.4	<26.2	2.6
Total	<2006	<1974	<1907	<1962	2.6

TABLE 75
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Reference Concentrations

Compound	Dry Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<45.9	<45.1	<43.7	<44.9	2.4
Acenaphthylene	<45.9	<45.1	<43.7	<44.9	2.4
Anthracene	<45.9	<45.1	<43.7	<44.9	2.4
Benzo(a)anthracene	<45.9	<45.1	<43.7	<44.9	2.4
Benzo(b)fluoranthene	<45.9	<45.1	<43.7	<44.9	2.4
Benzo(k)fluoranthene	<45.9	<45.1	<43.7	<44.9	2.4
Benzo(a)fluorene	<184	<180	<175	<180	2.4
Benzo(b)fluorene	<91.8	<90.1	<87.5	<89.8	2.4
Benzo(g,h,i)perylene	<45.9	<45.1	<43.7	<44.9	2.4
Benzo(a)pyrene	<45.9	<45.1	<43.7	<44.9	2.4
Benzo(e)pyrene	<91.8	<90.1	<87.5	<89.8	2.4
Biphenyl	<91.8	<90.1	<87.5	<89.8	2.4
2-Chloronaphthalene	<91.8	<90.1	<87.5	<89.8	2.4
Chrysene	<45.9	<45.1	<43.7	<44.9	2.4
Coronene	<184	<180	<175	<180	2.4
Dibenzo(a,c) anthracene + Picene	<45.9	<45.1	<43.7	<44.9	2.4
Dibenz(a,h)anthracene	<45.9	<45.1	<43.7	<44.9	2.4
Dibenzo(a,e)pyrene	<184	<180	<175	<180	2.4
9,10-Dimethylanthracene	<184	<180	<175	<180	2.4
7,12-Dimethylbenzo(a)anthracene	<184	<180	<175	<180	2.4
Fluoranthene	<45.9	<45.1	<43.7	<44.9	2.4
Fluorene	<45.9	<45.1	<43.7	<44.9	2.4
Indeno(1,2,3-cd)pyrene	<45.9	<45.1	<43.7	<44.9	2.4
2-Methylanthracene	<91.8	<90.1	<87.5	<89.8	2.4
3-Methylcholanthrene	<184	<180	<175	<180	2.4
1-Methylnaphthalene	<91.8	<90.1	<87.5	<89.8	2.4
2-Methylnaphthalene	<45.9	<45.1	<43.7	<44.9	2.4
1-Methylphenanthrene	<91.8	<90.1	<87.5	<89.8	2.4
9-Methylphenanthrene	<45.9	<45.1	<43.7	<44.9	2.4
Naphthalene	<91.8	<90.1	<87.5	<89.8	2.4
Perylene	<184	<180	<175	<180	2.4
Phenanthrene	<45.9	<45.1	<43.7	<44.9	2.4
Pyrene	<45.9	<45.1	<43.7	<44.9	2.4
Quinoline	<184	<180	<175	<180	2.4
Tetralin	<91.8	<90.1	<87.5	<89.8	2.4
m-Terphenyl	<91.8	<90.1	<87.5	<89.8	2.4
o-Terphenyl	<91.8	<90.1	<87.5	<89.8	2.4
p-Terphenyl	<91.8	<90.1	<87.5	<89.8	2.4
Triphenylene	<45.9	<45.1	<43.7	<44.9	2.4
Total	<3441	<3380	<3280	<3367	2.4

* At 25°C and 1 atmosphere

TABLE 76
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<34.0	<33.7	<32.2	<33.3	2.8
Acenaphthylene	<34.0	<33.7	<32.2	<33.3	2.8
Anthracene	<34.0	<33.7	<32.2	<33.3	2.8
Benzo(a)anthracene	<34.0	<33.7	<32.2	<33.3	2.8
Benzo(b)fluoranthene	<34.0	<33.7	<32.2	<33.3	2.8
Benzo(k)fluoranthene	<34.0	<33.7	<32.2	<33.3	2.8
Benzo(a)fluorene	<136	<135	<129	<133	2.8
Benzo(b)fluorene	<67.9	<67.4	<64.5	<66.6	2.8
Benzo(g,h,i)perylene	<34.0	<33.7	<32.2	<33.3	2.8
Benzo(a)pyrene	<34.0	<33.7	<32.2	<33.3	2.8
Benzo(e)pyrene	<67.9	<67.4	<64.5	<66.6	2.8
Biphenyl	<67.9	<67.4	<64.5	<66.6	2.8
2-Chloronaphthalene	<67.9	<67.4	<64.5	<66.6	2.8
Chrysene	<34.0	<33.7	<32.2	<33.3	2.8
Coronene	<136	<135	<129	<133	2.8
Dibenzo(a,c) anthracene + Picene	<34.0	<33.7	<32.2	<33.3	2.8
Dibenz(a,h)anthracene	<34.0	<33.7	<32.2	<33.3	2.8
Dibenzo(a,e)pyrene	<136	<135	<129	<133	2.8
9,10-Dimethylanthracene	<136	<135	<129	<133	2.8
7,12-Dimethylbenzo(a)anthracene	<136	<135	<129	<133	2.8
Fluoranthene	<34.0	<33.7	<32.2	<33.3	2.8
Fluorene	<34.0	<33.7	<32.2	<33.3	2.8
Indeno(1,2,3-cd)pyrene	<34.0	<33.7	<32.2	<33.3	2.8
2-Methylanthracene	<67.9	<67.4	<64.5	<66.6	2.8
3-Methylcholanthrene	<136	<135	<129	<133	2.8
1-Methylnaphthalene	<67.9	<67.4	<64.5	<66.6	2.8
2-Methylnaphthalene	<34.0	<33.7	<32.2	<33.3	2.8
1-Methylphenanthrene	<67.9	<67.4	<64.5	<66.6	2.8
9-Methylphenanthrene	<34.0	<33.7	<32.2	<33.3	2.8
Naphthalene	<67.9	<67.4	<64.5	<66.6	2.8
Perylene	<136	<135	<129	<133	2.8
Phenanthrene	<34.0	<33.7	<32.2	<33.3	2.8
Pyrene	<34.0	<33.7	<32.2	<33.3	2.8
Quinoline	<136	<135	<129	<133	2.8
Tetralin	<67.9	<67.4	<64.5	<66.6	2.8
m-Terphenyl	<67.9	<67.4	<64.5	<66.6	2.8
o-Terphenyl	<67.9	<67.4	<64.5	<66.6	2.8
p-Terphenyl	<67.9	<67.4	<64.5	<66.6	2.8
Triphenylene	<34.0	<33.7	<32.2	<33.3	2.8
Total	<2548	<2526	<2418	<2497	2.8

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 77
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<38.6	<37.7	<36.4	<37.6	3.0
Acenaphthylene	<38.6	<37.7	<36.4	<37.6	3.0
Anthracene	<38.6	<37.7	<36.4	<37.6	3.0
Benzo(a)anthracene	<38.6	<37.7	<36.4	<37.6	3.0
Benzo(b)fluoranthene	<38.6	<37.7	<36.4	<37.6	3.0
Benzo(k)fluoranthene	<38.6	<37.7	<36.4	<37.6	3.0
Benzo(a)fluorene	<154	<151	<145	<150	3.0
Benzo(b)fluorene	<77.1	<75.5	<72.7	<75.1	3.0
Benzo(g,h,i)perylene	<38.6	<37.7	<36.4	<37.6	3.0
Benzo(a)pyrene	<38.6	<37.7	<36.4	<37.6	3.0
Benzo(e)pyrene	<77.1	<75.5	<72.7	<75.1	3.0
Biphenyl	<77.1	<75.5	<72.7	<75.1	3.0
2-Chloronaphthalene	<77.1	<75.5	<72.7	<75.1	3.0
Chrysene	<38.6	<37.7	<36.4	<37.6	3.0
Coronene	<154	<151	<145	<150	3.0
Dibenzo(a,c) anthracene + Picene	<38.6	<37.7	<36.4	<37.6	3.0
Dibenz(a,h)anthracene	<38.6	<37.7	<36.4	<37.6	3.0
Dibenzo(a,e)pyrene	<154	<151	<145	<150	3.0
9,10-Dimethylanthracene	<154	<151	<145	<150	3.0
7,12-Dimethylbenzo(a)anthracene	<154	<151	<145	<150	3.0
Fluoranthene	<38.6	<37.7	<36.4	<37.6	3.0
Fluorene	<38.6	<37.7	<36.4	<37.6	3.0
Indeno(1,2,3-cd)pyrene	<38.6	<37.7	<36.4	<37.6	3.0
2-Methylanthracene	<77.1	<75.5	<72.7	<75.1	3.0
3-Methylcholanthrene	<154	<151	<145	<150	3.0
1-Methylnaphthalene	<77.1	<75.5	<72.7	<75.1	3.0
2-Methylnaphthalene	<38.6	<37.7	<36.4	<37.6	3.0
1-Methylphenanthrene	<77.1	<75.5	<72.7	<75.1	3.0
9-Methylphenanthrene	<38.6	<37.7	<36.4	<37.6	3.0
Naphthalene	<77.1	<75.5	<72.7	<75.1	3.0
Perylene	<154	<151	<145	<150	3.0
Phenanthrene	<38.6	<37.7	<36.4	<37.6	3.0
Pyrene	<38.6	<37.7	<36.4	<37.6	3.0
Quinoline	<154	<151	<145	<150	3.0
Tetralin	<77.1	<75.5	<72.7	<75.1	3.0
m-Terphenyl	<77.1	<75.5	<72.7	<75.1	3.0
o-Terphenyl	<77.1	<75.5	<72.7	<75.1	3.0
p-Terphenyl	<77.1	<75.5	<72.7	<75.1	3.0
Triphenylene	<38.6	<37.7	<36.4	<37.6	3.0
Total	<2892	<2831	<2727	<2817	3.0

* At 25°C and 1 atmosphere

TABLE 78
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Rates

Compound	Emission Rate Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	Coefficient of Variation %
Acenaphthene	<0.63	<0.63	<0.63	<0.63	0.3
Acenaphthylene	<0.63	<0.63	<0.63	<0.63	0.3
Anthracene	<0.63	<0.63	<0.63	<0.63	0.3
Benzo(a)anthracene	<0.63	<0.63	<0.63	<0.63	0.3
Benzo(b)fluoranthene	<0.63	<0.63	<0.63	<0.63	0.3
Benzo(k)fluoranthene	<0.63	<0.63	<0.63	<0.63	0.3
Benzo(a)fluorene	<2.51	<2.51	<2.50	<2.51	0.3
Benzo(b)fluorene	<1.26	<1.25	<1.25	<1.25	0.3
Benzo(g,h,i)perylene	<0.63	<0.63	<0.63	<0.63	0.3
Benzo(a)pyrene	<0.63	<0.63	<0.63	<0.63	0.3
Benzo(e)pyrene	<1.26	<1.25	<1.25	<1.25	0.3
Biphenyl	<1.26	<1.25	<1.25	<1.25	0.3
2-Chloronaphthalene	<1.26	<1.25	<1.25	<1.25	0.3
Chrysene	<0.63	<0.63	<0.63	<0.63	0.3
Coronene	<2.51	<2.51	<2.50	<2.51	0.3
Dibenzo(a,c) anthracene + Picene	<0.63	<0.63	<0.63	<0.63	0.3
Dibenz(a,h)anthracene	<0.63	<0.63	<0.63	<0.63	0.3
Dibenzo(a,e)pyrene	<2.51	<2.51	<2.50	<2.51	0.3
9,10-Dimethylanthracene	<2.51	<2.51	<2.50	<2.51	0.3
7,12-Dimethylbenzo(a)anthracene	<2.51	<2.51	<2.50	<2.51	0.3
Fluoranthene	<0.63	<0.63	<0.63	<0.63	0.3
Fluorene	<0.63	<0.63	<0.63	<0.63	0.3
Indeno(1,2,3-cd)pyrene	<0.63	<0.63	<0.63	<0.63	0.3
2-Methylanthracene	<1.26	<1.25	<1.25	<1.25	0.3
3-Methylcholanthrene	<2.51	<2.51	<2.50	<2.51	0.3
1-Methylnaphthalene	<1.26	<1.25	<1.25	<1.25	0.3
2-Methylnaphthalene	<0.63	<0.63	<0.63	<0.63	0.3
1-Methylphenanthrene	<1.26	<1.25	<1.25	<1.25	0.3
9-Methylphenanthrene	<0.63	<0.63	<0.63	<0.63	0.3
Naphthalene	<1.26	<1.25	<1.25	<1.25	0.3
Perylene	<2.51	<2.51	<2.50	<2.51	0.3
Phenanthrene	<0.63	<0.63	<0.63	<0.63	0.3
Pyrene	<0.63	<0.63	<0.63	<0.63	0.3
Quinoline	<2.51	<2.51	<2.50	<2.51	0.3
Tetralin	<1.26	<1.25	<1.25	<1.25	0.3
m-Terphenyl	<1.26	<1.25	<1.25	<1.25	0.3
o-Terphenyl	<1.26	<1.25	<1.25	<1.25	0.3
p-Terphenyl	<1.26	<1.25	<1.25	<1.25	0.3
Triphenylene	<0.63	<0.63	<0.63	<0.63	0.3
Total	<47.1	<47.0	<46.9	<47.0	0.3

TABLE 79
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Polycyclic Aromatic Hydrocarbon Emission Data

Compound	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<26.2	<44.9	<33.3	<37.6	<0.63
Acenaphthylene	<26.2	<44.9	<33.3	<37.6	<0.63
Anthracene	<26.2	<44.9	<33.3	<37.6	<0.63
Benzo(a)anthracene	<26.2	<44.9	<33.3	<37.6	<0.63
Benzo(b)fluoranthene	<26.2	<44.9	<33.3	<37.6	<0.63
Benzo(k)fluoranthene	<26.2	<44.9	<33.3	<37.6	<0.63
Benzo(a)fluorene	<105	<180	<133	<150	<2.51
Benzo(b)fluorene	<52.3	<89.8	<66.6	<75.1	<1.25
Benzo(g,h,i)perylene	<26.2	<44.9	<33.3	<37.6	<0.63
Benzo(a)pyrene	<26.2	<44.9	<33.3	<37.6	<0.63
Benzo(e)pyrene	<52.3	<89.8	<66.6	<75.1	<1.25
Biphenyl	<52.3	<89.8	<66.6	<75.1	<1.25
2-Chloronaphthalene	<52.3	<89.8	<66.6	<75.1	<1.25
Chrysene	<26.2	<44.9	<33.3	<37.6	<0.63
Coronene	<105	<180	<133	<150	<2.51
Dibenzo(a,c) anthracene + Picene	<26.2	<44.9	<33.3	<37.6	<0.63
Dibenz(a,h)anthracene	<26.2	<44.9	<33.3	<37.6	<0.63
Dibenzo(a,e)pyrene	<105	<180	<133	<150	<2.51
9,10-Dimethylanthracene	<105	<180	<133	<150	<2.51
7,12-Dimethylbenzo(a)anthracene	<105	<180	<133	<150	<2.51
Fluoranthene	<26.2	<44.9	<33.3	<37.6	<0.63
Fluorene	<26.2	<44.9	<33.3	<37.6	<0.63
Indeno(1,2,3-cd)pyrene	<26.2	<44.9	<33.3	<37.6	<0.63
2-Methylanthracene	<52.3	<89.8	<66.6	<75.1	<1.25
3-Methylcholanthrene	<105	<180	<133	<150	<2.51
1-Methylnaphthalene	<52.3	<89.8	<66.6	<75.1	<1.25
2-Methylnaphthalene	<26.2	<44.9	<33.3	<37.6	<0.63
1-Methylphenanthrene	<52.3	<89.8	<66.6	<75.1	<1.25
9-Methylphenanthrene	<26.2	<44.9	<33.3	<37.6	<0.63
Naphthalene	<52.3	<89.8	<66.6	<75.1	<1.25
Perylene	<105	<180	<133	<150	<2.51
Phenanthrene	<26.2	<44.9	<33.3	<37.6	<0.63
Pyrene	<26.2	<44.9	<33.3	<37.6	<0.63
Quinoline	<105	<180	<133	<150	<2.51
Tetralin	<52.3	<89.8	<66.6	<75.1	<1.25
m-Terphenyl	<52.3	<89.8	<66.6	<75.1	<1.25
o-Terphenyl	<52.3	<89.8	<66.6	<75.1	<1.25
p-Terphenyl	<52.3	<89.8	<66.6	<75.1	<1.25
Triphenylene	<26.2	<44.9	<33.3	<37.6	<0.63
Total	<1962	<3367	<2497	<2817	<47.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 80
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Blank Polycyclic Aromatic Hydrocarbon Analyses

Compound	Blank Train µg	Laboratory Blank µg
Acenaphthene	<0.30	<0.30
Acenaphthylene	<0.30	<0.30
Anthracene	<0.30	<0.30
Benzo(a)anthracene	<0.30	<0.30
Benzo(b)fluoranthene	<0.30	<0.30
Benzo(k)fluoranthene	<0.30	<0.30
Benzo(a)fluorene	<1.2	<1.2
Benzo(b)fluorene	<0.60	<0.60
Benzo(g,h,i)perylene	<0.30	<0.30
Benzo(a)pyrene	<0.30	<0.30
Benzo(e)pyrene	<0.60	<0.60
Biphenyl	<0.60	<0.60
2-Chloronaphthalene	<0.60	<0.60
Chrysene	<0.30	<0.30
Coronene	<1.2	<1.2
Dibenzo(a,c) anthracene + Picene	<0.30	<0.30
Dibenz(a,h)anthracene	<0.30	<0.30
Dibenzo(a,e)pyrene	<1.2	<1.2
9,10-Dimethylanthracene	<1.2	<1.2
7,12-Dimethylbenzo(a)anthracene	<1.2	<1.2
Fluoranthene	<0.30	<0.30
Fluorene	<0.30	<0.30
Indeno(1,2,3-cd)pyrene	<0.30	<0.30
2-Methylanthracene	<0.60	<0.60
3-Methylcholanthrene	<1.2	<1.2
1-Methylnaphthalene	<0.60	<0.60
2-Methylnaphthalene	<0.30	<0.30
1-Methylphenanthrene	<0.60	<0.60
9-Methylphenanthrene	<0.30	<0.30
Naphthalene	<0.60	<0.60
Perylene	<1.2	<1.2
Phenanthrene	<0.30	<0.30
Pyrene	<0.30	<0.30
Quinoline	<1.2	<1.2
Tetralin	<0.60	<0.60
m-Terphenyl	<0.60	<0.60
o-Terphenyl	<0.60	<0.60
p-Terphenyl	<0.60	<0.60
Triphenylene	<0.30	<0.30
Total	<22.5	<22.5

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 81
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Acetaldehyde, Formaldehyde and Acrolein Emission Data

Acetaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acetaldehyde Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Acetaldehyde Emission Rate mg/s
1	2	0.0299	38.9	66.8	49.5	56.1	0.92
2	2	0.0310	37.6	64.6	47.8	54.3	0.88
3	<2	0.0290	<40.3	<69.1	<51.1	<58.0	<0.95
Average			<38.9	<66.8	<49.5	<56.2	<0.92
Blank	<2						

Formaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Formaldehyde Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Formaldehyde Emission Rate mg/s
1	2.2	0.0299	42.8	73.5	54.4	61.8	1.01
2	1.8	0.0310	33.9	58.1	43.0	48.8	0.80
3	1.3	0.0290	26.2	44.9	33.2	37.7	0.61
Average			34.3	58.8	43.6	49.4	0.81
Blank	0.6						

Acrolein

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acrolein Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Acrolein Emission Rate mg/s
1	<2	0.0299	<38.9	<66.8	<49.5	<56.1	<0.92
2	<2	0.0310	<37.6	<64.6	<47.8	<54.3	<0.88
3	<2	0.0290	<40.3	<69.1	<51.1	<58.0	<0.95
Average			<38.9	<66.8	<49.5	<56.2	<0.92
Blank	<2						

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

Sampling was conducted at a single point. Volumetric flowrates from the corresponding isokinetic tests were used to calculate emission data.

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 82
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Analyses
Test No. 1

Compound	Cartridge Amount Collected Run No. 1 Tube 1A/1B	Run No. 2 Tube 2A/2B	Run No. 3 Tube 3A/3B	Average	Coefficient of Variation	Total Collected
	µg	µg	µg	µg	%	µg
Acetone	0.098	0.060	0.051	0.070	35.8	0.21
Benzene	0.043	0.037	0.034	0.038	12.4	0.11
Bromodichloromethane	0.037	0.040	0.041	0.039	5.3	0.12
Bromoform	<0.014	<0.014	<0.014	<0.014	-	<0.042
Bromomethane	<0.015	0.015	0.015	<0.015	-	<0.045
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	-	<0.075
2-Butanone	<0.036	<0.036	<0.036	<0.036	-	<0.11
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	-	<0.048
Chlorobenzene	0.012	0.012	0.012	0.012	-	0.036
Chloroform	0.036	0.039	0.039	0.038	4.6	0.11
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Dibromochloromethane	0.019	0.020	0.020	0.020	4.9	0.059
Dichlorodifluoromethane	<0.020	<0.020	<0.020	<0.020	-	<0.060
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.007	-	<0.021
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	-	<0.030
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	-	<0.033
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	-	<0.042
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	-	<0.030
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Methylene Chloride	<0.019	<0.019	<0.019	<0.019	-	<0.057
Styrene	<0.012	<0.012	<0.012	<0.012	-	<0.036
Tetrachloroethene	<0.018	<0.018	<0.018	<0.018	-	<0.054
Toluene	0.057	0.044	0.038	0.046	21.0	0.14
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	-	<0.042
Trichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	-	<0.048
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	-	<0.075
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	-	<0.030
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
O-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	-	<0.039
Total	<0.71	<0.66	<0.64	<0.67	5.2	<2.01

Dry Gas Volume Sampled (Rm^3*) :

Run No. 1	0.0202
Run No. 2	0.0209
Run No. 3	0.0204

* At 25°C and 1 atmosphere.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). For the purpose of determining average and total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 83
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Analyses
Test No. 2

Compound	Cartridge Amount Collected				Coefficient	Total
	Run No. 1 Tube 4A/4B	Run No. 2 Tube 5A/5B	Run No. 3 Tube 6A/6B	Average	of Variation	Collected
	µg	µg	µg	µg	%	µg
Acetone	0.061	0.057	0.054	0.057	6.1	0.17
Benzene	0.032	0.032	0.027	0.031	9.1	0.092
Bromodichloromethane	0.040	0.044	0.037	0.040	8.7	0.12
Bromoform	<0.014	<0.014	<0.014	<0.014	-	<0.042
Bromomethane	<0.015	<0.015	<0.015	<0.015	-	<0.045
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	-	<0.075
2-Butanone	<0.036	<0.036	<0.036	<0.036	-	<0.11
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	-	<0.048
Chlorobenzene	0.014	0.013	0.012	0.013	7.7	0.039
Chloroform	0.039	0.042	0.034	0.038	10.5	0.12
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Dibromochloromethane	0.021	0.023	0.018	0.021	10.5	0.062
Dichlorodifluoromethane	<0.020	<0.020	0.152	<0.064	119	<0.19
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	-	<0.021
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	-	<0.030
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	-	<0.033
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	-	<0.042
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	-	<0.030
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Methylene Chloride	<0.019	<0.019	<0.019	<0.019	-	<0.057
Styrene	<0.012	<0.012	<0.012	<0.012	-	<0.036
Tetrachloroethene	<0.018	<0.018	<0.018	<0.018	-	<0.054
Toluene	0.038	0.037	0.031	0.035	10.7	0.11
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	-	<0.042
Trichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	-	<0.048
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	-	<0.075
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	-	<0.030
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
O-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	-	<0.039
Total	<0.65	<0.65	<0.75	<0.69	8.3	<2.06

Dry Gas Volume Sampled (Rm^3*) :

Run No. 1	0.0208
Run No. 2	0.0196
Run No. 3	0.0201

* At 25°C and 1 atmosphere.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). For the purpose of determining average and total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 84
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Analyses
Test No. 3

Compound	Cartridge Amount Collected				Coefficient	Total
	Run No. 1 Tube 7A/7B	Run No. 2 Tube 8A/8B	Run No. 3 Tube 9A/9B	Average	of Variation	Collected
	µg	µg	µg	µg	%	µg
Acetone	0.071	0.063	0.073	0.069	7.7	0.21
Benzene	0.041	0.040	0.052	0.044	15.9	0.13
Bromodichloromethane	0.040	0.036	0.035	0.037	7.2	0.11
Bromoform	<0.014	<0.014	<0.014	<0.014	-	<0.042
Bromomethane	<0.015	<0.015	<0.015	<0.015	-	<0.045
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	-	<0.075
2-Butanone	<0.036	<0.036	<0.036	<0.036	-	<0.11
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	-	<0.048
Chlorobenzene	0.013	0.012	0.014	0.013	7.7	0.039
Chloroform	0.041	0.036	0.037	0.038	7.0	0.11
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Dibromochloromethane	0.020	0.019	0.018	0.019	4.7	0.058
Dichlorodifluoromethane	0.021	<0.020	<0.020	<0.020	2.8	<0.061
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	-	<0.021
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	-	<0.030
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	-	<0.033
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	-	<0.042
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	-	<0.030
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Methylene Chloride	0.093	0.031	<0.019	<0.048	83.3	<0.14
Styrene	<0.012	<0.012	<0.012	<0.012	-	<0.036
Tetrachloroethene	<0.018	<0.018	<0.018	<0.018	-	<0.054
Toluene	0.030	0.038	0.073	0.047	48.7	0.14
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	-	<0.042
Trichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	-	<0.048
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	-	<0.075
Trichlorofluoromethane	<0.010	<0.010	0.014	<0.011	20.4	<0.034
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
O-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	-	<0.039
Total	<0.74	<0.66	<0.71	<0.70	5.5	<2.11

Dry Gas Volume Sampled (Rm^3*) :

Run No. 1	0.0205
Run No. 2	0.0203
Run No. 3	0.0205

* At 25°C and 1 atmosphere.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). For the purpose of determining average and total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 85
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 1

Compound	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Acetone	0.21	1.99	3.40	2.54	2.85	0.047
Benzene	0.11	1.08	1.85	1.38	1.55	0.026
Bromodichloromethane	0.12	1.12	1.92	1.44	1.61	0.027
Bromoform	<0.042	<0.40	<0.68	<0.51	<0.57	<0.0095
Bromomethane	<0.045	<0.43	<0.73	<0.55	<0.61	<0.010
1,3-Butadiene	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
2-Butanone	<0.11	<1.03	<1.76	<1.31	<1.47	<0.024
Carbon Tetrachloride	<0.048	<0.46	<0.78	<0.58	<0.65	<0.011
Chlorobenzene	0.036	0.34	0.59	0.44	0.49	0.0081
Chloroform	0.11	1.08	1.86	1.39	1.55	0.026
Cumene (Isopropylbenzene)	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
Dibromochloromethane	0.059	0.56	0.96	0.72	0.80	0.013
Dichlorodifluoromethane	<0.060	<0.57	<0.98	<0.73	<0.82	<0.014
1,2-Dichloroethane	<0.021	<0.20	<0.34	<0.26	<0.29	<0.0048
trans,1,2-Dichloroethene	<0.030	<0.29	<0.49	<0.37	<0.41	<0.0068
1,1-Dichloroethene	<0.033	<0.31	<0.54	<0.40	<0.45	<0.0075
1,2-Dichloropropane	<0.033	<0.31	<0.54	<0.40	<0.45	<0.0075
Ethylbenzene	<0.042	<0.40	<0.68	<0.51	<0.57	<0.0095
Ethylene Dibromide	<0.030	<0.29	<0.49	<0.37	<0.41	<0.0068
Mesitylene (1,3,5-Trimethylbenzene)	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
Methylene Chloride	<0.057	<0.54	<0.93	<0.69	<0.78	<0.013
Styrene	<0.036	<0.34	<0.59	<0.44	<0.49	<0.0081
Tetrachloroethene	<0.054	<0.51	<0.88	<0.66	<0.74	<0.012
Toluene	0.14	1.32	2.26	1.69	1.90	0.031
1,1,1-Trichloroethane	<0.042	<0.40	<0.68	<0.51	<0.57	<0.0095
Trichloroethene	<0.033	<0.31	<0.54	<0.40	<0.45	<0.0075
1,1,2-Trichloroethane	<0.048	<0.46	<0.78	<0.58	<0.65	<0.011
Trichlorotrifluoroethane	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
Trichlorofluoromethane	<0.030	<0.29	<0.49	<0.37	<0.41	<0.0068
M&P-Xylene	<0.045	<0.43	<0.73	<0.55	<0.61	<0.010
O-Xylene	<0.045	<0.43	<0.73	<0.55	<0.61	<0.010
Vinyl Chloride	<0.039	<0.37	<0.64	<0.47	<0.53	<0.0088
Total	<2.01	<19.1	<32.7	<24.5	<27.4	<0.45

Dry Gas Volume Sampled (Rm³*) :	0.0614
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 86
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 2

Compound	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Acetone	0.17	1.66	2.85	2.13	2.38	0.040
Benzene	0.092	0.89	1.52	1.13	1.27	0.021
Bromodichloromethane	0.12	1.17	2.00	1.50	1.68	0.028
Bromoform	<0.042	<0.41	<0.69	<0.52	<0.58	<0.0097
Bromomethane	<0.045	<0.43	<0.74	<0.56	<0.62	<0.010
1,3-Butadiene	<0.075	<0.72	<1.24	<0.93	<1.04	<0.017
2-Butanone	<0.11	<1.04	<1.79	<1.34	<1.50	<0.025
Carbon Tetrachloride	<0.048	<0.46	<0.79	<0.59	<0.66	<0.011
Chlorobenzene	0.039	0.38	0.65	0.48	0.54	0.0090
Chloroform	0.12	1.11	1.90	1.42	1.59	0.026
Cumene (Isopropylbenzene)	<0.075	<0.72	<1.24	<0.93	<1.04	<0.017
Dibromochloromethane	0.062	0.60	1.02	0.76	0.86	0.014
Dichlorodifluoromethane	<0.19	<1.85	<3.18	<2.37	<2.66	<0.044
1,2-Dichloroethane	<0.021	<0.20	<0.35	<0.26	<0.29	<0.0048
trans,1,2-Dichloroethene	<0.030	<0.29	<0.50	<0.37	<0.42	<0.0069
1,1-Dichloroethene	<0.033	<0.32	<0.55	<0.41	<0.46	<0.0076
1,2-Dichloropropane	<0.033	<0.32	<0.55	<0.41	<0.46	<0.0076
Ethylbenzene	<0.042	<0.41	<0.69	<0.52	<0.58	<0.0097
Ethylene Dibromide	<0.030	<0.29	<0.50	<0.37	<0.42	<0.0069
Mesitylene (1,3,5-Trimethylbenzene)	<0.075	<0.72	<1.24	<0.93	<1.04	<0.017
Methylene Chloride	<0.057	<0.55	<0.94	<0.70	<0.79	<0.013
Styrene	<0.036	<0.35	<0.60	<0.45	<0.50	<0.0083
Tetrachloroethene	<0.054	<0.52	<0.89	<0.67	<0.75	<0.012
Toluene	0.11	1.02	1.75	1.31	1.47	0.024
1,1,1-Trichloroethane	<0.042	<0.41	<0.69	<0.52	<0.58	<0.0097
Trichloroethene	<0.033	<0.32	<0.55	<0.41	<0.46	<0.0076
1,1,2-Trichloroethane	<0.048	<0.46	<0.79	<0.59	<0.66	<0.011
Trichlorotrifluoroethane	<0.075	<0.72	<1.24	<0.93	<1.04	<0.017
Trichlorofluoromethane	<0.030	<0.29	<0.50	<0.37	<0.42	<0.0069
M&P-Xylene	<0.045	<0.43	<0.74	<0.56	<0.62	<0.010
O-Xylene	<0.045	<0.43	<0.74	<0.56	<0.62	<0.010
Vinyl Chloride	<0.039	<0.38	<0.65	<0.48	<0.54	<0.0090
Total	<2.06	<19.9	<34.1	<25.5	<28.5	<0.47

Dry Gas Volume Sampled (Rm³*) :	0.0605
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 87
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 3

Compound	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Acetone	0.21	1.97	3.38	2.52	2.83	0.047
Benzene	0.13	1.27	2.17	1.62	1.82	0.030
Bromodichloromethane	0.11	1.06	1.81	1.35	1.52	0.025
Bromoform	<0.042	<0.40	<0.69	<0.51	<0.57	<0.0095
Bromomethane	<0.045	<0.43	<0.73	<0.55	<0.61	<0.010
1,3-Butadiene	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
2-Butanone	<0.11	<1.03	<1.76	<1.32	<1.48	<0.024
Carbon Tetrachloride	<0.048	<0.46	<0.78	<0.59	<0.66	<0.011
Chlorobenzene	0.039	0.37	0.64	0.48	0.53	0.0088
Chloroform	0.11	1.09	1.86	1.39	1.56	0.026
Cumene (Isopropylbenzene)	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
Dibromochloromethane	0.058	0.55	0.94	0.70	0.79	0.013
Dichlorodifluoromethane	<0.061	<0.58	<1.00	<0.74	<0.83	<0.014
1,2-Dichloroethane	<0.021	<0.20	<0.34	<0.26	<0.29	<0.0048
trans,1,2-Dichloroethene	<0.030	<0.29	<0.49	<0.37	<0.41	<0.0068
1,1-Dichloroethene	<0.033	<0.31	<0.54	<0.40	<0.45	<0.0075
1,2-Dichloropropane	<0.033	<0.31	<0.54	<0.40	<0.45	<0.0075
Ethylbenzene	<0.042	<0.40	<0.69	<0.51	<0.57	<0.0095
Ethylene Dibromide	<0.030	<0.29	<0.49	<0.37	<0.41	<0.0068
Mesitylene (1,3,5-Trimethylbenzene)	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
Methylene Chloride	<0.14	<1.36	<2.33	<1.74	<1.95	<0.032
Styrene	<0.036	<0.34	<0.59	<0.44	<0.49	<0.0082
Tetrachloroethene	<0.054	<0.51	<0.88	<0.66	<0.74	<0.012
Toluene	0.14	1.34	2.30	1.72	1.93	0.032
1,1,1-Trichloroethane	<0.042	<0.40	<0.69	<0.51	<0.57	<0.0095
Trichloroethene	<0.033	<0.31	<0.54	<0.40	<0.45	<0.0075
1,1,2-Trichloroethane	<0.048	<0.46	<0.78	<0.59	<0.66	<0.011
Trichlorotrifluoroethane	<0.075	<0.71	<1.22	<0.91	<1.02	<0.017
Trichlorofluoromethane	<0.034	<0.32	<0.55	<0.41	<0.46	<0.0077
M&P-Xylene	<0.045	<0.43	<0.73	<0.55	<0.61	<0.010
O-Xylene	<0.045	<0.43	<0.73	<0.55	<0.61	<0.010
Vinyl Chloride	<0.039	<0.37	<0.64	<0.48	<0.53	<0.0088
Total	<2.11	<20.1	<34.5	<25.8	<28.9	<0.48

Dry Gas Volume Sampled (Rm³*) :	0.0613
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 88
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Actual Concentrations

Compound	Actual Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	µg/m³	µg/m³	µg/m³	µg/m³
Acetone	1.99	1.66	1.97	1.87
Benzene	1.08	0.89	1.27	1.08
Bromodichloromethane	1.12	1.17	1.06	1.12
Bromoform	<0.40	<0.41	<0.40	<0.40
Bromomethane	<0.43	<0.43	<0.43	<0.43
1,3-Butadiene	<0.71	<0.72	<0.71	<0.72
2-Butanone	<1.03	<1.04	<1.03	<1.03
Carbon Tetrachloride	<0.46	<0.46	<0.46	<0.46
Chlorobenzene	0.34	0.38	0.37	0.36
Chloroform	1.08	1.11	1.09	1.09
Cumene (Isopropylbenzene)	<0.71	<0.72	<0.71	<0.72
Dibromochloromethane	0.56	0.60	0.55	0.57
Dichlorodifluoromethane	<0.57	<1.85	<0.58	<1.00
1,2-Dichloroethane	<0.20	<0.20	<0.20	<0.20
trans,1,2-Dichloroethene	<0.29	<0.29	<0.29	<0.29
1,1-Dichloroethene	<0.31	<0.32	<0.31	<0.32
1,2-Dichloropropane	<0.31	<0.32	<0.31	<0.32
Ethylbenzene	<0.40	<0.41	<0.40	<0.40
Ethylene Dibromide	<0.29	<0.29	<0.29	<0.29
Mesitylene (1,3,5-Trimethylbenzene)	<0.71	<0.72	<0.71	<0.72
Methylene Chloride	<0.54	<0.55	<1.36	<0.82
Styrene	<0.34	<0.35	<0.34	<0.34
Tetrachloroethene	<0.51	<0.52	<0.51	<0.52
Toluene	1.32	1.02	1.34	1.23
1,1,1-Trichloroethane	<0.40	<0.41	<0.40	<0.40
Trichloroethene	<0.31	<0.32	<0.31	<0.32
1,1,2-Trichloroethane	<0.46	<0.46	<0.46	<0.46
Trichlorotrifluoroethane	<0.71	<0.72	<0.71	<0.72
Trichlorofluoromethane	<0.29	<0.29	<0.32	<0.30
M&P-Xylene	<0.43	<0.43	<0.43	<0.43
O-Xylene	<0.43	<0.43	<0.43	<0.43
Vinyl Chloride	<0.37	<0.38	<0.37	<0.37
Total	<19.1	<19.9	<20.1	<19.7

TABLE 89
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Dry Reference Concentrations

Compound	Dry Reference Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*
Acetone	3.40	2.85	3.38	3.21
Benzene	1.85	1.52	2.17	1.85
Bromodichloromethane	1.92	2.00	1.81	1.91
Bromoform	<0.68	<0.69	<0.69	<0.69
Bromomethane	<0.73	<0.74	<0.73	<0.74
1,3-Butadiene	<1.22	<1.24	<1.22	<1.23
2-Butanone	<1.76	<1.79	<1.76	<1.77
Carbon Tetrachloride	<0.78	<0.79	<0.78	<0.79
Chlorobenzene	0.59	0.65	0.64	0.62
Chloroform	1.86	1.90	1.86	1.87
Cumene (Isopropylbenzene)	<1.22	<1.24	<1.22	<1.23
Dibromochloromethane	0.96	1.02	0.94	0.97
Dichlorodifluoromethane	<0.98	<3.18	<1.00	<1.72
1,2-Dichloroethane	<0.34	<0.35	<0.34	<0.34
trans,1,2-Dichloroethene	<0.49	<0.50	<0.49	<0.49
1,1-Dichloroethene	<0.54	<0.55	<0.54	<0.54
1,2-Dichloropropane	<0.54	<0.55	<0.54	<0.54
Ethylbenzene	<0.68	<0.69	<0.69	<0.69
Ethylene Dibromide	<0.49	<0.50	<0.49	<0.49
Mesitylene (1,3,5-Trimethylbenzene)	<1.22	<1.24	<1.22	<1.23
Methylene Chloride	<0.93	<0.94	<2.33	<1.40
Styrene	<0.59	<0.60	<0.59	<0.59
Tetrachloroethene	<0.88	<0.89	<0.88	<0.88
Toluene	2.26	1.75	2.30	2.11
1,1,1-Trichloroethane	<0.68	<0.69	<0.69	<0.69
Trichloroethene	<0.54	<0.55	<0.54	<0.54
1,1,2-Trichloroethane	<0.78	<0.79	<0.78	<0.79
Trichlorotrifluoroethane	<1.22	<1.24	<1.22	<1.23
Trichlorofluoromethane	<0.49	<0.50	<0.55	<0.51
M&P-Xylene	<0.73	<0.74	<0.73	<0.74
O-Xylene	<0.73	<0.74	<0.73	<0.74
Vinyl Chloride	<0.64	<0.65	<0.64	<0.64
Total	<32.7	<34.1	<34.5	<33.8

* At 25°C and 1 atmosphere

TABLE 90
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*
Acetone	2.54	2.13	2.52	2.40
Benzene	1.38	1.13	1.62	1.38
Bromodichloromethane	1.44	1.50	1.35	1.43
Bromoform	<0.51	<0.52	<0.51	<0.51
Bromomethane	<0.55	<0.56	<0.55	<0.55
1,3-Butadiene	<0.91	<0.93	<0.91	<0.92
2-Butanone	<1.31	<1.34	<1.32	<1.32
Carbon Tetrachloride	<0.58	<0.59	<0.59	<0.59
Chlorobenzene	0.44	0.48	0.48	0.47
Chloroform	1.39	1.42	1.39	1.40
Cumene (Isopropylbenzene)	<0.91	<0.93	<0.91	<0.92
Dibromochloromethane	0.72	0.76	0.70	0.73
Dichlorodifluoromethane	<0.73	<2.37	<0.74	<1.28
1,2-Dichloroethane	<0.26	<0.26	<0.26	<0.26
trans,1,2-Dichloroethene	<0.37	<0.37	<0.37	<0.37
1,1-Dichloroethene	<0.40	<0.41	<0.40	<0.40
1,2-Dichloropropane	<0.40	<0.41	<0.40	<0.40
Ethylbenzene	<0.51	<0.52	<0.51	<0.51
Ethylene Dibromide	<0.37	<0.37	<0.37	<0.37
Mesitylene (1,3,5-Trimethylbenzene)	<0.91	<0.93	<0.91	<0.92
Methylene Chloride	<0.69	<0.70	<1.74	<1.05
Styrene	<0.44	<0.45	<0.44	<0.44
Tetrachloroethene	<0.66	<0.67	<0.66	<0.66
Toluene	1.69	1.31	1.72	1.57
1,1,1-Trichloroethane	<0.51	<0.52	<0.51	<0.51
Trichloroethene	<0.40	<0.41	<0.40	<0.40
1,1,2-Trichloroethane	<0.58	<0.59	<0.59	<0.59
Trichlorotrifluoroethane	<0.91	<0.93	<0.91	<0.92
Trichlorofluoromethane	<0.37	<0.37	<0.41	<0.38
M&P-Xylene	<0.55	<0.56	<0.55	<0.55
O-Xylene	<0.55	<0.56	<0.55	<0.55
Vinyl Chloride	<0.47	<0.48	<0.48	<0.48
Total	<24.5	<25.5	<25.8	<25.2

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 91
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Wet Reference Concentrations

Compound	Wet Reference Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*
Acetone	2.85	2.38	2.83	2.69
Benzene	1.55	1.27	1.82	1.55
Bromodichloromethane	1.61	1.68	1.52	1.60
Bromoform	<0.57	<0.58	<0.57	<0.58
Bromomethane	<0.61	<0.62	<0.61	<0.62
1,3-Butadiene	<1.02	<1.04	<1.02	<1.03
2-Butanone	<1.47	<1.50	<1.48	<1.48
Carbon Tetrachloride	<0.65	<0.66	<0.66	<0.66
Chlorobenzene	0.49	0.54	0.53	0.52
Chloroform	1.55	1.59	1.56	1.57
Cumene (Isopropylbenzene)	<1.02	<1.04	<1.02	<1.03
Dibromochloromethane	0.80	0.86	0.79	0.82
Dichlorodifluoromethane	<0.82	<2.66	<0.83	<1.44
1,2-Dichloroethane	<0.29	<0.29	<0.29	<0.29
trans,1,2-Dichloroethene	<0.41	<0.42	<0.41	<0.41
1,1-Dichloroethene	<0.45	<0.46	<0.45	<0.45
1,2-Dichloropropane	<0.45	<0.46	<0.45	<0.45
Ethylbenzene	<0.57	<0.58	<0.57	<0.58
Ethylene Dibromide	<0.41	<0.42	<0.41	<0.41
Mesitylene (1,3,5-Trimethylbenzene)	<1.02	<1.04	<1.02	<1.03
Methylene Chloride	<0.78	<0.79	<1.95	<1.17
Styrene	<0.49	<0.50	<0.49	<0.49
Tetrachloroethene	<0.74	<0.75	<0.74	<0.74
Toluene	1.90	1.47	1.93	1.76
1,1,1-Trichloroethane	<0.57	<0.58	<0.57	<0.58
Trichloroethene	<0.45	<0.46	<0.45	<0.45
1,1,2-Trichloroethane	<0.65	<0.66	<0.66	<0.66
Trichlorotrifluoroethane	<1.02	<1.04	<1.02	<1.03
Trichlorofluoromethane	<0.41	<0.42	<0.46	<0.43
M&P-Xylene	<0.61	<0.62	<0.61	<0.62
O-Xylene	<0.61	<0.62	<0.61	<0.62
Vinyl Chloride	<0.53	<0.54	<0.53	<0.53
Total	<27.4	<28.5	<28.9	<28.3

* At 25°C and 1 atmosphere

TABLE 92
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Rates

Compound	Emission Rate			
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s
Acetone	0.047	0.040	0.047	0.045
Benzene	0.026	0.021	0.030	0.026
Bromodichloromethane	0.027	0.028	0.025	0.027
Bromoform	<0.0095	<0.0097	<0.0095	<0.0096
Bromomethane	<0.010	<0.010	<0.010	<0.010
1,3-Butadiene	<0.017	<0.017	<0.017	<0.017
2-Butanone	<0.024	<0.025	<0.024	<0.025
Carbon Tetrachloride	<0.011	<0.011	<0.011	<0.011
Chlorobenzene	0.0081	0.0090	0.0088	0.0087
Chloroform	0.026	0.026	0.026	0.026
Cumene (Isopropylbenzene)	<0.017	<0.017	<0.017	<0.017
Dibromochloromethane	0.013	0.014	0.013	0.014
Dichlorodifluoromethane	<0.014	<0.044	<0.014	<0.024
1,2-Dichloroethane	<0.0048	<0.0048	<0.0048	<0.0048
trans,1,2-Dichloroethene	<0.0068	<0.0069	<0.0068	<0.0068
1,1-Dichloroethene	<0.0075	<0.0076	<0.0075	<0.0075
1,2-Dichloropropane	<0.0075	<0.0076	<0.0075	<0.0075
Ethylbenzene	<0.0095	<0.0097	<0.0095	<0.0096
Ethylene Dibromide	<0.0068	<0.0069	<0.0068	<0.0068
Mesitylene (1,3,5-Trimethylbenzene)	<0.017	<0.017	<0.017	<0.017
Methylene Chloride	<0.013	<0.013	<0.032	<0.019
Styrene	<0.0081	<0.0083	<0.0082	<0.0082
Tetrachloroethene	<0.012	<0.012	<0.012	<0.012
Toluene	0.031	0.024	0.032	0.029
1,1,1-Trichloroethane	<0.0095	<0.0097	<0.0095	<0.0096
Trichloroethene	<0.0075	<0.0076	<0.0075	<0.0075
1,1,2-Trichloroethane	<0.011	<0.011	<0.011	<0.011
Trichlorotrifluoroethane	<0.017	<0.017	<0.017	<0.017
Trichlorofluoromethane	<0.0068	<0.0069	<0.0077	<0.0071
M&P-Xylene	<0.010	<0.010	<0.010	<0.010
O-Xylene	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	<0.0088	<0.0090	<0.0088	<0.0089
Total	<0.45	<0.47	<0.48	<0.47

TABLE 93
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Volatile Organic Emission Data

Compound	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³*	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Acetone	1.87	3.21	2.40	2.69	0.045
Benzene	1.08	1.85	1.38	1.55	0.026
Bromodichloromethane	1.12	1.91	1.43	1.60	0.027
Bromoform	<0.40	<0.69	<0.51	<0.58	<0.0096
Bromomethane	<0.43	<0.74	<0.55	<0.62	<0.010
1,3-Butadiene	<0.72	<1.23	<0.92	<1.03	<0.017
2-Butanone	<1.03	<1.77	<1.32	<1.48	<0.025
Carbon Tetrachloride	<0.46	<0.79	<0.59	<0.66	<0.011
Chlorobenzene	0.36	0.62	0.47	0.52	0.0087
Chloroform	1.09	1.87	1.40	1.57	0.026
Cumene (Isopropylbenzene)	<0.72	<1.23	<0.92	<1.03	<0.017
Dibromochloromethane	0.57	0.97	0.73	0.82	0.014
Dichlorodifluoromethane	<1.00	<1.72	<1.28	<1.44	<0.024
1,2-Dichloroethane	<0.20	<0.34	<0.26	<0.29	<0.0048
trans,1,2-Dichloroethene	<0.29	<0.49	<0.37	<0.41	<0.0068
1,1-Dichloroethene	<0.32	<0.54	<0.40	<0.45	<0.0075
1,2-Dichloropropane	<0.32	<0.54	<0.40	<0.45	<0.0075
Ethylbenzene	<0.40	<0.69	<0.51	<0.58	<0.0096
Ethylene Dibromide	<0.29	<0.49	<0.37	<0.41	<0.0068
Mesitylene (1,3,5-Trimethylbenzene)	<0.72	<1.23	<0.92	<1.03	<0.017
Methylene Chloride	<0.82	<1.40	<1.05	<1.17	<0.019
Styrene	<0.34	<0.59	<0.44	<0.49	<0.0082
Tetrachloroethene	<0.52	<0.88	<0.66	<0.74	<0.012
Toluene	1.23	2.11	1.57	1.76	0.029
1,1,1-Trichloroethane	<0.40	<0.69	<0.51	<0.58	<0.0096
Trichloroethene	<0.32	<0.54	<0.40	<0.45	<0.0075
1,1,2-Trichloroethane	<0.46	<0.79	<0.59	<0.66	<0.011
Trichlorotrifluoroethane	<0.72	<1.23	<0.92	<1.03	<0.017
Trichlorofluoromethane	<0.30	<0.51	<0.38	<0.43	<0.0071
M&P-Xylene	<0.43	<0.74	<0.55	<0.62	<0.010
O-Xylene	<0.43	<0.74	<0.55	<0.62	<0.010
Vinyl Chloride	<0.37	<0.64	<0.48	<0.53	<0.0089
Total	<19.7	<33.8	<25.2	<28.3	<0.47

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 94
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Blank Volatile Organic Analyses

Compound	Field Blank Tube 10A/10B	Field Blank Tube 15A/15B	Field Blank Tube 21A/21B	Trip Blank Tube 30A/30B	Method Blank
	µg	µg	µg	µg	µg
Acetone	<0.045	<0.045	<0.045	<0.045	<0.045
Benzene	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090
Bromodichloromethane	<0.011	<0.011	<0.011	<0.011	<0.011
Bromoform	<0.014	<0.014	<0.014	<0.014	<0.014
Bromomethane	<0.015	<0.015	<0.015	<0.015	<0.015
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	<0.025
2-Butanone	<0.036	<0.036	<0.036	<0.036	<0.036
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	<0.016
Chlorobenzene	<0.011	<0.011	<0.011	<0.011	<0.011
Chloroform	<0.011	<0.011	<0.011	<0.011	<0.011
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	<0.025
Dibromochloromethane	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090
Dichlorodifluoromethane	<0.020	<0.020	<0.020	<0.020	<0.020
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	<0.011
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	<0.011
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	<0.014
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	<0.010
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	<0.025
Methylene Chloride	<0.019	<0.019	<0.019	<0.019	<0.019
Styrene	<0.012	<0.012	<0.012	<0.012	<0.012
Tetrachloroethene	<0.018	<0.018	<0.018	<0.018	<0.018
Toluene	<0.014	<0.014	<0.014	<0.014	<0.014
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	<0.014
Trichloroethene	<0.011	<0.011	<0.011	<0.011	<0.011
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	<0.016
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	<0.025
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	<0.010
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	<0.015
O-Xylene	<0.015	<0.015	<0.015	<0.015	<0.015
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	<0.013
Total	<0.52	<0.52	<0.52	<0.52	<0.52

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit).
For the purpose of determining the total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

APPENDIX 2

Boiler No. 2 BH Outlet
Data Tables
(95 pages)

TABLE 1
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Isokinetic Sampling Train Test Schedules

Particulate and Metals Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time* min
1	May 3, 2016	8:47	11:55	180
2	May 3, 2016	12:51	16:04	180
3	May 4, 2016	14:59	18:12	180

Paticle Size Distribution Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time* min
1	May 2, 2016	10:44	12:47	122
2	May 2, 2016	13:58	16:00	122
3	May 2, 2016	18:11	20:13	120

Acid Gases Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time* min
1	May 3, 2016	10:04	11:04	60
2	May 3, 2016	11:18	12:18	60
3	May 3, 2016	13:02	14:02	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time* min
1	May 5, 2016	9:19	15:28	360
2	May 9, 2016	10:10	16:18	360
3	May 10, 2016	8:56	15:09	360

* Actual sampling time excluding leak-checks, traverse changes and process down time.

TABLE 2
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Compounds Test Schedules

Acrolein and Aldehydes Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 6, 2016	9:12	10:12	60
2	May 6, 2016	10:33	11:33	60
3	May 6, 2016	12:56	13:56	60

Volatile Organic Compounds Trains

Test Number	Tube Pair	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	1	May 4, 2016	9:13	9:33	20
	2	May 4, 2016	9:41	10:01	20
	3	May 4, 2016	10:08	10:28	20
	4	May 4, 2016	10:39	10:59	20
2	1	May 5, 2016	9:20	9:40	20
	2	May 5, 2016	9:48	10:08	20
	3	May 5, 2016	10:18	10:38	20
	4	May 5, 2016	10:45	11:05	20
3	1	May 5, 2016	13:06	13:26	20
	2	May 5, 2016	13:34	13:54	20
	3	May 5, 2016	14:01	14:21	20
	4	May 5, 2016	14:27	14:47	20

TABLE 3
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Stack Gas Sampling Parameters

Particulate and Metals Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.841	0.984	6.45	3.714	99.9
2	0.841	0.984	6.45	3.523	99.0
3	0.848	0.984	6.46	3.559	100.1

Paticle Size Distribution Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.846	0.984	4.50	1.263	105.0
2	0.846	0.984	4.50	1.194	100.4
3	0.846	0.984	4.50	1.133	92.7

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.841	0.980	6.48	1.184	98.5
2	0.841	0.980	6.48	1.256	99.1
3	0.841	0.980	6.48	1.191	100.2

Semi-Volatile Organic Compounds Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.848	0.984	6.46	7.287	101.1
2	0.848	0.984	6.46	6.961	100.0
3	0.848	0.984	6.46	7.048	99.3

* Dry at 25°C and 1 atmosphere

TABLE 4
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Stack Gas Physical Parameters

Particulate and Metals Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	143	15.5	18.0	-2.49	97.9	10.9	8.41
2	140	15.3	17.1	-2.49	97.7	11.2	8.22
3	140	15.4	17.1	-2.49	97.2	11.2	8.06
Average	141	15.4	17.4	-2.49	97.6	11.1	8.23

Paticle Size Distribution Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	139	15.0	17.4	-2.26	98.5	11.2	8.42
2	138	15.2	17.4	-2.41	98.3	11.4	8.11
3	139	15.6	18.1	-2.41	98.3	11.3	8.29
Average	139	15.3	17.6	-2.36	98.3	11.3	8.27

Acid Gases Trains **

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	144	15.2	17.3	-2.49	97.9	11.1	8.21
2	145	15.5	18.3	-2.49	97.8	10.8	8.77
3	143	15.8	17.2	-2.49	97.7	11.2	8.18
Average	144	15.5	17.6	-2.49	97.8	11.0	8.39

Semi-Volatile Organics Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	140	16.2	17.5	-2.57	97.6	11.4	7.99
2	138	16.1	16.6	-2.57	98.5	11.6	7.90
3	139	15.7	16.8	-2.57	99.0	11.4	8.12
Average	139	16.0	17.0	-2.57	98.3	11.5	8.00

* Dry basis, measured by the DYEC CEMS
** Sampling was conducted isokinetically at a single point in the duct.

TABLE 5
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Stack Gas Volumetric Flowrates

Particulate and Metals Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	26.6	15.6	19.6	18.4
2	25.3	14.9	19.1	17.6
3	25.3	14.8	19.2	17.5
Average	25.7	15.1	19.3	17.9

Paticle Size Distribution Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	25.6	15.3	19.3	18.0
2	25.6	15.3	19.8	18.0
3	26.6	15.8	20.1	18.7
Average	26.0	15.5	19.7	18.3

Acid Gases Trains ***

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	25.5	14.9	19.1	17.6
2	27.1	15.7	19.3	18.7
3	25.4	14.8	19.0	17.6
Average	26.0	15.1	19.1	17.9

Semi-Volatile Organics Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	25.8	15.0	19.6	18.0
2	24.6	14.5	19.1	17.3
3	24.8	14.8	19.1	17.6
Average	25.1	14.8	19.3	17.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** Sampling was conducted isokinetically at a single point in the duct. Volumetric flowrates from the corresponding particulate and metals tests were used to calculate emission data.

TABLE 6
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Particulate Emission Data

Test No.	Particulate Collected Probe Rinse mg	Main Filter mg	Total mg	Dry Gas Volume Sampled Rm^3*	Particulate Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Particulate Emission Rate mg/s
1	1.8	<0.30	<2.10	3.714	<0.33	<0.57	<0.45	<0.48	<8.80
2	2.1	<0.30	<2.40	3.523	<0.40	<0.68	<0.53	<0.58	<10.1
3	1.8	<0.30	<2.10	3.559	<0.35	<0.59	<0.46	<0.50	<8.75
Average					<0.36	<0.61	<0.48	<0.52	<9.23

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 7
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
$PM_{2.5}$ and PM_{10} Emission Data

$PM_{2.5}$

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
			$PM_{2.5}$ Concentration				
1	<1.2	1.263	<0.57	<0.95	<0.75	<0.81	<14.6
2	0.6	1.194	0.30	0.50	0.39	0.43	7.68
3	<1.3	1.133	<0.68	<1.15	<0.90	<0.97	<18.1
Average			<0.52	<0.87	<0.68	<0.73	<13.4
Blank							

PM_{10}

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
			PM_{10} Concentration				
1	<8.3	1.263	<3.93	<6.57	<5.21	<5.59	<101
2	1.8	1.194	0.90	1.51	1.17	1.28	23.1
3	<4.7	1.133	<2.46	<4.15	<3.26	<3.50	<65.5
Average			<2.43	<4.08	<3.21	<3.46	<63.1
Blank							

* At 25 °C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 8
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Condensable Particulate Emission Data

Inorganic Condensable Particulate

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Inorganic Condensable Particulate Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	19	1.263	9.00	15.0	11.9	12.8	230
2	6.8	1.194	3.40	5.70	4.41	4.83	87.1
3	16	1.133	8.36	14.1	11.1	11.9	223
Average			6.92	11.6	9.14	9.85	180
Blank	7.5						

Organic Condensable Particulate

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Organic Condensable Particulate Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	2.1	1.263	0.99	1.66	1.32	1.41	25.5
2	1.4	1.194	0.70	1.17	0.91	0.99	17.9
3	1.2	1.133	0.63	1.06	0.83	0.89	16.7
Average			0.77	1.30	1.02	1.10	20.0
Blank	<1.0						

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 9
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Halides and Ammonia Emission Data

Hydrogen Chloride

Test No.	HCl Collected µg	Dry Volume Sampled Rm^3*	Hydrogen Chloride Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	HCl Emission Rate mg/s
1	6300	1.184	3.12	5.32	4.24	4.51	83.0
2	6500	1.256	3.04	5.18	4.12	4.39	80.7
3	5500	1.191	2.72	4.62	3.60	3.91	68.8
Average			2.96	5.04	3.99	4.27	77.5
Blank	<200						

Hydrogen Fluoride

Test No.	HF Collected µg	Dry Volume Sampled Rm^3*	Hydrogen Fluoride Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	HF Emission Rate mg/s
1	<200	1.184	<0.099	<0.17	<0.13	<0.14	<2.64
2	<200	1.256	<0.093	<0.16	<0.13	<0.14	<2.48
3	<200	1.191	<0.099	<0.17	<0.13	<0.14	<2.50
Average			<0.097	<0.17	<0.13	<0.14	<2.54
Blank	<200						

Ammonia

Test No.	Ammonia Collected µg	Dry Volume Sampled Rm^3*	Ammonia Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Ammonia Emission Rate mg/s
1	3399	1.184	1.68	2.87	2.28	2.43	44.8
2	3777	1.256	1.76	3.01	2.39	2.55	46.9
3	2927	1.191	1.45	2.46	1.92	2.08	36.6
Average			1.63	2.78	2.20	2.35	42.8
Blank	<23.6						

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 10
Covanta - Durham York Energy Centre
Boiler No. 2
Combustion Gas Analyses

Data measured by the DYEC CEMS from May 2 to May 5, 2016 and May 9 to May 10, 2016

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (%, 1 hr Avg)	7.08	8.08	9.06
BH Outlet	Carbon Dioxide (kg/Rm^3, 1 hr Avg) *	0.18	0.20	0.22
BH Outlet	Carbon Monoxide (mg/Rm^3, 1 hr Avg) *	6	17	65
BH Outlet	Carbon Monoxide (mg/Rm^3, 4 hr Avg) *	9.8	16.9	29.8
BH Outlet	Sulphur Dioxide (mg/Rm^3, 1 hr Avg) *	0	0	0
BH Outlet	Sulphur Dioxide (mg/Rm^3, 24 hr Avg) *	0	0	0
BH Outlet	Nitrogen Oxides (mg/Rm^3, 1 hr Avg) *	92	107	134
BH Outlet	Nitrogen Oxides (mg/Rm^3, 24 hr Avg) *	104	107	111
BH Outlet	Hydrogen Chloride (mg/Rm^3, 1 hr Avg) *	2	4	8
BH Outlet	Hydrogen Chloride (mg/Rm^3, 24 hr Avg) *	3.6	4.2	5.4
BH Outlet	Total Hydrocarbons (mg/Rm^3, 1 hr Avg) *	0	0	1
Scrubber Inlet	Oxygen (%, 1 hr Avg)	7	7	8

Data measured by the ORTECH CEMS on April 19, 2016

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry) **	1.8	3.3	8.1
BH Outlet	2	Total Hydrocarbons (ppm dry) **	0.2	0.8	1.8
BH Outlet	3	Total Hydrocarbons (ppm dry) **	0	0	0.1
BH Outlet	4	Total Hydrocarbons (ppm dry) **	0	0	0
BH Outlet	5	Total Hydrocarbons (ppm dry) **	0.2	0.5	1.3
BH Outlet	6	Total Hydrocarbons (ppm dry) **	0.5	0.8	1.1
Average		Total Hydrocarbons (ppm dry) **		0.9	

* Reference conditions, dry basis adjusted to 11% oxygen
** Half hour tests reported on a dry basis as equivalent methane

TABLE 11
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Metals Analyses Test No. 1

Metal	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	<6.0	2.4	2.40
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	8.0	0.81	8.81
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	5.5	5.50
Lead	0.56	0.48	1.04
Manganese	2.3	2.68	4.98
Mercury *	<0.015	1.53	1.53
Molybdenum	45.1	<0.25	45.1
Nickel	18.0	1.52	19.5
Selenium	<2.0	<0.50	<0.50
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	2.9	2.90
Total			95.4

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 12
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Metals Analyses Test No. 2

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	6.1	3.0	9.10
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	7.79	1.03	8.82
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	6.1	6.10
Lead	0.56	0.49	1.05
Manganese	2.6	3.06	5.66
Mercury *	0.016	1.05	1.07
Molybdenum	45.8	<0.25	45.8
Nickel	17.5	0.63	18.1
Selenium	2.2	0.72	2.92
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	3.7	3.70
Total			105

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL").
Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 13
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Metals Analyses Test No. 3

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	6.6	1.9	8.50
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	7.00	1.70	8.70
Cobalt	<0.20	<0.050	<0.20
Copper	6.7	4.3	11.0
Lead	0.58	0.37	0.95
Manganese	2.4	2.40	4.80
Mercury *	<0.015	1.16	1.16
Molybdenum	46.7	<0.25	46.7
Nickel	18.4	1.74	20.1
Selenium	<2.0	<0.50	<0.50
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	3.7	3.70
Total			109

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit, "<MDL"). Where all values were reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate emission data, the remaining fractions were assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate emission data.

TABLE 14
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Metals Emission Data Test No. 1

Metal	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.80	<0.13	<0.22	<0.17	<0.18	<0.0034
Arsenic	<0.20	<0.032	<0.054	<0.043	<0.046	<0.00084
Barium	2.40	0.38	0.65	0.51	0.55	0.010
Beryllium	<0.20	<0.032	<0.054	<0.043	<0.046	<0.00084
Cadmium	<0.20	<0.032	<0.054	<0.043	<0.046	<0.00084
Chromium	8.81	1.39	2.37	1.89	2.01	0.037
Cobalt	<0.20	<0.032	<0.054	<0.043	<0.046	<0.00084
Copper	5.50	0.87	1.48	1.18	1.26	0.023
Lead	1.04	0.16	0.28	0.22	0.24	0.0044
Manganese	4.98	0.79	1.34	1.07	1.14	0.021
Mercury	1.53	0.24	0.41	0.33	0.35	0.0064
Molybdenum	45.1	7.12	12.1	9.67	10.3	0.19
Nickel	19.5	3.08	5.26	4.18	4.46	0.082
Selenium	<0.50	<0.079	<0.13	<0.11	<0.11	<0.0021
Silver	<0.40	<0.063	<0.11	<0.086	<0.091	<0.0017
Thallium	<1.00	<0.16	<0.27	<0.21	<0.23	<0.0042
Vanadium	<0.15	<0.024	<0.040	<0.032	<0.034	<0.00063
Zinc	2.90	0.46	0.78	0.62	0.66	0.012
Total	95.4	15.1	25.7	20.4	21.8	0.40

Dry Gas Volume Sampled (Rm³*) :	3.714
Actual Flowrate (m³/s) :	26.6
Dry Reference Flowrate (Rm³/s*) :	15.6
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.4

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 15

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Metals Emission Data Test No. 2

Metal	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.80	<0.13	<0.23	<0.18	<0.19	<0.0034
Arsenic	<0.20	<0.033	<0.057	<0.044	<0.048	<0.00085
Barium	9.10	1.52	2.58	2.02	2.19	0.038
Beryllium	<0.20	<0.033	<0.057	<0.044	<0.048	<0.00085
Cadmium	<0.20	<0.033	<0.057	<0.044	<0.048	<0.00085
Chromium	8.82	1.47	2.50	1.95	2.12	0.037
Cobalt	<0.20	<0.033	<0.057	<0.044	<0.048	<0.00085
Copper	6.10	1.02	1.73	1.35	1.47	0.026
Lead	1.05	0.18	0.30	0.23	0.25	0.0044
Manganese	5.66	0.95	1.61	1.25	1.36	0.024
Mercury	1.07	0.18	0.30	0.24	0.26	0.0045
Molybdenum	45.8	7.66	13.0	10.1	11.0	0.19
Nickel	18.1	3.03	5.15	4.01	4.36	0.077
Selenium	2.92	0.49	0.83	0.65	0.70	0.012
Silver	<0.40	<0.067	<0.11	<0.089	<0.096	<0.0017
Thallium	<1.00	<0.17	<0.28	<0.22	<0.24	<0.0042
Vanadium	<0.15	<0.025	<0.043	<0.033	<0.036	<0.00063
Zinc	3.70	0.62	1.05	0.82	0.89	0.016
Total	105	17.6	29.9	23.4	25.4	0.45

Dry Gas Volume Sampled (Rm³*) :	3.523
Actual Flowrate (m³/s) :	25.3
Dry Reference Flowrate (Rm³/s*) :	14.9
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 16
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Metals Emission Data Test No. 3

Metal	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m³	µg/Rm³*	µg/Rm³**	µg/Rm³*	mg/s
Antimony	<0.80	<0.13	<0.22	<0.17	<0.19	<0.0033
Arsenic	<0.20	<0.033	<0.056	<0.043	<0.048	<0.00083
Barium	8.50	1.40	2.39	1.84	2.02	0.035
Beryllium	<0.20	<0.033	<0.056	<0.043	<0.048	<0.00083
Cadmium	<0.20	<0.033	<0.056	<0.043	<0.048	<0.00083
Chromium	8.70	1.43	2.44	1.88	2.07	0.036
Cobalt	<0.20	<0.033	<0.056	<0.043	<0.048	<0.00083
Copper	11.0	1.81	3.09	2.38	2.61	0.046
Lead	0.95	0.16	0.27	0.21	0.23	0.0040
Manganese	4.80	0.79	1.35	1.04	1.14	0.020
Mercury	1.16	0.19	0.33	0.25	0.28	0.0048
Molybdenum	46.7	7.68	13.1	10.1	11.1	0.19
Nickel	20.1	3.31	5.66	4.36	4.79	0.084
Selenium	<0.50	<0.082	<0.14	<0.11	<0.12	<0.0021
Silver	<0.40	<0.066	<0.11	<0.087	<0.095	<0.0017
Thallium	<1.00	<0.16	<0.28	<0.22	<0.24	<0.0042
Vanadium	<0.15	<0.025	<0.042	<0.032	<0.036	<0.00062
Zinc	3.70	0.61	1.04	0.80	0.88	0.015
Total	109	18.0	30.7	23.7	26.0	0.45

Dry Gas Volume Sampled (Rm^3*) :	3.559
Actual Flowrate (m^3/s) :	25.3
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.2
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 17
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Actual Concentrations

Metal	Actual Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	µg/m³	µg/m³	µg/m³	µg/m³	%
Antimony	<0.13	<0.13	<0.13	<0.13	2.9
Arsenic	<0.032	<0.033	<0.033	<0.033	2.9
Barium	0.38	1.52	1.40	1.10	57.0
Beryllium	<0.032	<0.033	<0.033	<0.033	2.9
Cadmium	<0.032	<0.033	<0.033	<0.033	2.9
Chromium	1.39	1.47	1.43	1.43	2.9
Cobalt	<0.032	<0.033	<0.033	<0.033	2.9
Copper	0.87	1.02	1.81	1.23	40.9
Lead	0.16	0.18	0.16	0.17	5.9
Manganese	0.79	0.95	0.79	0.84	10.9
Mercury	0.24	0.18	0.19	0.20	16.3
Molybdenum	7.12	7.66	7.68	7.48	4.2
Nickel	3.08	3.03	3.31	3.14	4.7
Selenium	<0.079	0.49	<0.082	<0.22	109
Silver	<0.063	<0.067	<0.066	<0.065	2.9
Thallium	<0.16	<0.17	<0.16	<0.16	2.9
Vanadium	<0.024	<0.025	<0.025	<0.024	2.9
Zinc	0.46	0.62	0.61	0.56	16.0
Total	15.1	17.6	18.0	16.9	9.4

TABLE 18

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Dry Reference Concentrations

Metal	Dry Reference Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	<0.22	<0.23	<0.22	<0.22	2.8
Arsenic	<0.054	<0.057	<0.056	<0.056	2.8
Barium	0.65	2.58	2.39	1.87	57.0
Beryllium	<0.054	<0.057	<0.056	<0.056	2.8
Cadmium	<0.054	<0.057	<0.056	<0.056	2.8
Chromium	2.37	2.50	2.44	2.44	2.7
Cobalt	<0.054	<0.057	<0.056	<0.056	2.8
Copper	1.48	1.73	3.09	2.10	41.2
Lead	0.28	0.30	0.27	0.28	5.5
Manganese	1.34	1.61	1.35	1.43	10.6
Mercury	0.41	0.30	0.33	0.35	16.4
Molybdenum	12.1	13.0	13.1	12.8	4.2
Nickel	5.26	5.15	5.66	5.35	5.0
Selenium	<0.13	0.83	<0.14	<0.37	108
Silver	<0.11	<0.11	<0.11	<0.11	2.8
Thallium	<0.27	<0.28	<0.28	<0.28	2.8
Vanadium	<0.040	<0.043	<0.042	<0.042	2.8
Zinc	0.78	1.05	1.04	0.96	15.9
Total	25.7	29.9	30.7	28.8	9.4

* At 25°C and 1 atmosphere

TABLE 19
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Dry Adjusted Concentrations

Metal	Dry Adjusted Concentration				Coefficient
	Test No. 1 µg/Rm³**	Test No. 2 µg/Rm³**	Test No. 3 µg/Rm³**	Average µg/Rm³**	of Variation %
Antimony	<0.17	<0.18	<0.17	<0.17	1.7
Arsenic	<0.043	<0.044	<0.043	<0.043	1.7
Barium	0.51	2.02	1.84	1.46	56.3
Beryllium	<0.043	<0.044	<0.043	<0.043	1.7
Cadmium	<0.043	<0.044	<0.043	<0.043	1.7
Chromium	1.89	1.95	1.88	1.91	2.0
Cobalt	<0.043	<0.044	<0.043	<0.043	1.7
Copper	1.18	1.35	2.38	1.64	39.8
Lead	0.22	0.23	0.21	0.22	6.1
Manganese	1.07	1.25	1.04	1.12	10.4
Mercury	0.33	0.24	0.25	0.27	17.9
Molybdenum	9.67	10.1	10.1	9.97	2.7
Nickel	4.18	4.01	4.36	4.19	4.2
Selenium	<0.11	0.65	<0.11	<0.29	108
Silver	<0.086	<0.089	<0.087	<0.087	1.7
Thallium	<0.21	<0.22	<0.22	<0.22	1.7
Vanadium	<0.032	<0.033	<0.032	<0.033	1.7
Zinc	0.62	0.82	0.80	0.75	14.6
Total	20.4	23.4	23.7	22.5	7.9

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 20
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Wet Reference Concentrations

Metal	Wet Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	<0.18	<0.19	<0.19	<0.19	2.7
Arsenic	<0.046	<0.048	<0.048	<0.047	2.7
Barium	0.55	2.19	2.02	1.58	56.9
Beryllium	<0.046	<0.048	<0.048	<0.047	2.7
Cadmium	<0.046	<0.048	<0.048	<0.047	2.7
Chromium	2.01	2.12	2.07	2.07	2.6
Cobalt	<0.046	<0.048	<0.048	<0.047	2.7
Copper	1.26	1.47	2.61	1.78	41.1
Lead	0.24	0.25	0.23	0.24	5.6
Manganese	1.14	1.36	1.14	1.21	10.5
Mercury	0.35	0.26	0.28	0.29	16.5
Molybdenum	10.3	11.0	11.1	10.8	4.1
Nickel	4.46	4.36	4.79	4.53	5.0
Selenium	<0.11	0.70	<0.12	<0.31	108
Silver	<0.091	<0.096	<0.095	<0.094	2.7
Thallium	<0.23	<0.24	<0.24	<0.24	2.7
Vanadium	<0.034	<0.036	<0.036	<0.035	2.7
Zinc	0.66	0.89	0.88	0.81	15.8
Total	21.8	25.4	26.0	24.4	9.3

* At 25°C and 1 atmosphere

TABLE 21
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Emission Rates

Metal	Emission Rate				Coefficient
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	of Variation %
Antimony	<0.0034	<0.0034	<0.0033	<0.0034	0.8
Arsenic	<0.00084	<0.00085	<0.00083	<0.00084	0.8
Barium	0.010	0.038	0.035	0.028	55.7
Beryllium	<0.00084	<0.00085	<0.00083	<0.00084	0.8
Cadmium	<0.00084	<0.00085	<0.00083	<0.00084	0.8
Chromium	0.037	0.037	0.036	0.037	1.6
Cobalt	<0.00084	<0.00085	<0.00083	<0.00084	0.8
Copper	0.023	0.026	0.046	0.032	39.2
Lead	0.0044	0.0044	0.0040	0.0043	6.2
Manganese	0.021	0.024	0.020	0.022	9.6
Mercury	0.0064	0.0045	0.0048	0.0052	19.3
Molybdenum	0.19	0.19	0.19	0.19	1.4
Nickel	0.082	0.077	0.084	0.081	4.6
Selenium	<0.0021	0.012	<0.0021	<0.0055	108
Silver	<0.0017	<0.0017	<0.0017	<0.0017	0.8
Thallium	<0.0042	<0.0042	<0.0042	<0.0042	0.8
Vanadium	<0.00063	<0.00063	<0.00062	<0.00063	0.8
Zinc	0.012	0.016	0.015	0.014	13.4
Total	0.40	0.45	0.45	0.43	6.7

TABLE 22
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Emission Data

Metal	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Antimony	<0.13	<0.22	<0.17	<0.19	<0.0034
Arsenic	<0.033	<0.056	<0.043	<0.047	<0.00084
Barium	1.10	1.87	1.46	1.58	0.028
Beryllium	<0.033	<0.056	<0.043	<0.047	<0.00084
Cadmium	<0.033	<0.056	<0.043	<0.047	<0.00084
Chromium	1.43	2.44	1.91	2.07	0.037
Cobalt	<0.033	<0.056	<0.043	<0.047	<0.00084
Copper	1.23	2.10	1.64	1.78	0.032
Lead	0.17	0.28	0.22	0.24	0.0043
Manganese	0.84	1.43	1.12	1.21	0.022
Mercury	0.20	0.35	0.27	0.29	0.0052
Molybdenum	7.48	12.8	9.97	10.8	0.19
Nickel	3.14	5.35	4.19	4.53	0.081
Selenium	<0.22	<0.37	<0.29	<0.31	<0.0055
Silver	<0.065	<0.11	<0.087	<0.094	<0.0017
Thallium	<0.16	<0.28	<0.22	<0.24	<0.0042
Vanadium	<0.024	<0.042	<0.033	<0.035	<0.00063
Zinc	0.56	0.96	0.75	0.81	0.014
Total	16.9	28.8	22.5	24.4	0.43

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 23
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Blank Train Metal Analyses

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.80	<0.20	<0.80
Arsenic	<0.80	<0.20	<0.20
Barium	8.5	2.5	11.0
Beryllium	<0.20	<0.050	<0.20
Cadmium	<0.20	<0.050	<0.20
Chromium	5.83	0.65	6.48
Cobalt	<0.20	<0.050	<0.20
Copper	<4.0	3.0	3.00
Lead	<0.40	0.41	0.41
Manganese	1.8	2.31	4.11
Mercury *	<0.015	<0.15	<0.15
Molybdenum	48.1	<0.25	48.1
Nickel	18.2	0.34	18.5
Selenium	<2.0	<0.50	<0.50
Silver	<0.40	<0.10	<0.40
Thallium	<1.0	<0.25	<1.00
Vanadium	<0.60	<0.15	<0.15
Zinc	<10	<2.5	<10.0
Total			105

* Hydrofluoric acid digest not included in the total.
** Includes the permanganate impingers.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). Where all values are reported below the detection limit for a given metal, the value of the detection limit for the fraction most likely to contain that metal was used to calculate the total collected in the blank, the remaining fractions are assigned a value of zero. In instances where only one fraction was below the detection limit, that fraction was assigned a value of zero to calculate the total collected in the blank.

TABLE 24
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	426	0.034	0.058	0.045	0.049	0.88
Pentachlorodibenzo-p-dioxins	1170	0.093	0.16	0.12	0.13	2.41
Hexachlorodibenzo-p-dioxins	1900	0.15	0.26	0.20	0.22	3.91
Heptachlorodibenzo-p-dioxins	1290	0.10	0.18	0.14	0.15	2.66
Octachlorodibenzo-p-dioxin	845	0.067	0.12	0.089	0.097	1.74
Total	5631	0.45	0.77	0.59	0.64	11.6

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	816	0.065	0.11	0.086	0.093	1.68
Pentachlorodibenzofurans	762	0.061	0.10	0.080	0.087	1.57
Hexachlorodibenzofurans	544	0.043	0.075	0.057	0.062	1.12
Heptachlorodibenzofurans	307	0.024	0.042	0.032	0.035	0.63
Octachlorodibenzofuran	<140	<0.011	<0.019	<0.015	<0.016	<0.29
Total	<2569	<0.20	<0.35	<0.27	<0.29	<5.29

Dry Gas Volume Sampled (Rm³*) :	7.287
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 25
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	379	0.032	0.054	0.041	0.046	0.79
Pentachlorodibenzo-p-dioxins	874	0.074	0.13	0.095	0.11	1.82
Hexachlorodibenzo-p-dioxins	1200	0.10	0.17	0.13	0.14	2.50
Heptachlorodibenzo-p-dioxins	782	0.066	0.11	0.085	0.094	1.63
Octachlorodibenzo-p-dioxin	593	0.050	0.085	0.065	0.071	1.24
Total	3828	0.32	0.55	0.42	0.46	7.97

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	660	0.056	0.095	0.072	0.079	1.37
Pentachlorodibenzofurans	561	0.048	0.081	0.061	0.068	1.17
Hexachlorodibenzofurans	399	0.034	0.057	0.044	0.048	0.83
Heptachlorodibenzofurans	214	0.018	0.031	0.023	0.026	0.45
Octachlorodibenzofuran	<95	<0.0080	<0.014	<0.010	<0.011	<0.20
Total	<1929	<0.16	<0.28	<0.21	<0.23	<4.02

Dry Gas Volume Sampled (Rm³*) :	6.961
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.5
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 26
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	359	0.030	0.051	0.039	0.043	0.75
Pentachlorodibenzo-p-dioxins	931	0.079	0.13	0.10	0.11	1.95
Hexachlorodibenzo-p-dioxins	1550	0.13	0.22	0.17	0.18	3.25
Heptachlorodibenzo-p-dioxins	1210	0.10	0.17	0.13	0.14	2.54
Octachlorodibenzo-p-dioxin	824	0.070	0.12	0.091	0.098	1.73
Total	4874	0.41	0.69	0.54	0.58	10.2

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate ng/s
Tetrachlorodibenzofurans	710	0.060	0.10	0.078	0.085	1.49
Pentachlorodibenzofurans	689	0.058	0.098	0.076	0.082	1.45
Hexachlorodibenzofurans	504	0.043	0.072	0.055	0.060	1.06
Heptachlorodibenzofurans	382	0.032	0.054	0.042	0.046	0.80
Octachlorodibenzofuran	<140	<0.012	<0.020	<0.015	<0.017	<0.29
Total	<2425	<0.21	<0.34	<0.27	<0.29	<5.09

Dry Gas Volume Sampled (Rm^3*) :	7.048
Actual Flowrate (m^3/s) :	24.8
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.1
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 27
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m^3	ng/m^3	ng/m^3	ng/m^3	%
Tetrachlorodibenzo-p-dioxins	0.034	0.032	0.030	0.032	5.6
Pentachlorodibenzo-p-dioxins	0.093	0.074	0.079	0.082	12.3
Hexachlorodibenzo-p-dioxins	0.15	0.10	0.13	0.13	19.6
Heptachlorodibenzo-p-dioxins	0.10	0.066	0.10	0.091	23.3
Octachlorodibenzo-p-dioxin	0.067	0.050	0.070	0.062	17.1
Total	0.45	0.32	0.41	0.40	16.3

Furans

Congener Group	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m^3	ng/m^3	ng/m^3	ng/m^3	%
Tetrachlorodibenzofurans	0.065	0.056	0.060	0.060	7.6
Pentachlorodibenzofurans	0.061	0.048	0.058	0.056	12.7
Hexachlorodibenzofurans	0.043	0.034	0.043	0.040	13.4
Heptachlorodibenzofurans	0.024	0.018	0.032	0.025	28.5
Octachlorodibenzofuran	<0.011	<0.0080	<0.012	<0.010	19.6
Total	<0.20	<0.16	<0.21	<0.19	12.6

TABLE 28
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.058	0.054	0.051	0.055	6.9
Pentachlorodibenzo-p-dioxins	0.16	0.13	0.13	0.14	13.4
Hexachlorodibenzo-p-dioxins	0.26	0.17	0.22	0.22	20.3
Heptachlorodibenzo-p-dioxins	0.18	0.11	0.17	0.15	23.4
Octachlorodibenzo-p-dioxin	0.12	0.085	0.12	0.11	17.0
Total	0.77	0.55	0.69	0.67	16.8

Furans

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.11	0.095	0.10	0.10	8.5
Pentachlorodibenzofurans	0.10	0.081	0.098	0.094	13.1
Hexachlorodibenzofurans	0.075	0.057	0.072	0.068	13.6
Heptachlorodibenzofurans	0.042	0.031	0.054	0.042	27.7
Octachlorodibenzofuran	<0.019	<0.014	<0.020	<0.018	19.4
Total	<0.35	<0.28	<0.34	<0.32	12.7

* At 25°C and 1 atmosphere

TABLE 29
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.045	0.041	0.039	0.042	6.4
Pentachlorodibenzo-p-dioxins	0.12	0.095	0.10	0.11	13.4
Hexachlorodibenzo-p-dioxins	0.20	0.13	0.17	0.17	20.6
Heptachlorodibenzo-p-dioxins	0.14	0.085	0.13	0.12	24.0
Octachlorodibenzo-p-dioxin	0.089	0.065	0.091	0.081	17.8
Total	0.59	0.42	0.54	0.51	17.3

Furans

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.086	0.072	0.078	0.079	8.7
Pentachlorodibenzofurans	0.080	0.061	0.076	0.072	13.7
Hexachlorodibenzofurans	0.057	0.044	0.055	0.052	14.3
Heptachlorodibenzofurans	0.032	0.023	0.042	0.033	28.7
Octachlorodibenzofuran	<0.015	<0.010	<0.015	<0.013	20.2
Total	<0.27	<0.21	<0.27	<0.25	13.4

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 30
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.049	0.046	0.043	0.046	6.4
Pentachlorodibenzo-p-dioxins	0.13	0.11	0.11	0.12	12.9
Hexachlorodibenzo-p-dioxins	0.22	0.14	0.18	0.18	20.0
Heptachlorodibenzo-p-dioxins	0.15	0.094	0.14	0.13	23.3
Octachlorodibenzo-p-dioxin	0.097	0.071	0.098	0.089	17.0
Total	0.64	0.46	0.58	0.56	16.6

Furans

Congener Group	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.093	0.079	0.085	0.086	8.1
Pentachlorodibenzofurans	0.087	0.068	0.082	0.079	12.9
Hexachlorodibenzofurans	0.062	0.048	0.060	0.057	13.5
Heptachlorodibenzofurans	0.035	0.026	0.046	0.035	27.9
Octachlorodibenzofuran	<0.016	<0.011	<0.017	<0.015	19.4
Total	<0.29	<0.23	<0.29	<0.27	12.6

* At 25°C and 1 atmosphere

TABLE 31
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.88	0.79	0.75	0.81	7.8
Pentachlorodibenzo-p-dioxins	2.41	1.82	1.95	2.06	14.9
Hexachlorodibenzo-p-dioxins	3.91	2.50	3.25	3.22	21.9
Heptachlorodibenzo-p-dioxins	2.66	1.63	2.54	2.28	24.7
Octachlorodibenzo-p-dioxin	1.74	1.24	1.73	1.57	18.4
Total	11.6	7.97	10.2	9.93	18.4

Furans

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzofurans	1.68	1.37	1.49	1.52	10.2
Pentachlorodibenzofurans	1.57	1.17	1.45	1.39	14.7
Hexachlorodibenzofurans	1.12	0.83	1.06	1.00	15.2
Heptachlorodibenzofurans	0.63	0.45	0.80	0.63	28.4
Octachlorodibenzofuran	<0.29	<0.20	<0.29	<0.26	20.7
Total	<5.29	<4.02	<5.09	<4.80	14.2

TABLE 32
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	0.032	0.055	0.042	0.046	0.81
Pentachlorodibenzo-p-dioxins	0.082	0.14	0.11	0.12	2.06
Hexachlorodibenzo-p-dioxins	0.13	0.22	0.17	0.18	3.22
Heptachlorodibenzo-p-dioxins	0.091	0.15	0.12	0.13	2.28
Octachlorodibenzo-p-dioxin	0.062	0.11	0.081	0.089	1.57
Total	0.40	0.67	0.51	0.56	9.93

Furans

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	0.060	0.10	0.079	0.086	1.52
Pentachlorodibenzofurans	0.056	0.094	0.072	0.079	1.39
Hexachlorodibenzofurans	0.040	0.068	0.052	0.057	1.00
Heptachlorodibenzofurans	0.025	0.042	0.033	0.035	0.63
Octachlorodibenzofuran	<0.010	<0.018	<0.013	<0.015	<0.26
Total	<0.19	<0.32	<0.25	<0.27	<4.80

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 33
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Blank Dioxin and Furan Congener Group Analyses

Dioxins

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzo-p-dioxins	<8.4	<7.8
Pentachlorodibenzo-p-dioxins	<6.9	<7.2
Hexachlorodibenzo-p-dioxins	<12	<9.1
Heptachlorodibenzo-p-dioxins	14.6	<5.9
Octachlorodibenzo-p-dioxin	29.4	25.4
Total	<71.3	<55.4

Furans

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzofurans	<6.8	<3.9
Pentachlorodibenzofurans	<7.8	<5.8
Hexachlorodibenzofurans	<6.2	<6.0
Heptachlorodibenzofurans	<5.3	<6.1
Octachlorodibenzofuran	<6.4	<6.0
Total	<32.5	<27.8

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 34
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	Total Collected pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<10	<0.80	<1.37	<1.05	<1.14	<0.021
12378-pentachlorodibenzo-p-dioxin	28.0	2.23	3.84	2.94	3.20	0.058
123478-hexachlorodibenzo-p-dioxin	39.9	3.18	5.48	4.19	4.56	0.082
123678-hexachlorodibenzo-p-dioxin	101	8.06	13.9	10.6	11.6	0.21
123789-hexachlorodibenzo-p-dioxin	129	10.3	17.7	13.5	14.8	0.27
1234678-heptachlorodibenzo-p-dioxin	548	43.7	75.2	57.6	62.7	1.13
Octachlorodibenzo-p-dioxin	845	67.4	116	88.7	96.6	1.74
2378-tetrachlorodibenzofuran	62	4.95	8.51	6.51	7.09	0.13
12378-pentachlorodibenzofuran	49	3.91	6.72	5.15	5.60	0.10
23478-pentachlorodibenzofuran	75	5.98	10.3	7.88	8.58	0.15
123478-hexachlorodibenzofuran	126	10.1	17.3	13.2	14.4	0.26
123678-hexachlorodibenzofuran	<59	<4.71	<8.10	<6.20	<6.75	<0.12
234678-hexachlorodibenzofuran	77.4	6.18	10.6	8.13	8.85	0.16
123789-hexachlorodibenzofuran	<9.1	<0.73	<1.25	<0.96	<1.04	<0.019
1234678-heptachlorodibenzofuran	214	17.1	29.4	22.5	24.5	0.44
1234789-heptachlorodibenzofuran	29.1	2.32	3.99	3.06	3.33	0.060
Octachlorodibenzofuran	<140	<11.2	<19.2	<14.7	<16.0	<0.29
PCB 81	<76	<6.06	<10.4	<7.98	<8.69	<0.16
PCB 77	110	8.78	15.1	11.6	12.6	0.23
PCB 123	<66	<5.27	<9.06	<6.93	<7.55	<0.14
PCB 118	1200	95.7	165	126	137	2.47
PCB 114	<57	<4.55	<7.82	<5.99	<6.52	<0.12
PCB 105	490	39.1	67.2	51.5	56.0	1.01
PCB 126	<59	<4.71	<8.10	<6.20	<6.75	<0.12
PCB 167	<90	<7.18	<12.4	<9.45	<10.3	<0.19
PCB 156 + PCB 157	<84	<6.70	<11.5	<8.82	<9.6	<0.17
PCB 169	<89	<7.10	<12.2	<9.35	<10.2	<0.18
PCB 189	<71	<5.66	<9.74	<7.46	<8.12	<0.15
Total Dioxins & Furans Only	<2542	<203	<349	<267	<291	<5.23
Total PCBs Only	<2392	<191	<328	<251	<274	<4.92
Total Dioxins & Furans and PCBs	<4934	<394	<677	<518	<564	<10.2

Dry Gas Volume Sampled (Rm^3*) :	7.287
Actual Flowrate (m^3/s) :	25.8
Dry Reference Flowrate (Rm^3/s*) :	15.0
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 35
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	Total Collected pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<7.0	<0.59	<1.01	<0.76	<0.84	<0.015
12378-pentachlorodibenzo-p-dioxin	18.3	1.55	2.63	2.00	2.20	0.038
123478-hexachlorodibenzo-p-dioxin	23.3	1.97	3.35	2.54	2.81	0.049
123678-hexachlorodibenzo-p-dioxin	65.1	5.51	9.35	7.10	7.84	0.14
123789-hexachlorodibenzo-p-dioxin	78.7	6.66	11.3	8.58	9.48	0.16
1234678-heptachlorodibenzo-p-dioxin	333	28.2	47.8	36.3	40.1	0.69
Octachlorodibenzo-p-dioxin	593	50.2	85.2	64.7	71.4	1.24
2378-tetrachlorodibenzofuran	21.2	1.80	3.05	2.31	2.55	0.044
12378-pentachlorodibenzofuran	30.8	2.61	4.42	3.36	3.71	0.064
23478-pentachlorodibenzofuran	54.6	4.62	7.84	5.95	6.57	0.11
123478-hexachlorodibenzofuran	86.5	7.32	12.4	9.43	10.4	0.18
123678-hexachlorodibenzofuran	43.3	3.67	6.22	4.72	5.21	0.090
234678-hexachlorodibenzofuran	53.7	4.55	7.71	5.86	6.47	0.11
123789-hexachlorodibenzofuran	<6.5	<0.55	<0.93	<0.71	<0.78	<0.014
1234678-heptachlorodibenzofuran	125	10.6	18.0	13.6	15.1	0.26
1234789-heptachlorodibenzofuran	17.7	1.50	2.54	1.93	2.13	0.037
Octachlorodibenzofuran	<95	<8.04	<13.6	<10.4	<11.4	<0.20
PCB 81	<77	<6.52	<11.1	<8.40	<9.27	<0.16
PCB 77	120	10.2	17.2	13.1	14.4	0.25
PCB 123	<90	<7.62	<12.9	<9.82	<10.8	<0.19
PCB 118	2500	212	359	273	301	5.21
PCB 114	<78	<6.60	<11.2	<8.51	<9.39	<0.16
PCB 105	690	58.4	99.1	75.3	83.1	1.44
PCB 126	<81	<6.86	<11.6	<8.83	<9.75	<0.17
PCB 167	<100	<8.47	<14.4	<10.9	<12.0	<0.21
PCB 156 + PCB 157	<97	<8.21	<13.9	<10.6	<11.7	<0.20
PCB 169	<100	<8.47	<14.4	<10.9	<12.0	<0.21
PCB 189	<59	<5.00	<8.48	<6.43	<7.10	<0.12
Total Dioxins & Furans Only	<1653	<140	<237	<180	<199	<3.44
Total PCBs Only	<3992	<338	<573	<435	<481	<8.32
Total Dioxins & Furans and PCBs	<5645	<478	<811	<616	<680	<11.8

Dry Gas Volume Sampled (Rm^3*) :	6.961
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.5
Dry Adjusted Flowrate (Rm^3/s**) :	19.1
Wet Reference Flowrate (Rm^3/s*) :	17.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 36
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	Total Collected pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<8.7	<0.74	<1.23	<0.96	<1.04	<0.018
12378-pentachlorodibenzo-p-dioxin	23	1.95	3.26	2.53	2.74	0.048
123478-hexachlorodibenzo-p-dioxin	27.2	2.30	3.86	2.99	3.25	0.057
123678-hexachlorodibenzo-p-dioxin	84.0	7.11	11.9	9.24	10.0	0.18
123789-hexachlorodibenzo-p-dioxin	102	8.64	14.5	11.2	12.2	0.21
1234678-heptachlorodibenzo-p-dioxin	530	44.9	75.2	58.3	63.2	1.11
Octachlorodibenzo-p-dioxin	824	69.8	117	90.6	98.3	1.73
2378-tetrachlorodibenzofuran	25.3	2.14	3.59	2.78	3.02	0.053
12378-pentachlorodibenzofuran	48.4	4.10	6.87	5.32	5.77	0.10
23478-pentachlorodibenzofuran	68.6	5.81	9.73	7.54	8.18	0.14
123478-hexachlorodibenzofuran	116	9.82	16.5	12.8	13.8	0.24
123678-hexachlorodibenzofuran	58.6	4.96	8.31	6.44	6.99	0.12
234678-hexachlorodibenzofuran	62.4	5.28	8.85	6.86	7.45	0.13
123789-hexachlorodibenzofuran	<10	<0.85	<1.42	<1.10	<1.19	<0.021
1234678-heptachlorodibenzofuran	223	18.9	31.6	24.5	26.6	0.47
1234789-heptachlorodibenzofuran	29.9	2.53	4.24	3.29	3.57	0.063
Octachlorodibenzofuran	<140	<11.9	<19.9	<15.4	<16.7	<0.29
PCB 81	<100	<8.47	<14.2	<11.0	<11.9	<0.21
PCB 77	120	10.2	17.0	13.2	14.3	0.25
PCB 123	<76	<6.44	<10.8	<8.36	<9.07	<0.16
PCB 118	2600	220	369	286	310	5.46
PCB 114	<67	<5.67	<9.51	<7.37	<7.99	<0.14
PCB 105	870	73.7	123	95.6	104	1.83
PCB 126	<69	<5.84	<9.79	<7.59	<8.23	<0.14
PCB 167	<100	<8.47	<14.2	<11.0	<11.9	<0.21
PCB 156 + PCB 157	200	16.9	28.4	22.0	23.9	0.42
PCB 169	<100	<8.47	<14.2	<11.0	<11.9	<0.21
PCB 189	<82	<6.94	<11.6	<9.02	<9.78	<0.17
Total Dioxins & Furans Only	<2381	<202	<338	<262	<284	<5.00
Total PCBs Only	<4384	<371	<622	<482	<523	<9.21
Total Dioxins & Furans and PCBs	<6765	<573	<960	<744	<807	<14.2

Dry Gas Volume Sampled (Rm³*) :	7.048
Actual Flowrate (m³/s) :	24.8
Dry Reference Flowrate (Rm³/s*) :	14.8
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 37
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	pg/m³	pg/m³	pg/m³	pg/m³	%
2378-tetrachlorodibenzo-p-dioxin	<0.80	<0.59	<0.74	<0.71	14.9
12378-pentachlorodibenzo-p-dioxin	2.23	1.55	1.95	1.91	18.0
123478-hexachlorodibenzo-p-dioxin	3.18	1.97	2.30	2.49	25.2
123678-hexachlorodibenzo-p-dioxin	8.06	5.51	7.11	6.89	18.7
123789-hexachlorodibenzo-p-dioxin	10.3	6.66	8.64	8.53	21.3
1234678-heptachlorodibenzo-p-dioxin	43.7	28.2	44.9	38.9	23.9
Octachlorodibenzo-p-dioxin	67.4	50.2	69.8	62.5	17.1
2378-tetrachlorodibenzofuran	4.95	1.80	2.14	2.96	58.4
12378-pentachlorodibenzofuran	3.91	2.61	4.10	3.54	22.9
23478-pentachlorodibenzofuran	5.98	4.62	5.81	5.47	13.5
123478-hexachlorodibenzofuran	10.1	7.32	9.82	9.07	16.7
123678-hexachlorodibenzofuran	<4.71	3.67	4.96	<4.45	15.4
234678-hexachlorodibenzofuran	6.18	4.55	5.28	5.34	15.3
123789-hexachlorodibenzofuran	<0.73	<0.55	<0.85	<0.71	21.1
1234678-heptachlorodibenzofuran	17.1	10.6	18.9	15.5	28.1
1234789-heptachlorodibenzofuran	2.32	1.50	2.53	2.12	25.8
Octachlorodibenzofuran	<11.2	<8.04	<11.9	<10.4	19.6
PCB 81	<6.06	<6.52	<8.47	<7.02	18.2
PCB 77	8.78	10.2	10.2	9.70	8.2
PCB 123	<5.27	<7.62	<6.44	<6.44	18.3
PCB 118	95.7	212	220	176	39.5
PCB 114	<4.55	<6.60	<5.67	<5.61	18.4
PCB 105	39.1	58.4	73.7	57.1	30.4
PCB 126	<4.71	<6.86	<5.84	<5.80	18.5
PCB 167	<7.18	<8.47	<8.47	<8.04	9.2
PCB 156 + PCB 157	<6.70	<8.21	16.9	<10.6	52.0
PCB 169	<7.10	<8.47	<8.47	<8.01	9.8
PCB 189	<5.66	<5.00	<6.94	<5.87	16.9
Total Dioxins & Furans Only	<203	<140	<202	<181	19.8
Total PCBs Only	<191	<338	<371	<300	32.0
Total Dioxins & Furans and PCBs	<394	<478	<573	<481	18.6

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 38
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	<1.37	<1.01	<1.23	<1.20	15.4
12378-pentachlorodibenzo-p-dioxin	3.84	2.63	3.26	3.24	18.7
123478-hexachlorodibenzo-p-dioxin	5.48	3.35	3.86	4.23	26.3
123678-hexachlorodibenzo-p-dioxin	13.9	9.35	11.9	11.7	19.3
123789-hexachlorodibenzo-p-dioxin	17.7	11.3	14.5	14.5	22.1
1234678-heptachlorodibenzo-p-dioxin	75.2	47.8	75.2	66.1	23.9
Octachlorodibenzo-p-dioxin	116	85.2	117	106	17.0
2378-tetrachlorodibenzofuran	8.51	3.05	3.59	5.05	59.6
12378-pentachlorodibenzofuran	6.72	4.42	6.87	6.01	22.8
23478-pentachlorodibenzofuran	10.3	7.84	9.73	9.29	13.8
123478-hexachlorodibenzofuran	17.3	12.4	16.5	15.4	16.9
123678-hexachlorodibenzofuran	<8.10	6.22	8.31	<7.54	15.3
234678-hexachlorodibenzofuran	10.6	7.71	8.85	9.06	16.2
123789-hexachlorodibenzofuran	<1.25	<0.93	<1.42	<1.20	20.5
1234678-heptachlorodibenzofuran	29.4	18.0	31.6	26.3	27.9
1234789-heptachlorodibenzofuran	3.99	2.54	4.24	3.59	25.5
Octachlorodibenzofuran	<19.2	<13.6	<19.9	<17.6	19.4
PCB 81	<10.4	<11.1	<14.2	<11.9	16.9
PCB 77	15.1	17.2	17.0	16.5	7.2
PCB 123	<9.06	<12.9	<10.8	<10.9	17.8
PCB 118	165	359	369	298	38.7
PCB 114	<7.82	<11.2	<9.51	<9.51	17.8
PCB 105	67.2	99.1	123	96.6	29.2
PCB 126	<8.10	<11.6	<9.79	<9.84	18.0
PCB 167	<12.4	<14.4	<14.2	<13.6	8.2
PCB 156 + PCB 157	<11.5	<13.9	28.4	<17.9	50.8
PCB 169	<12.2	<14.4	<14.2	<13.6	8.8
PCB 189	<9.74	<8.48	<11.6	<9.95	16.0
Total Dioxins & Furans Only	<349	<237	<338	<308	19.9
Total PCBs Only	<328	<573	<622	<508	31.0
Total Dioxins & Furans and PCBs	<677	<811	<960	<816	17.3

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 39

Covanta - Durham York Energy Centre

Boiler No. 2 BH Outlet

Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<1.05	<0.76	<0.96	<0.92	15.8
12378-pentachlorodibenzo-p-dioxin	2.94	2.00	2.53	2.49	19.0
123478-hexachlorodibenzo-p-dioxin	4.19	2.54	2.99	3.24	26.3
123678-hexachlorodibenzo-p-dioxin	10.6	7.10	9.24	8.98	19.7
123789-hexachlorodibenzo-p-dioxin	13.5	8.58	11.2	11.1	22.3
1234678-heptachlorodibenzo-p-dioxin	57.6	36.3	58.3	50.7	24.6
Octachlorodibenzo-p-dioxin	88.7	64.7	90.6	81.3	17.8
2378-tetrachlorodibenzofuran	6.51	2.31	2.78	3.87	59.5
12378-pentachlorodibenzofuran	5.15	3.36	5.32	4.61	23.6
23478-pentachlorodibenzofuran	7.88	5.95	7.54	7.12	14.4
123478-hexachlorodibenzofuran	13.2	9.43	12.8	11.8	17.5
123678-hexachlorodibenzofuran	<6.20	4.72	6.44	<5.79	16.1
234678-hexachlorodibenzofuran	8.13	5.86	6.86	6.95	16.4
123789-hexachlorodibenzofuran	<0.96	<0.71	<1.10	<0.92	21.4
1234678-heptachlorodibenzofuran	22.5	13.6	24.5	20.2	28.6
1234789-heptachlorodibenzofuran	3.06	1.93	3.29	2.76	26.3
Octachlorodibenzofuran	<14.7	<10.4	<15.4	<13.5	20.2
PCB 81	<7.98	<8.40	<11.0	<9.12	17.9
PCB 77	11.6	13.1	13.2	12.6	7.3
PCB 123	<6.93	<9.82	<8.36	<8.37	17.2
PCB 118	126	273	286	228	38.9
PCB 114	<5.99	<8.51	<7.37	<7.29	17.3
PCB 105	51.5	75.3	95.6	74.1	29.8
PCB 126	<6.20	<8.83	<7.59	<7.54	17.5
PCB 167	<9.45	<10.9	<11.0	<10.5	8.3
PCB 156 + PCB 157	<8.82	<10.6	22.0	<13.8	51.8
PCB 169	<9.35	<10.9	<11.0	<10.4	8.9
PCB 189	<7.46	<6.43	<9.02	<7.64	17.0
Total Dioxins & Furans Only	<267	<180	<262	<236	20.6
Total PCBs Only	<251	<435	<482	<390	31.3
Total Dioxins & Furans and PCBs	<518	<616	<744	<626	18.1

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 40
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	<1.14	<0.84	<1.04	<1.01	15.1
12378-pentachlorodibenzo-p-dioxin	3.20	2.20	2.74	2.72	18.4
123478-hexachlorodibenzo-p-dioxin	4.56	2.81	3.25	3.54	25.8
123678-hexachlorodibenzo-p-dioxin	11.6	7.84	10.0	9.80	19.0
123789-hexachlorodibenzo-p-dioxin	14.8	9.48	12.2	12.1	21.7
1234678-heptachlorodibenzo-p-dioxin	62.7	40.1	63.2	55.3	23.9
Octachlorodibenzo-p-dioxin	96.6	71.4	98.3	88.8	17.0
2378-tetrachlorodibenzofuran	7.09	2.55	3.02	4.22	59.1
12378-pentachlorodibenzofuran	5.60	3.71	5.77	5.03	22.8
23478-pentachlorodibenzofuran	8.58	6.57	8.18	7.78	13.6
123478-hexachlorodibenzofuran	14.4	10.4	13.8	12.9	16.8
123678-hexachlorodibenzofuran	<6.75	5.21	6.99	<6.32	15.3
234678-hexachlorodibenzofuran	8.85	6.47	7.45	7.59	15.8
123789-hexachlorodibenzofuran	<1.04	<0.78	<1.19	<1.01	20.6
1234678-heptachlorodibenzofuran	24.5	15.1	26.6	22.0	27.9
1234789-heptachlorodibenzofuran	3.33	2.13	3.57	3.01	25.6
Octachlorodibenzofuran	<16.0	<11.4	<16.7	<14.7	19.4
PCB 81	<8.69	<9.27	<11.9	<9.96	17.3
PCB 77	12.6	14.4	14.3	13.8	7.6
PCB 123	<7.55	<10.8	<9.07	<9.15	18.0
PCB 118	137	301	310	249	39.0
PCB 114	<6.52	<9.39	<7.99	<7.97	18.0
PCB 105	56.0	83.1	104	81.0	29.6
PCB 126	<6.75	<9.75	<8.23	<8.24	18.2
PCB 167	<10.3	<12.0	<11.9	<11.4	8.6
PCB 156 + PCB 157	<9.6	<11.7	23.9	<15.0	51.2
PCB 169	<10.2	<12.0	<11.9	<11.4	9.2
PCB 189	<8.12	<7.10	<9.78	<8.34	16.2
Total Dioxins & Furans Only	<291	<199	<284	<258	19.8
Total PCBs Only	<274	<481	<523	<426	31.4
Total Dioxins & Furans and PCBs	<564	<680	<807	<684	17.8

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 41
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	<0.021	<0.015	<0.018	<0.018	17.0
12378-pentachlorodibenzo-p-dioxin	0.058	0.038	0.048	0.048	20.3
123478-hexachlorodibenzo-p-dioxin	0.082	0.049	0.057	0.063	27.9
123678-hexachlorodibenzo-p-dioxin	0.21	0.14	0.18	0.17	20.9
123789-hexachlorodibenzo-p-dioxin	0.27	0.16	0.21	0.21	23.7
1234678-heptachlorodibenzo-p-dioxin	1.13	0.69	1.11	0.98	25.2
Octachlorodibenzo-p-dioxin	1.74	1.24	1.73	1.57	18.4
2378-tetrachlorodibenzofuran	0.13	0.044	0.053	0.075	61.1
12378-pentachlorodibenzofuran	0.10	0.064	0.10	0.089	24.1
23478-pentachlorodibenzofuran	0.15	0.11	0.14	0.14	15.4
123478-hexachlorodibenzofuran	0.26	0.18	0.24	0.23	18.4
123678-hexachlorodibenzofuran	<0.12	0.090	0.12	<0.11	16.6
234678-hexachlorodibenzofuran	0.16	0.11	0.13	0.13	17.8
123789-hexachlorodibenzofuran	<0.019	<0.014	<0.021	<0.018	21.5
1234678-heptachlorodibenzofuran	0.44	0.26	0.47	0.39	29.0
1234789-heptachlorodibenzofuran	0.060	0.037	0.063	0.053	26.7
Octachlorodibenzofuran	<0.29	<0.20	<0.29	<0.26	20.7
PCB 81	<0.16	<0.16	<0.21	<0.18	17.0
PCB 77	0.23	0.25	0.25	0.24	5.9
PCB 123	<0.14	<0.19	<0.16	<0.16	16.0
PCB 118	2.47	5.21	5.46	4.38	37.9
PCB 114	<0.12	<0.16	<0.14	<0.14	16.1
PCB 105	1.01	1.44	1.83	1.42	28.7
PCB 126	<0.12	<0.17	<0.14	<0.15	16.3
PCB 167	<0.19	<0.21	<0.21	<0.20	6.9
PCB 156 + PCB 157	<0.17	<0.20	0.42	<0.26	51.0
PCB 169	<0.18	<0.21	<0.21	<0.20	7.5
PCB 189	<0.15	<0.12	<0.17	<0.15	16.8
Total Dioxins & Furans Only	<5.23	<3.44	<5.00	<4.56	21.3
Total PCBs Only	<4.92	<8.32	<9.21	<7.48	30.2
Total Dioxins & Furans and PCBs	<10.2	<11.8	<14.2	<12.0	16.9

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 42
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<0.71	<1.20	<0.92	<1.01	<0.018
12378-pentachlorodibenzo-p-dioxin	1.91	3.24	2.49	2.72	0.048
123478-hexachlorodibenzo-p-dioxin	2.49	4.23	3.24	3.54	0.063
123678-hexachlorodibenzo-p-dioxin	6.89	11.7	8.98	9.80	0.17
123789-hexachlorodibenzo-p-dioxin	8.53	14.5	11.1	12.1	0.21
1234678-heptachlorodibenzo-p-dioxin	38.9	66.1	50.7	55.3	0.98
Octachlorodibenzo-p-dioxin	62.5	106	81.3	88.8	1.57
2378-tetrachlorodibenzofuran	2.96	5.05	3.87	4.22	0.075
12378-pentachlorodibenzofuran	3.54	6.01	4.61	5.03	0.089
23478-pentachlorodibenzofuran	5.47	9.29	7.12	7.78	0.14
123478-hexachlorodibenzofuran	9.07	15.4	11.8	12.9	0.23
123678-hexachlorodibenzofuran	<4.45	<7.54	<5.79	<6.32	<0.11
234678-hexachlorodibenzofuran	5.34	9.06	6.95	7.59	0.13
123789-hexachlorodibenzofuran	<0.71	<1.20	<0.92	<1.01	<0.018
1234678-heptachlorodibenzofuran	15.5	26.3	20.2	22.0	0.39
1234789-heptachlorodibenzofuran	2.12	3.59	2.76	3.01	0.053
Octachlorodibenzofuran	<10.4	<17.6	<13.5	<14.7	<0.26
PCB 81	<7.02	<11.9	<9.12	<9.96	<0.18
PCB 77	9.70	16.5	12.6	13.8	0.24
PCB 123	<6.44	<10.9	<8.37	<9.15	<0.16
PCB 118	176	298	228	249	4.38
PCB 114	<5.61	<9.51	<7.29	<7.97	<0.14
PCB 105	57.1	96.6	74.1	81.0	1.42
PCB 126	<5.80	<9.84	<7.54	<8.24	<0.15
PCB 167	<8.04	<13.6	<10.5	<11.4	<0.20
PCB 156 + PCB 157	<10.6	<17.9	<13.8	<15.0	<0.26
PCB 169	<8.01	<13.6	<10.4	<11.4	<0.20
PCB 189	<5.87	<9.95	<7.64	<8.34	<0.15
Total Dioxins & Furans Only	<181	<308	<236	<258	<4.56
Total PCBs Only	<300	<508	<390	<426	<7.48
Total Dioxins & Furans and PCBs	<481	<816	<626	<684	<12.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 43
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Blank Dioxin and Furan Specific Isomer Analyses

Specific Isomer	Blank Train pg	Laboratory Blank pg
2378-tetrachlorodibenzo-p-dioxin	<5.4	<5.6
12378-pentachlorodibenzo-p-dioxin	<6.9	<7.2
123478-hexachlorodibenzo-p-dioxin	<6.1	<6.4
123678-hexachlorodibenzo-p-dioxin	<6.1	<6.5
123789-hexachlorodibenzo-p-dioxin	<5.4	<5.8
1234678-heptachlorodibenzo-p-dioxin	7.1	<5.9
Octachlorodibenzo-p-dioxin	29.4	25.4
2378-tetrachlorodibenzofuran	<6.8	<3.9
12378-pentachlorodibenzofuran	<7.8	<5.8
23478-pentachlorodibenzofuran	<7.8	<5.8
123478-hexachlorodibenzofuran	<6.2	<6.0
123678-hexachlorodibenzofuran	<5.7	<5.5
234678-hexachlorodibenzofuran	<6.2	<6.0
123789-hexachlorodibenzofuran	<6.8	<6.6
1234678-heptachlorodibenzofuran	<4.9	<5.6
1234789-heptachlorodibenzofuran	<5.9	<6.8
Octachlorodibenzofuran	<6.4	<6.0
PCB 81	<74	<120
PCB 77	<72	<120
PCB 123	<66	<110
PCB 118	590	<98
PCB 114	<57	<95
PCB 105	<190	<99
PCB 126	<60	<99
PCB 167	<43	<57
PCB 156 + PCB 157	<40	<53
PCB 169	<42	<56
PCB 189	<72	<100
Total Dioxins & Furans Only	<131	<121
Total PCBs Only	<1306	<1007
Total Dioxins & Furans and PCBs	<1437	<1128

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 44
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.80	<0.59	<0.74	<0.71
12378-pentachlorodibenzo-p-dioxin	1.000	2.23	1.55	1.95	1.91
123478-hexachlorodibenzo-p-dioxin	0.100	0.32	0.20	0.23	0.25
123678-hexachlorodibenzo-p-dioxin	0.100	0.81	0.55	0.71	0.69
123789-hexachlorodibenzo-p-dioxin	0.100	1.03	0.67	0.86	0.85
1234678-heptachlorodibenzo-p-dioxin	0.010	0.44	0.28	0.45	0.39
Octachlorodibenzo-p-dioxin	0.0003	0.020	0.015	0.021	0.019
2378-tetrachlorodibenzofuran	0.100	0.49	0.18	0.21	0.30
12378-pentachlorodibenzofuran	0.030	0.12	0.078	0.12	0.11
23478-pentachlorodibenzofuran	0.300	1.80	1.39	1.74	1.64
123478-hexachlorodibenzofuran	0.100	1.01	0.73	0.98	0.91
123678-hexachlorodibenzofuran	0.100	<0.47	0.37	0.50	<0.44
234678-hexachlorodibenzofuran	0.100	0.62	0.45	0.53	0.53
123789-hexachlorodibenzofuran	0.100	<0.073	<0.055	<0.085	<0.071
1234678-heptachlorodibenzofuran	0.010	0.17	0.11	0.19	0.16
1234789-heptachlorodibenzofuran	0.010	0.023	0.015	0.025	0.021
Octachlorodibenzofuran	0.0003	<0.0034	<0.0024	<0.0036	<0.0031
PCB 81	0.0003	<0.0018	<0.0020	<0.0025	<0.0021
PCB 77	0.0001	0.00088	0.0010	0.0010	0.00097
PCB 123	0.00003	<0.00016	<0.00023	<0.00019	<0.00019
PCB 118	0.00003	0.0029	0.0064	0.0066	0.0053
PCB 114	0.00003	<0.00014	<0.00020	<0.00017	<0.00017
PCB 105	0.00003	0.0012	0.0018	0.0022	0.0017
PCB 126	0.100	<0.47	<0.69	<0.58	<0.58
PCB 167	0.00003	<0.00022	<0.00025	<0.00025	<0.00024
PCB 156 + PCB 157	0.00003	<0.00020	<0.00025	0.00051	<0.00032
PCB 169	0.030	<0.21	<0.25	<0.25	<0.24
PCB 189	0.00003	<0.00017	<0.00015	<0.00021	<0.00018
Total Dioxins & Furans Only		<10.4	<7.23	<9.35	<9.00
Total PCBs Only		<0.69	<0.95	<0.85	<0.83
Total Dioxins & Furans and PCBs		<11.1	<8.18	<10.2	<9.83

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 45
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<1.37	<1.01	<1.23	<1.20
12378-pentachlorodibenzo-p-dioxin	1.000	3.84	2.63	3.26	3.24
123478-hexachlorodibenzo-p-dioxin	0.100	0.55	0.33	0.39	0.42
123678-hexachlorodibenzo-p-dioxin	0.100	1.39	0.94	1.19	1.17
123789-hexachlorodibenzo-p-dioxin	0.100	1.77	1.13	1.45	1.45
1234678-heptachlorodibenzo-p-dioxin	0.010	0.75	0.48	0.75	0.66
Octachlorodibenzo-p-dioxin	0.0003	0.035	0.026	0.035	0.032
2378-tetrachlorodibenzofuran	0.100	0.85	0.30	0.36	0.50
12378-pentachlorodibenzofuran	0.030	0.20	0.13	0.21	0.18
23478-pentachlorodibenzofuran	0.300	3.09	2.35	2.92	2.79
123478-hexachlorodibenzofuran	0.100	1.73	1.24	1.65	1.54
123678-hexachlorodibenzofuran	0.100	<0.81	0.62	0.83	<0.75
234678-hexachlorodibenzofuran	0.100	1.06	0.77	0.89	0.91
123789-hexachlorodibenzofuran	0.100	<0.12	<0.093	<0.14	<0.12
1234678-heptachlorodibenzofuran	0.010	0.29	0.18	0.32	0.26
1234789-heptachlorodibenzofuran	0.010	0.040	0.025	0.042	0.036
Octachlorodibenzofuran	0.0003	<0.0058	<0.0041	<0.0060	<0.0053
PCB 81	0.0003	<0.0031	<0.0033	<0.0043	<0.0036
PCB 77	0.0001	0.0015	0.0017	0.0017	0.0016
PCB 123	0.00003	<0.00027	<0.00039	<0.00032	<0.00033
PCB 118	0.00003	0.0049	0.011	0.011	0.0089
PCB 114	0.00003	<0.00023	<0.00034	<0.00029	<0.00029
PCB 105	0.00003	0.0020	0.0030	0.0037	0.0029
PCB 126	0.100	<0.81	<1.16	<0.98	<0.98
PCB 167	0.00003	<0.00037	<0.00043	<0.00043	<0.00041
PCB 156 + PCB 157	0.00003	<0.00035	<0.00042	0.00085	<0.00054
PCB 169	0.030	<0.37	<0.43	<0.43	<0.41
PCB 189	0.00003	<0.00029	<0.00025	<0.00035	<0.00030
Total Dioxins & Furans Only		<17.9	<12.3	<15.7	<15.3
Total PCBs Only		<1.19	<1.62	<1.43	<1.41
Total Dioxins & Furans and PCBs		<19.1	<13.9	<17.1	<16.7

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<1.05	<0.76	<0.96	<0.92
12378-pentachlorodibenzo-p-dioxin	1.000	2.94	2.00	2.53	2.49
123478-hexachlorodibenzo-p-dioxin	0.100	0.42	0.25	0.30	0.32
123678-hexachlorodibenzo-p-dioxin	0.100	1.06	0.71	0.92	0.90
123789-hexachlorodibenzo-p-dioxin	0.100	1.35	0.86	1.12	1.11
1234678-heptachlorodibenzo-p-dioxin	0.010	0.58	0.36	0.58	0.51
Octachlorodibenzo-p-dioxin	0.0003	0.027	0.019	0.027	0.024
2378-tetrachlorodibenzofuran	0.100	0.65	0.23	0.28	0.39
12378-pentachlorodibenzofuran	0.030	0.15	0.10	0.16	0.14
23478-pentachlorodibenzofuran	0.300	2.36	1.79	2.26	2.14
123478-hexachlorodibenzofuran	0.100	1.32	0.94	1.28	1.18
123678-hexachlorodibenzofuran	0.100	<0.62	0.47	0.64	<0.58
234678-hexachlorodibenzofuran	0.100	0.81	0.59	0.69	0.69
123789-hexachlorodibenzofuran	0.100	<0.096	<0.071	<0.11	<0.092
1234678-heptachlorodibenzofuran	0.010	0.22	0.14	0.25	0.20
1234789-heptachlorodibenzofuran	0.010	0.031	0.019	0.033	0.028
Octachlorodibenzofuran	0.0003	<0.0044	<0.0031	<0.0046	<0.0040
PCB 81	0.0003	<0.0024	<0.0025	<0.0033	<0.0027
PCB 77	0.0001	0.0012	0.0013	0.0013	0.0013
PCB 123	0.00003	<0.00021	<0.00029	<0.00025	<0.00025
PCB 118	0.00003	0.0038	0.0082	0.0086	0.0068
PCB 114	0.00003	<0.00018	<0.00026	<0.00022	<0.00022
PCB 105	0.00003	0.0015	0.0023	0.0029	0.0022
PCB 126	0.100	<0.62	<0.88	<0.76	<0.75
PCB 167	0.00003	<0.00028	<0.00033	<0.00033	<0.00031
PCB 156 + PCB 157	0.00003	<0.00026	<0.00032	0.00066	<0.00041
PCB 169	0.030	<0.28	<0.33	<0.33	<0.31
PCB 189	0.00003	<0.00022	<0.00019	<0.00027	<0.00023
Total Dioxins & Furans Only		<13.7	<9.31	<12.1	<11.7
Total PCBs Only		<0.91	<1.23	<1.11	<1.08
Total Dioxins & Furans and PCBs		<14.6	<10.5	<13.2	<12.8

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46B
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<1.05	<0.76	<0.96	<0.92
12378-pentachlorodibenzo-p-dioxin	0.500	1.47	1.00	1.26	1.24
123478-hexachlorodibenzo-p-dioxin	0.100	0.42	0.25	0.30	0.32
123678-hexachlorodibenzo-p-dioxin	0.100	1.06	0.71	0.92	0.90
123789-hexachlorodibenzo-p-dioxin	0.100	1.35	0.86	1.12	1.11
1234678-heptachlorodibenzo-p-dioxin	0.010	0.58	0.36	0.58	0.51
Octachlorodibenzo-p-dioxin	0.001	0.089	0.065	0.091	0.081
2378-tetrachlorodibenzofuran	0.100	0.65	0.23	0.28	0.39
12378-pentachlorodibenzofuran	0.050	0.26	0.17	0.27	0.23
23478-pentachlorodibenzofuran	0.500	3.94	2.98	3.77	3.56
123478-hexachlorodibenzofuran	0.100	1.32	0.94	1.28	1.18
123678-hexachlorodibenzofuran	0.100	<0.62	0.47	0.64	<0.58
234678-hexachlorodibenzofuran	0.100	0.81	0.59	0.69	0.69
123789-hexachlorodibenzofuran	0.100	<0.096	<0.071	<0.11	<0.092
1234678-heptachlorodibenzofuran	0.010	0.22	0.14	0.25	0.20
1234789-heptachlorodibenzofuran	0.010	0.031	0.019	0.033	0.028
Octachlorodibenzofuran	0.001	<0.015	<0.010	<0.015	<0.013
Total Dioxins & Furans		<14.0	<9.63	<12.6	<12.1
In-Stack Emission Limit					60

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

NATO/CCMS (1989) Toxicity Equivalency Factors

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<1.14	<0.84	<1.04	<1.01
12378-pentachlorodibenzo-p-dioxin	1.000	3.20	2.20	2.74	2.72
123478-hexachlorodibenzo-p-dioxin	0.100	0.46	0.28	0.32	0.35
123678-hexachlorodibenzo-p-dioxin	0.100	1.16	0.78	1.00	0.98
123789-hexachlorodibenzo-p-dioxin	0.100	1.48	0.95	1.22	1.21
1234678-heptachlorodibenzo-p-dioxin	0.010	0.63	0.40	0.63	0.55
Octachlorodibenzo-p-dioxin	0.0003	0.029	0.021	0.029	0.027
2378-tetrachlorodibenzofuran	0.100	0.71	0.26	0.30	0.42
12378-pentachlorodibenzofuran	0.030	0.17	0.11	0.17	0.15
23478-pentachlorodibenzofuran	0.300	2.57	1.97	2.46	2.33
123478-hexachlorodibenzofuran	0.100	1.44	1.04	1.38	1.29
123678-hexachlorodibenzofuran	0.100	<0.67	0.52	0.70	<0.63
234678-hexachlorodibenzofuran	0.100	0.89	0.65	0.74	0.76
123789-hexachlorodibenzofuran	0.100	<0.10	<0.078	<0.12	<0.10
1234678-heptachlorodibenzofuran	0.010	0.24	0.15	0.27	0.22
1234789-heptachlorodibenzofuran	0.010	0.033	0.021	0.036	0.030
Octachlorodibenzofuran	0.0003	<0.0048	<0.0034	<0.0050	<0.0044
PCB 81	0.0003	<0.0026	<0.0028	<0.0036	<0.0030
PCB 77	0.0001	0.0013	0.0014	0.0014	0.0014
PCB 123	0.00003	<0.00023	<0.00033	<0.00027	<0.00027
PCB 118	0.00003	0.0041	0.0090	0.0093	0.0075
PCB 114	0.00003	<0.00020	<0.00028	<0.00024	<0.00024
PCB 105	0.00003	0.0017	0.0025	0.0031	0.0024
PCB 126	0.100	<0.67	<0.98	<0.82	<0.82
PCB 167	0.00003	<0.00031	<0.00036	<0.00036	<0.00034
PCB 156 + PCB 157	0.00003	<0.00029	<0.00035	0.00072	<0.00045
PCB 169	0.030	<0.31	<0.36	<0.36	<0.34
PCB 189	0.00003	<0.00024	<0.00021	<0.00029	<0.00025
Total Dioxins & Furans Only		<14.9	<10.3	<13.2	<12.8
Total PCBs Only		<0.99	<1.35	<1.20	<1.18
Total Dioxins & Furans and PCBs		<15.9	<11.6	<14.4	<14.0

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 48
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.021	<0.015	<0.018	<0.018
12378-pentachlorodibenzo-p-dioxin	1.000	0.058	0.038	0.048	0.048
123478-hexachlorodibenzo-p-dioxin	0.100	0.0082	0.0049	0.0057	0.0063
123678-hexachlorodibenzo-p-dioxin	0.100	0.021	0.014	0.018	0.017
123789-hexachlorodibenzo-p-dioxin	0.100	0.027	0.016	0.021	0.021
1234678-heptachlorodibenzo-p-dioxin	0.010	0.011	0.0069	0.011	0.0098
Octachlorodibenzo-p-dioxin	0.0003	0.00052	0.00037	0.00052	0.00047
2378-tetrachlorodibenzofuran	0.100	0.013	0.0044	0.0053	0.0075
12378-pentachlorodibenzofuran	0.030	0.0030	0.0019	0.0030	0.0027
23478-pentachlorodibenzofuran	0.300	0.046	0.034	0.043	0.041
123478-hexachlorodibenzofuran	0.100	0.026	0.018	0.024	0.023
123678-hexachlorodibenzofuran	0.100	<0.012	0.0090	0.012	<0.011
234678-hexachlorodibenzofuran	0.100	0.016	0.011	0.013	0.013
123789-hexachlorodibenzofuran	0.100	<0.0019	<0.0014	<0.0021	<0.0018
1234678-heptachlorodibenzofuran	0.010	0.0044	0.0026	0.0047	0.0039
1234789-heptachlorodibenzofuran	0.010	0.00060	0.00037	0.00063	0.00053
Octachlorodibenzofuran	0.0003	<0.000086	<0.000059	<0.000088	<0.000078
PCB 81	0.0003	<0.000047	<0.000048	<0.000063	<0.000053
PCB 77	0.0001	0.000023	0.000025	0.000025	0.000024
PCB 123	0.00003	<0.0000041	<0.0000056	<0.0000048	<0.0000048
PCB 118	0.00003	0.000074	0.00016	0.00016	0.00013
PCB 114	0.00003	<0.0000035	<0.0000049	<0.0000042	<0.0000042
PCB 105	0.00003	0.000030	0.000043	0.000055	0.000043
PCB 126	0.100	<0.012	<0.017	<0.014	<0.015
PCB 167	0.00003	<0.0000056	<0.0000062	<0.0000063	<0.0000060
PCB 156 + PCB 157	0.00003	<0.0000052	<0.0000061	0.000013	<0.0000079
PCB 169	0.030	<0.0055	<0.0062	<0.0063	<0.0060
PCB 189	0.00003	<0.0000044	<0.0000037	<0.0000052	<0.0000044
Total Dioxins & Furans Only		<0.27	<0.18	<0.23	<0.23
Total PCBs Only		<0.018	<0.023	<0.021	<0.021
Total Dioxins & Furans and PCBs		<0.29	<0.20	<0.25	<0.25

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 49
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	<0.71	<1.20	<0.92	<1.01	<0.018
12378-pentachlorodibenzo-p-dioxin	1.91	3.24	2.49	2.72	0.048
123478-hexachlorodibenzo-p-dioxin	0.25	0.42	0.32	0.35	0.0063
123678-hexachlorodibenzo-p-dioxin	0.69	1.17	0.90	0.98	0.017
123789-hexachlorodibenzo-p-dioxin	0.85	1.45	1.11	1.21	0.021
1234678-heptachlorodibenzo-p-dioxin	0.39	0.66	0.51	0.55	0.0098
Octachlorodibenzo-p-dioxin	0.019	0.032	0.024	0.027	0.00047
2378-tetrachlorodibenzofuran	0.30	0.50	0.39	0.42	0.0075
12378-pentachlorodibenzofuran	0.11	0.18	0.14	0.15	0.0027
23478-pentachlorodibenzofuran	1.64	2.79	2.14	2.33	0.041
123478-hexachlorodibenzofuran	0.91	1.54	1.18	1.29	0.023
123678-hexachlorodibenzofuran	<0.44	<0.75	<0.58	<0.63	<0.011
234678-hexachlorodibenzofuran	0.53	0.91	0.69	0.76	0.013
123789-hexachlorodibenzofuran	<0.071	<0.12	<0.092	<0.10	<0.0018
1234678-heptachlorodibenzofuran	0.16	0.26	0.20	0.22	0.0039
1234789-heptachlorodibenzofuran	0.021	0.036	0.028	0.030	0.00053
Octachlorodibenzofuran	<0.0031	<0.0053	<0.0040	<0.0044	<0.000078
PCB 81	<0.0021	<0.0036	<0.0027	<0.0030	<0.000053
PCB 77	0.00097	0.0016	0.0013	0.0014	0.000024
PCB 123	<0.00019	<0.00033	<0.00025	<0.00027	<0.0000048
PCB 118	0.0053	0.0089	0.0068	0.0075	0.00013
PCB 114	<0.00017	<0.00029	<0.00022	<0.00024	<0.0000042
PCB 105	0.0017	0.0029	0.0022	0.0024	0.000043
PCB 126	<0.58	<0.98	<0.75	<0.82	<0.015
PCB 167	<0.00024	<0.00041	<0.00031	<0.00034	<0.0000060
PCB 156 + PCB 157	<0.00032	<0.00054	<0.00041	<0.00045	<0.0000079
PCB 169	<0.24	<0.41	<0.31	<0.34	<0.0060
PCB 189	<0.00018	<0.00030	<0.00023	<0.00025	<0.0000044
Total Dioxins & Furans Only	<9.00	<15.3	<11.7	<12.8	<0.23
Total PCBs Only	<0.83	<1.41	<1.08	<1.18	<0.021
Total Dioxins & Furans and PCBs	<9.83	<16.7	<12.8	<14.0	<0.25

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 50
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	0.35	0.60	0.46	0.50	0.0089
12378-pentachlorodibenzo-p-dioxin	1.91	3.24	2.49	2.72	0.048
123478-hexachlorodibenzo-p-dioxin	0.25	0.42	0.32	0.35	0.0063
123678-hexachlorodibenzo-p-dioxin	0.69	1.17	0.90	0.98	0.017
123789-hexachlorodibenzo-p-dioxin	0.85	1.45	1.11	1.21	0.021
1234678-heptachlorodibenzo-p-dioxin	0.39	0.66	0.51	0.55	0.0098
Octachlorodibenzo-p-dioxin	0.019	0.032	0.024	0.027	0.00047
2378-tetrachlorodibenzofuran	0.30	0.50	0.39	0.42	0.0075
12378-pentachlorodibenzofuran	0.11	0.18	0.14	0.15	0.0027
23478-pentachlorodibenzofuran	1.64	2.79	2.14	2.33	0.041
123478-hexachlorodibenzofuran	0.91	1.54	1.18	1.29	0.023
123678-hexachlorodibenzofuran	0.37	0.62	0.48	0.52	0.0091
234678-hexachlorodibenzofuran	0.53	0.91	0.69	0.76	0.013
123789-hexachlorodibenzofuran	0.035	0.060	0.046	0.050	0.00089
1234678-heptachlorodibenzofuran	0.16	0.26	0.20	0.22	0.0039
1234789-heptachlorodibenzofuran	0.021	0.036	0.028	0.030	0.00053
Octachlorodibenzofuran	0.0016	0.0026	0.0020	0.0022	0.000039
PCB 81	0.0011	0.0018	0.0014	0.0015	0.000026
PCB 77	0.00097	0.0016	0.0013	0.0014	0.000024
PCB 123	0.000097	0.00016	0.00013	0.00014	0.0000024
PCB 118	0.0053	0.0089	0.0068	0.0075	0.00013
PCB 114	0.000084	0.00014	0.00011	0.00012	0.0000021
PCB 105	0.0017	0.0029	0.0022	0.0024	0.000043
PCB 126	0.29	0.49	0.38	0.41	0.0073
PCB 167	0.00012	0.00020	0.00016	0.00017	0.0000030
PCB 156 + PCB 157	0.00016	0.00027	0.00021	0.00023	0.0000040
PCB 169	0.12	0.20	0.16	0.17	0.0030
PCB 189	0.000088	0.00015	0.00011	0.00013	0.0000022
Total Dioxins & Furans Only	8.53	14.5	11.1	12.1	0.21
Total PCBs Only	0.42	0.71	0.55	0.60	0.010
Total Dioxins & Furans and PCBs	8.95	15.2	11.7	12.7	0.22

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 51
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Emission Data for Chlorobenzenes
Test No. 1

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
1,4-Dichlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
1,2-Dichlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Dichlorobenzene	<0.90	<71.8	<124	<94.5	<103	<1.85
1,3,5-trichlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
1,2,4-trichlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
1,2,3-trichlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Trichlorobenzene	<0.90	<71.8	<124	<94.5	<103	<1.85
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
1,2,3,4-tetrachlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Tetrachlorobenzene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
Pentachlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Hexachlorobenzene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Chlorobenzenes	<3.00	<239	<412	<315	<343	<6.18

Dry Gas Volume Sampled (Rm³*) :	7.287
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 52
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Emission Data for Chlorobenzenes
Test No. 2

Specific Isomer	Total Collected µg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate µg/s
1,3-Dichlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
1,4-Dichlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
1,2-Dichlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Dichlorobenzene	<0.90	<76.2	<129	<98.2	<108	<1.87
1,3,5-trichlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
1,2,4-trichlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
1,2,3-trichlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Trichlorobenzene	<0.90	<76.2	<129	<98.2	<108	<1.87
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
1,2,3,4-tetrachlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Tetrachlorobenzene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
Pentachlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Hexachlorobenzene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Chlorobenzenes	<3.00	<254	<431	<327	<361	<6.25

Dry Gas Volume Sampled (Rm^3*) :	6.961
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.5
Dry Adjusted Flowrate (Rm^3/s**) :	19.1
Wet Reference Flowrate (Rm^3/s*) :	17.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 53
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Emission Data for Chlorobenzenes
Test No. 3

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
1,4-Dichlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
1,2-Dichlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Dichlorobenzene	<0.90	<76.2	<128	<98.9	<107	<1.89
1,3,5-trichlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
1,2,4-trichlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
1,2,3-trichlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Trichlorobenzene	<0.90	<76.2	<128	<98.9	<107	<1.89
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
1,2,3,4-tetrachlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Tetrachlorobenzene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
Pentachlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Hexachlorobenzene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Chlorobenzenes	<3.00	<254	<426	<330	<358	<6.30

Dry Gas Volume Sampled (Rm³*) :	7.048
Actual Flowrate (m³/s) :	24.8
Dry Reference Flowrate (Rm³/s*) :	14.8
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 54
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Actual Concentrations for Chlorobenzenes

Specific Isomer	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
1,3-Dichlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
1,4-Dichlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
1,2-Dichlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
Total Dichlorobenzene	<71.8	<76.2	<76.2	<74.7	3.4
1,3,5-trichlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
1,2,4-trichlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
1,2,3-trichlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
Total Trichlorobenzene	<71.8	<76.2	<76.2	<74.7	3.4
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<23.9	<25.4	<25.4	<24.9	3.4
1,2,3,4-tetrachlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
Total Tetrachlorobenzene	<47.9	<50.8	<50.8	<49.8	3.4
Pentachlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
Hexachlorobenzene	<23.9	<25.4	<25.4	<24.9	3.4
Total Chlorobenzenes	<239	<254	<254	<249	3.4

TABLE 55
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dry Reference Concentrations for Chlorobenzenes

Specific Isomer	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
1,3-Dichlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
1,4-Dichlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
1,2-Dichlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
Total Dichlorobenzene	<124	<129	<128	<127	2.4
1,3,5-trichlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
1,2,4-trichlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
1,2,3-trichlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
Total Trichlorobenzene	<124	<129	<128	<127	2.4
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<41.2	<43.1	<42.6	<42.3	2.4
1,2,3,4-tetrachlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
Total Tetrachlorobenzene	<82.3	<86.2	<85.1	<84.6	2.4
Pentachlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
Hexachlorobenzene	<41.2	<43.1	<42.6	<42.3	2.4
Total Chlorobenzenes	<412	<431	<426	<423	2.4

* At 25°C and 1 atmosphere

TABLE 56
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dry Adjusted Concentrations for Chlorobenzenes

Specific Isomer	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
1,3-Dichlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
1,4-Dichlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
1,2-Dichlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
Total Dichlorobenzene	<94.5	<98.2	<98.9	<97.2	2.4
1,3,5-trichlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
1,2,4-trichlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
1,2,3-trichlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
Total Trichlorobenzene	<94.5	<98.2	<98.9	<97.2	2.4
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<31.5	<32.7	<33.0	<32.4	2.4
1,2,3,4-tetrachlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
Total Tetrachlorobenzene	<63.0	<65.4	<66.0	<64.8	2.4
Pentachlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
Hexachlorobenzene	<31.5	<32.7	<33.0	<32.4	2.4
Total Chlorobenzenes	<315	<327	<330	<324	2.4

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 57
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Wet Reference Concentrations for Chlorobenzenes

Specific Isomer	Wet Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
1,3-Dichlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
1,4-Dichlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
1,2-Dichlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
Total Dichlorobenzene	<103	<108	<107	<106	2.7
1,3,5-trichlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
1,2,4-trichlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
1,2,3-trichlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
Total Trichlorobenzene	<103	<108	<107	<106	2.7
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<34.3	<36.1	<35.8	<35.4	2.7
1,2,3,4-tetrachlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
Total Tetrachlorobenzene	<68.6	<72.2	<71.6	<70.8	2.7
Pentachlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
Hexachlorobenzene	<34.3	<36.1	<35.8	<35.4	2.7
Total Chlorobenzenes	<343	<361	<358	<354	2.7

* At 25°C and 1 atmosphere

TABLE 58
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Emission Rates for Chlorobenzenes

Specific Isomer	Emission Rate Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	Coefficient of Variation %
1,3-Dichlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
1,4-Dichlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
1,2-Dichlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
Total Dichlorobenzene	<1.85	<1.87	<1.89	<1.87	1.0
1,3,5-trichlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
1,2,4-trichlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
1,2,3-trichlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
Total Trichlorobenzene	<1.85	<1.87	<1.89	<1.87	1.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.62	<0.62	<0.63	<0.62	1.0
1,2,3,4-tetrachlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
Total Tetrachlorobenzene	<1.24	<1.25	<1.26	<1.25	1.0
Pentachlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
Hexachlorobenzene	<0.62	<0.62	<0.63	<0.62	1.0
Total Chlorobenzenes	<6.18	<6.25	<6.30	<6.24	1.0

TABLE 59
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Emission Data for Chlorobenzenes

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
1,3-Dichlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
1,4-Dichlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
1,2-Dichlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
Total Dichlorobenzene	<74.7	<127	<97.2	<106	<1.87
1,3,5-trichlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
1,2,4-trichlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
1,2,3-trichlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
Total Trichlorobenzene	<74.7	<127	<97.2	<106	<1.87
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<24.9	<42.3	<32.4	<35.4	<0.62
1,2,3,4-tetrachlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
Total Tetrachlorobenzene	<49.8	<84.6	<64.8	<70.8	<1.25
Pentachlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
Hexachlorobenzene	<24.9	<42.3	<32.4	<35.4	<0.62
Total Chlorobenzenes	<249	<423	<324	<354	<6.24

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 60
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorobenzene Blank Analyses

Isomers and Congener Group Totals	Blank Train Total µg	Laboratory Blank Total µg
1,3-Dichlorobenzene	<0.30	<0.30
1,4-Dichlorobenzene	<0.30	<0.30
1,2-Dichlorobenzene	<0.30	<0.30
Total Dichlorobenzene	<0.90	<0.90
1,3,5-trichlorobenzene	<0.30	<0.30
1,2,4-trichlorobenzene	<0.30	<0.30
1,2,3-trichlorobenzene	<0.30	<0.30
Total Trichlorobenzene	<0.90	<0.90
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.30	<0.30
1,2,3,4-tetrachlorobenzene	<0.30	<0.30
Total Tetrachlorobenzene	<0.60	<0.60
Pentachlorobenzene	<0.30	<0.30
Hexachlorobenzene	<0.30	<0.30
Total Chlorobenzenes	<3.00	<3.00

"<" indicates that the amount detected is less than the analytical detection limit (<MDL).
In these cases the value of the detection limit was used to calculate the total collected.

TABLE 61
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 1

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
3-monochlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
4-monochlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Monochlorophenols	<0.90	<71.8	<124	<94.5	<103	<1.85
2,6-dichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,4 & 2,5-dichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
3,5-dichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,3-dichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
3,4-dichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Dichlorophenols	<1.50	<120	<206	<158	<172	<3.09
2,4,6-trichlorophenol	0.71	56.6	97.4	74.6	81.2	1.46
2,3,6-trichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,3,5-trichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,4,5-trichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,3,4-trichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
3,4,5-trichlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Trichlorophenols	<2.21	<176	<303	<232	<253	<4.55
2,3,5,6-tetrachlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,3,4,6-tetrachlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2,3,4,5-tetrachlorophenol	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total Tetrachlorophenols	<0.90	<71.8	<124	<94.5	<103	<1.85
Pentachlorophenol	0.41	32.7	56.3	43.1	46.9	0.84
Total Chlorophenols	<5.92	<472	<812	<622	<677	<12.2

Dry Gas Volume Sampled (Rm³*) :	7.287
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 62
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 2

Specific Isomer	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
3-monochlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
4-monochlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Monochlorophenols	<0.90	<76.2	<129	<98.2	<108	<1.87
2,6-dichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,4 & 2,5-dichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
3,5-dichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,3-dichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
3,4-dichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Dichlorophenols	<1.50	<127	<215	<164	<181	<3.12
2,4,6-trichlorophenol	0.54	45.7	77.6	58.9	65.0	1.12
2,3,6-trichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,3,5-trichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,4,5-trichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,3,4-trichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
3,4,5-trichlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Trichlorophenols	<2.04	<173	<293	<222	<246	<4.25
2,3,5,6-tetrachlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,3,4,6-tetrachlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2,3,4,5-tetrachlorophenol	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total Tetrachlorophenols	<0.90	<76.2	<129	<98.2	<108	<1.87
Pentachlorophenol	0.36	30.5	51.7	39.3	43.3	0.75
Total Chlorophenols	<5.70	<483	<819	<622	<686	<11.9

Dry Gas Volume Sampled (Rm³*) :	6.961
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.5
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 63
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 3

Specific Isomer	Total Collected µg	Actual Concentration ng/m^3	Dry Reference Concentration ng/Rm^3*	Dry Adjusted Concentration ng/Rm^3**	Wet Reference Concentration ng/Rm^3*	Emission Rate µg/s
2-monochlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
3-monochlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
4-monochlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Monochlorophenols	<0.90	<76.2	<128	<98.9	<107	<1.89
2,6-dichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,4 & 2,5-dichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
3,5-dichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,3-dichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
3,4-dichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Dichlorophenols	<1.50	<127	<213	<165	<179	<3.15
2,4,6-trichlorophenol	0.57	48.3	80.9	62.7	68.0	1.20
2,3,6-trichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,3,5-trichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,4,5-trichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,3,4-trichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
3,4,5-trichlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Trichlorophenols	<2.07	<175	<294	<228	<247	<4.35
2,3,5,6-tetrachlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,3,4,6-tetrachlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2,3,4,5-tetrachlorophenol	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total Tetrachlorophenols	<0.90	<76.2	<128	<98.9	<107	<1.89
Pentachlorophenol	0.44	37.3	62.4	48.4	52.5	0.92
Total Chlorophenols	<5.81	<492	<824	<639	<693	<12.2

Dry Gas Volume Sampled (Rm^3*) :	7.048
Actual Flowrate (m^3/s) :	24.8
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.1
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 64
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
2-monochlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
3-monochlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
4-monochlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
Total Monochlorophenols	<71.8	<76.2	<76.2	<74.7	3.4
2,6-dichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,4 & 2,5-dichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
3,5-dichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,3-dichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
3,4-dichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
Total Dichlorophenols	<120	<127	<127	<125	3.4
2,4,6-trichlorophenol	56.6	45.7	48.3	50.2	11.4
2,3,6-trichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,3,5-trichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,4,5-trichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,3,4-trichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
3,4,5-trichlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
Total Trichlorophenols	<176	<173	<175	<175	1.1
2,3,5,6-tetrachlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,3,4,6-tetrachlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
2,3,4,5-tetrachlorophenol	<23.9	<25.4	<25.4	<24.9	3.4
Total Tetrachlorophenols	<71.8	<76.2	<76.2	<74.7	3.4
Pentachlorophenol	32.7	30.5	37.3	33.5	10.3
Total Chlorophenols	<472	<483	<492	<482	2.0

TABLE 65

Covanta - Durham York Energy Centre

Boiler No. 2 BH Outlet

Chlorophenol Isomer and Congener Group Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
2-monochlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
3-monochlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
4-monochlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
Total Monochlorophenols	<124	<129	<128	<127	2.4
2,6-dichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,4 & 2,5-dichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
3,5-dichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,3-dichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
3,4-dichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
Total Dichlorophenols	<206	<215	<213	<211	2.4
2,4,6-trichlorophenol	97.4	77.6	80.9	85.3	12.5
2,3,6-trichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,3,5-trichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,4,5-trichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,3,4-trichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
3,4,5-trichlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
Total Trichlorophenols	<303	<293	<294	<297	1.9
2,3,5,6-tetrachlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,3,4,6-tetrachlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
2,3,4,5-tetrachlorophenol	<41.2	<43.1	<42.6	<42.3	2.4
Total Tetrachlorophenols	<124	<129	<128	<127	2.4
Pentachlorophenol	56.3	51.7	62.4	56.8	9.5
Total Chlorophenols	<812	<819	<824	<819	0.7

* At 25°C and 1 atmosphere

TABLE 66
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
2-monochlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
3-monochlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
4-monochlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
Total Monochlorophenols	<94.5	<98.2	<98.9	<97.2	2.4
2,6-dichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,4 & 2,5-dichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
3,5-dichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,3-dichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
3,4-dichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
Total Dichlorophenols	<158	<164	<165	<162	2.4
2,4,6-trichlorophenol	74.6	58.9	62.7	65.4	12.5
2,3,6-trichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,3,5-trichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,4,5-trichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,3,4-trichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
3,4,5-trichlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
Total Trichlorophenols	<232	<222	<228	<227	2.1
2,3,5,6-tetrachlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,3,4,6-tetrachlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
2,3,4,5-tetrachlorophenol	<31.5	<32.7	<33.0	<32.4	2.4
Total Tetrachlorophenols	<94.5	<98.2	<98.9	<97.2	2.4
Pentachlorophenol	43.1	39.3	48.4	43.6	10.5
Total Chlorophenols	<622	<622	<639	<627	1.6

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 67
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
2-monochlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
3-monochlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
4-monochlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
Total Monochlorophenols	<103	<108	<107	<106	2.7
2,6-dichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,4 & 2,5-dichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
3,5-dichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,3-dichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
3,4-dichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
Total Dichlorophenols	<172	<181	<179	<177	2.7
2,4,6-trichlorophenol	81.2	65.0	68.0	71.4	12.1
2,3,6-trichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,3,5-trichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,4,5-trichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,3,4-trichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
3,4,5-trichlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
Total Trichlorophenols	<253	<246	<247	<248	1.5
2,3,5,6-tetrachlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,3,4,6-tetrachlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
2,3,4,5-tetrachlorophenol	<34.3	<36.1	<35.8	<35.4	2.7
Total Tetrachlorophenols	<103	<108	<107	<106	2.7
Pentachlorophenol	46.9	43.3	52.5	47.6	9.7
Total Chlorophenols	<677	<686	<693	<686	1.2

* At 25°C and 1 atmosphere

TABLE 68
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Emission Rates

Specific Isomer	Emission Rate Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	Coefficient of Variation %
2-monochlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
3-monochlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
4-monochlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
Total Monochlorophenols	<1.85	<1.87	<1.89	<1.87	1.0
2,6-dichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,4 & 2,5-dichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
3,5-dichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,3-dichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
3,4-dichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
Total Dichlorophenols	<3.09	<3.12	<3.15	<3.12	1.0
2,4,6-trichlorophenol	1.46	1.12	1.20	1.26	14.1
2,3,6-trichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,3,5-trichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,4,5-trichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,3,4-trichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
3,4,5-trichlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
Total Trichlorophenols	<4.55	<4.25	<4.35	<4.38	3.5
2,3,5,6-tetrachlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,3,4,6-tetrachlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
2,3,4,5-tetrachlorophenol	<0.62	<0.62	<0.63	<0.62	1.0
Total Tetrachlorophenols	<1.85	<1.87	<1.89	<1.87	1.0
Pentachlorophenol	0.84	0.75	0.92	0.84	10.4
Total Chlorophenols	<12.2	<11.9	<12.2	<12.1	1.5

TABLE 69
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Emission Data for Chlorophenol Isomer and Congener Groups

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
3-monochlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
4-monochlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
Total Monochlorophenols	<74.7	<127	<97.2	<106	<1.87
2,6-dichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,4 & 2,5-dichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
3,5-dichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,3-dichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
3,4-dichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
Total Dichlorophenols	<125	<211	<162	<177	<3.12
2,4,6-trichlorophenol	50.2	85.3	65.4	71.4	1.26
2,3,6-trichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,3,5-trichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,4,5-trichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,3,4-trichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
3,4,5-trichlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
Total Trichlorophenols	<175	<297	<227	<248	<4.38
2,3,5,6-tetrachlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,3,4,6-tetrachlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
2,3,4,5-tetrachlorophenol	<24.9	<42.3	<32.4	<35.4	<0.62
Total Tetrachlorophenols	<74.7	<127	<97.2	<106	<1.87
Pentachlorophenol	33.5	56.8	43.6	47.6	0.84
Total Chlorophenols	<482	<819	<627	<686	<12.1

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 70
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Blank Analyses

Congener Group	Lab Blank Total µg	Blank Train Total µg
2-monochlorophenol	<0.30	<0.30
3-monochlorophenol	<0.30	<0.30
4-monochlorophenol	<0.30	<0.30
Total Monochlorophenols	<0.90	<0.90
2,6-dichlorophenol	<0.30	<0.30
2,4 & 2,5-dichlorophenol	<0.30	<0.30
3,5-dichlorophenol	<0.30	<0.30
2,3-dichlorophenol	<0.30	<0.30
3,4-dichlorophenol	<0.30	<0.30
Total Dichlorophenols	<1.50	<1.50
2,4,6-trichlorophenol	<0.30	<0.30
2,3,6-trichlorophenol	<0.30	<0.30
2,3,5-trichlorophenol	<0.30	<0.30
2,4,5-trichlorophenol	<0.30	<0.30
2,3,4-trichlorophenol	<0.30	<0.30
3,4,5-trichlorophenol	<0.30	<0.30
Total Trichlorophenols	<1.80	<1.80
2,3,5,6-tetrachlorophenol	<0.30	<0.30
2,3,4,6-tetrachlorophenol	<0.30	<0.30
2,3,4,5-tetrachlorophenol	<0.30	<0.30
Total Tetrachlorophenols	<0.90	<0.90
Pentachlorophenol	<0.30	<0.30
Total Chlorophenols	<5.40	<5.40

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 71
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 1

Compound	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Acenaphthylene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Anthracene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Benzo(a)anthracene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Benzo(b)fluoranthene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Benzo(k)fluoranthene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Benzo(a)fluorene	<1.2	<95.7	<165	<126	<137	<2.47
Benzo(b)fluorene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
Benzo(g,h,i)perylene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Benzo(a)pyrene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Benzo(e)pyrene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
Biphenyl	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
2-Chloronaphthalene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
Chrysene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Coronene	<1.2	<95.7	<165	<126	<137	<2.47
Dibenzo(a,c) anthracene + Picene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Dibenz(a,h)anthracene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Dibenzo(a,e)pyrene	<1.2	<95.7	<165	<126	<137	<2.47
9,10-Dimethylanthracene	<1.2	<95.7	<165	<126	<137	<2.47
7,12-Dimethylbenzo(a)anthracene	<1.2	<95.7	<165	<126	<137	<2.47
Fluoranthene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Fluorene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Indeno(1,2,3-cd)pyrene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
2-Methylanthracene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
3-Methylcholanthrene	<1.2	<95.7	<165	<126	<137	<2.47
1-Methylnaphthalene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
2-Methylnaphthalene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
1-Methylphenanthrene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
9-Methylphenanthrene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Naphthalene	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
Perylene	<1.2	<95.7	<165	<126	<137	<2.47
Phenanthrene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Pyrene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Quinoline	<1.2	<95.7	<165	<126	<137	<2.47
Tetralin	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
m-Terphenyl	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
o-Terphenyl	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
p-Terphenyl	<0.60	<47.9	<82.3	<63.0	<68.6	<1.24
Triphenylene	<0.30	<23.9	<41.2	<31.5	<34.3	<0.62
Total	<22.5	<1795	<3088	<2363	<2573	<46.3

Dry Gas Volume Sampled (Rm³*) :	7.287
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 72
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 2

Compound	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Acenaphthylene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Anthracene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Benzo(a)anthracene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Benzo(b)fluoranthene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Benzo(k)fluoranthene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Benzo(a)fluorene	<1.2	<102	<172	<131	<144	<2.50
Benzo(b)fluorene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
Benzo(g,h,i)perylene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Benzo(a)pyrene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Benzo(e)pyrene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
Biphenyl	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
2-Chloronaphthalene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
Chrysene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Coronene	<1.2	<102	<172	<131	<144	<2.50
Dibenzo(a,c) anthracene + Picene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Dibenz(a,h)anthracene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Dibenzo(a,e)pyrene	<1.2	<102	<172	<131	<144	<2.50
9,10-Dimethylanthracene	<1.2	<102	<172	<131	<144	<2.50
7,12-Dimethylbenzo(a)anthracene	<1.2	<102	<172	<131	<144	<2.50
Fluoranthene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Fluorene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Indeno(1,2,3-cd)pyrene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
2-Methylanthracene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
3-Methylcholanthrene	<1.2	<102	<172	<131	<144	<2.50
1-Methylnaphthalene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
2-Methylnaphthalene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
1-Methylphenanthrene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
9-Methylphenanthrene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Naphthalene	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
Perylene	<1.2	<102	<172	<131	<144	<2.50
Phenanthrene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Pyrene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Quinoline	<1.2	<102	<172	<131	<144	<2.50
Tetralin	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
m-Terphenyl	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
o-Terphenyl	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
p-Terphenyl	<0.60	<50.8	<86.2	<65.4	<72.2	<1.25
Triphenylene	<0.30	<25.4	<43.1	<32.7	<36.1	<0.62
Total	<22.5	<1905	<3232	<2454	<2709	<46.9

Dry Gas Volume Sampled (Rm³*) :	6.961
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.5
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 73
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Data
Test No. 3

Compound	Total Collected µg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Acenaphthylene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Anthracene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Benzo(a)anthracene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Benzo(b)fluoranthene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Benzo(k)fluoranthene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Benzo(a)fluorene	<1.2	<102	<170	<132	<143	<2.52
Benzo(b)fluorene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
Benzo(g,h,i)perylene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Benzo(a)pyrene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Benzo(e)pyrene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
Biphenyl	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
2-Chloronaphthalene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
Chrysene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Coronene	<1.2	<102	<170	<132	<143	<2.52
Dibenzo(a,c) anthracene + Picene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Dibenz(a,h)anthracene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Dibenzo(a,e)pyrene	<1.2	<102	<170	<132	<143	<2.52
9,10-Dimethylanthracene	<1.2	<102	<170	<132	<143	<2.52
7,12-Dimethylbenzo(a)anthracene	<1.2	<102	<170	<132	<143	<2.52
Fluoranthene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Fluorene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Indeno(1,2,3-cd)pyrene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
2-Methylanthracene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
3-Methylcholanthrene	<1.2	<102	<170	<132	<143	<2.52
1-Methylnaphthalene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
2-Methylnaphthalene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
1-Methylphenanthrene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
9-Methylphenanthrene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Naphthalene	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
Perylene	<1.2	<102	<170	<132	<143	<2.52
Phenanthrene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Pyrene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Quinoline	<1.2	<102	<170	<132	<143	<2.52
Tetralin	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
m-Terphenyl	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
o-Terphenyl	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
p-Terphenyl	<0.60	<50.8	<85.1	<66.0	<71.6	<1.26
Triphenylene	<0.30	<25.4	<42.6	<33.0	<35.8	<0.63
Total	<22.5	<1905	<3192	<2474	<2685	<47.2

Dry Gas Volume Sampled (Rm³*) :	7.048
Actual Flowrate (m³/s) :	24.8
Dry Reference Flowrate (Rm³/s*) :	14.8
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 74
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Actual Concentrations

Compound	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
Acenaphthene	<23.9	<25.4	<25.4	<24.9	3.4
Acenaphthylene	<23.9	<25.4	<25.4	<24.9	3.4
Anthracene	<23.9	<25.4	<25.4	<24.9	3.4
Benzo(a)anthracene	<23.9	<25.4	<25.4	<24.9	3.4
Benzo(b)fluoranthene	<23.9	<25.4	<25.4	<24.9	3.4
Benzo(k)fluoranthene	<23.9	<25.4	<25.4	<24.9	3.4
Benzo(a)fluorene	<95.7	<102	<102	<99.7	3.4
Benzo(b)fluorene	<47.9	<50.8	<50.8	<49.8	3.4
Benzo(g,h,i)perylene	<23.9	<25.4	<25.4	<24.9	3.4
Benzo(a)pyrene	<23.9	<25.4	<25.4	<24.9	3.4
Benzo(e)pyrene	<47.9	<50.8	<50.8	<49.8	3.4
Biphenyl	<47.9	<50.8	<50.8	<49.8	3.4
2-Chloronaphthalene	<47.9	<50.8	<50.8	<49.8	3.4
Chrysene	<23.9	<25.4	<25.4	<24.9	3.4
Coronene	<95.7	<102	<102	<99.7	3.4
Dibenzo(a,c) anthracene + Picene	<23.9	<25.4	<25.4	<24.9	3.4
Dibenz(a,h)anthracene	<23.9	<25.4	<25.4	<24.9	3.4
Dibenzo(a,e)pyrene	<95.7	<102	<102	<99.7	3.4
9,10-Dimethylanthracene	<95.7	<102	<102	<99.7	3.4
7,12-Dimethylbenzo(a)anthracene	<95.7	<102	<102	<99.7	3.4
Fluoranthene	<23.9	<25.4	<25.4	<24.9	3.4
Fluorene	<23.9	<25.4	<25.4	<24.9	3.4
Indeno(1,2,3-cd)pyrene	<23.9	<25.4	<25.4	<24.9	3.4
2-Methylanthracene	<47.9	<50.8	<50.8	<49.8	3.4
3-Methylcholanthrene	<95.7	<102	<102	<99.7	3.4
1-Methylnaphthalene	<47.9	<50.8	<50.8	<49.8	3.4
2-Methylnaphthalene	<23.9	<25.4	<25.4	<24.9	3.4
1-Methylphenanthrene	<47.9	<50.8	<50.8	<49.8	3.4
9-Methylphenanthrene	<23.9	<25.4	<25.4	<24.9	3.4
Naphthalene	<47.9	<50.8	<50.8	<49.8	3.4
Perylene	<95.7	<102	<102	<99.7	3.4
Phenanthrene	<23.9	<25.4	<25.4	<24.9	3.4
Pyrene	<23.9	<25.4	<25.4	<24.9	3.4
Quinoline	<95.7	<102	<102	<99.7	3.4
Tetralin	<47.9	<50.8	<50.8	<49.8	3.4
m-Terphenyl	<47.9	<50.8	<50.8	<49.8	3.4
o-Terphenyl	<47.9	<50.8	<50.8	<49.8	3.4
p-Terphenyl	<47.9	<50.8	<50.8	<49.8	3.4
Triphenylene	<23.9	<25.4	<25.4	<24.9	3.4
Total	<1795	<1905	<1905	<1869	3.4

TABLE 75
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Reference Concentrations

Compound	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Acenaphthene	<41.2	<43.1	<42.6	<42.3	2.4
Acenaphthylene	<41.2	<43.1	<42.6	<42.3	2.4
Anthracene	<41.2	<43.1	<42.6	<42.3	2.4
Benzo(a)anthracene	<41.2	<43.1	<42.6	<42.3	2.4
Benzo(b)fluoranthene	<41.2	<43.1	<42.6	<42.3	2.4
Benzo(k)fluoranthene	<41.2	<43.1	<42.6	<42.3	2.4
Benzo(a)fluorene	<165	<172	<170	<169	2.4
Benzo(b)fluorene	<82.3	<86.2	<85.1	<84.6	2.4
Benzo(g,h,i)perylene	<41.2	<43.1	<42.6	<42.3	2.4
Benzo(a)pyrene	<41.2	<43.1	<42.6	<42.3	2.4
Benzo(e)pyrene	<82.3	<86.2	<85.1	<84.6	2.4
Biphenyl	<82.3	<86.2	<85.1	<84.6	2.4
2-Chloronaphthalene	<82.3	<86.2	<85.1	<84.6	2.4
Chrysene	<41.2	<43.1	<42.6	<42.3	2.4
Coronene	<165	<172	<170	<169	2.4
Dibenzo(a,c) anthracene + Picene	<41.2	<43.1	<42.6	<42.3	2.4
Dibenz(a,h)anthracene	<41.2	<43.1	<42.6	<42.3	2.4
Dibenzo(a,e)pyrene	<165	<172	<170	<169	2.4
9,10-Dimethylanthracene	<165	<172	<170	<169	2.4
7,12-Dimethylbenzo(a)anthracene	<165	<172	<170	<169	2.4
Fluoranthene	<41.2	<43.1	<42.6	<42.3	2.4
Fluorene	<41.2	<43.1	<42.6	<42.3	2.4
Indeno(1,2,3-cd)pyrene	<41.2	<43.1	<42.6	<42.3	2.4
2-Methylanthracene	<82.3	<86.2	<85.1	<84.6	2.4
3-Methylcholanthrene	<165	<172	<170	<169	2.4
1-Methylnaphthalene	<82.3	<86.2	<85.1	<84.6	2.4
2-Methylnaphthalene	<41.2	<43.1	<42.6	<42.3	2.4
1-Methylphenanthrene	<82.3	<86.2	<85.1	<84.6	2.4
9-Methylphenanthrene	<41.2	<43.1	<42.6	<42.3	2.4
Naphthalene	<82.3	<86.2	<85.1	<84.6	2.4
Perylene	<165	<172	<170	<169	2.4
Phenanthrene	<41.2	<43.1	<42.6	<42.3	2.4
Pyrene	<41.2	<43.1	<42.6	<42.3	2.4
Quinoline	<165	<172	<170	<169	2.4
Tetralin	<82.3	<86.2	<85.1	<84.6	2.4
m-Terphenyl	<82.3	<86.2	<85.1	<84.6	2.4
o-Terphenyl	<82.3	<86.2	<85.1	<84.6	2.4
p-Terphenyl	<82.3	<86.2	<85.1	<84.6	2.4
Triphenylene	<41.2	<43.1	<42.6	<42.3	2.4
Total	<3088	<3232	<3192	<3171	2.4

* At 25°C and 1 atmosphere

TABLE 76
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Acenaphthene	<31.5	<32.7	<33.0	<32.4	2.4
Acenaphthylene	<31.5	<32.7	<33.0	<32.4	2.4
Anthracene	<31.5	<32.7	<33.0	<32.4	2.4
Benzo(a)anthracene	<31.5	<32.7	<33.0	<32.4	2.4
Benzo(b)fluoranthene	<31.5	<32.7	<33.0	<32.4	2.4
Benzo(k)fluoranthene	<31.5	<32.7	<33.0	<32.4	2.4
Benzo(a)fluorene	<126	<131	<132	<130	2.4
Benzo(b)fluorene	<63.0	<65.4	<66.0	<64.8	2.4
Benzo(g,h,i)perylene	<31.5	<32.7	<33.0	<32.4	2.4
Benzo(a)pyrene	<31.5	<32.7	<33.0	<32.4	2.4
Benzo(e)pyrene	<63.0	<65.4	<66.0	<64.8	2.4
Biphenyl	<63.0	<65.4	<66.0	<64.8	2.4
2-Chloronaphthalene	<63.0	<65.4	<66.0	<64.8	2.4
Chrysene	<31.5	<32.7	<33.0	<32.4	2.4
Coronene	<126	<131	<132	<130	2.4
Dibenzo(a,c) anthracene + Picene	<31.5	<32.7	<33.0	<32.4	2.4
Dibenz(a,h)anthracene	<31.5	<32.7	<33.0	<32.4	2.4
Dibenzo(a,e)pyrene	<126	<131	<132	<130	2.4
9,10-Dimethylanthracene	<126	<131	<132	<130	2.4
7,12-Dimethylbenzo(a)anthracene	<126	<131	<132	<130	2.4
Fluoranthene	<31.5	<32.7	<33.0	<32.4	2.4
Fluorene	<31.5	<32.7	<33.0	<32.4	2.4
Indeno(1,2,3-cd)pyrene	<31.5	<32.7	<33.0	<32.4	2.4
2-Methylanthracene	<63.0	<65.4	<66.0	<64.8	2.4
3-Methylcholanthrene	<126	<131	<132	<130	2.4
1-Methylnaphthalene	<63.0	<65.4	<66.0	<64.8	2.4
2-Methylnaphthalene	<31.5	<32.7	<33.0	<32.4	2.4
1-Methylphenanthrene	<63.0	<65.4	<66.0	<64.8	2.4
9-Methylphenanthrene	<31.5	<32.7	<33.0	<32.4	2.4
Naphthalene	<63.0	<65.4	<66.0	<64.8	2.4
Perylene	<126	<131	<132	<130	2.4
Phenanthrene	<31.5	<32.7	<33.0	<32.4	2.4
Pyrene	<31.5	<32.7	<33.0	<32.4	2.4
Quinoline	<126	<131	<132	<130	2.4
Tetralin	<63.0	<65.4	<66.0	<64.8	2.4
m-Terphenyl	<63.0	<65.4	<66.0	<64.8	2.4
o-Terphenyl	<63.0	<65.4	<66.0	<64.8	2.4
p-Terphenyl	<63.0	<65.4	<66.0	<64.8	2.4
Triphenylene	<31.5	<32.7	<33.0	<32.4	2.4
Total	<2363	<2454	<2474	<2430	2.4

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 77
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<34.3	<36.1	<35.8	<35.4	2.7
Acenaphthylene	<34.3	<36.1	<35.8	<35.4	2.7
Anthracene	<34.3	<36.1	<35.8	<35.4	2.7
Benzo(a)anthracene	<34.3	<36.1	<35.8	<35.4	2.7
Benzo(b)fluoranthene	<34.3	<36.1	<35.8	<35.4	2.7
Benzo(k)fluoranthene	<34.3	<36.1	<35.8	<35.4	2.7
Benzo(a)fluorene	<137	<144	<143	<142	2.7
Benzo(b)fluorene	<68.6	<72.2	<71.6	<70.8	2.7
Benzo(g,h,i)perylene	<34.3	<36.1	<35.8	<35.4	2.7
Benzo(a)pyrene	<34.3	<36.1	<35.8	<35.4	2.7
Benzo(e)pyrene	<68.6	<72.2	<71.6	<70.8	2.7
Biphenyl	<68.6	<72.2	<71.6	<70.8	2.7
2-Chloronaphthalene	<68.6	<72.2	<71.6	<70.8	2.7
Chrysene	<34.3	<36.1	<35.8	<35.4	2.7
Coronene	<137	<144	<143	<142	2.7
Dibenzo(a,c) anthracene + Picene	<34.3	<36.1	<35.8	<35.4	2.7
Dibenz(a,h)anthracene	<34.3	<36.1	<35.8	<35.4	2.7
Dibenzo(a,e)pyrene	<137	<144	<143	<142	2.7
9,10-Dimethylanthracene	<137	<144	<143	<142	2.7
7,12-Dimethylbenzo(a)anthracene	<137	<144	<143	<142	2.7
Fluoranthene	<34.3	<36.1	<35.8	<35.4	2.7
Fluorene	<34.3	<36.1	<35.8	<35.4	2.7
Indeno(1,2,3-cd)pyrene	<34.3	<36.1	<35.8	<35.4	2.7
2-Methylanthracene	<68.6	<72.2	<71.6	<70.8	2.7
3-Methylcholanthrene	<137	<144	<143	<142	2.7
1-Methylnaphthalene	<68.6	<72.2	<71.6	<70.8	2.7
2-Methylnaphthalene	<34.3	<36.1	<35.8	<35.4	2.7
1-Methylphenanthrene	<68.6	<72.2	<71.6	<70.8	2.7
9-Methylphenanthrene	<34.3	<36.1	<35.8	<35.4	2.7
Naphthalene	<68.6	<72.2	<71.6	<70.8	2.7
Perylene	<137	<144	<143	<142	2.7
Phenanthrene	<34.3	<36.1	<35.8	<35.4	2.7
Pyrene	<34.3	<36.1	<35.8	<35.4	2.7
Quinoline	<137	<144	<143	<142	2.7
Tetralin	<68.6	<72.2	<71.6	<70.8	2.7
m-Terphenyl	<68.6	<72.2	<71.6	<70.8	2.7
o-Terphenyl	<68.6	<72.2	<71.6	<70.8	2.7
p-Terphenyl	<68.6	<72.2	<71.6	<70.8	2.7
Triphenylene	<34.3	<36.1	<35.8	<35.4	2.7
Total	<2573	<2709	<2685	<2656	2.7

* At 25°C and 1 atmosphere

TABLE 78
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Rates

Compound	Emission Rate				Coefficient
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	of Variation %
Acenaphthene	<0.62	<0.62	<0.63	<0.62	1.0
Acenaphthylene	<0.62	<0.62	<0.63	<0.62	1.0
Anthracene	<0.62	<0.62	<0.63	<0.62	1.0
Benzo(a)anthracene	<0.62	<0.62	<0.63	<0.62	1.0
Benzo(b)fluoranthene	<0.62	<0.62	<0.63	<0.62	1.0
Benzo(k)fluoranthene	<0.62	<0.62	<0.63	<0.62	1.0
Benzo(a)fluorene	<2.47	<2.50	<2.52	<2.50	1.0
Benzo(b)fluorene	<1.24	<1.25	<1.26	<1.25	1.0
Benzo(g,h,i)perylene	<0.62	<0.62	<0.63	<0.62	1.0
Benzo(a)pyrene	<0.62	<0.62	<0.63	<0.62	1.0
Benzo(e)pyrene	<1.24	<1.25	<1.26	<1.25	1.0
Biphenyl	<1.24	<1.25	<1.26	<1.25	1.0
2-Chloronaphthalene	<1.24	<1.25	<1.26	<1.25	1.0
Chrysene	<0.62	<0.62	<0.63	<0.62	1.0
Coronene	<2.47	<2.50	<2.52	<2.50	1.0
Dibenzo(a,c) anthracene + Picene	<0.62	<0.62	<0.63	<0.62	1.0
Dibenz(a,h)anthracene	<0.62	<0.62	<0.63	<0.62	1.0
Dibenzo(a,e)pyrene	<2.47	<2.50	<2.52	<2.50	1.0
9,10-Dimethylanthracene	<2.47	<2.50	<2.52	<2.50	1.0
7,12-Dimethylbenzo(a)anthracene	<2.47	<2.50	<2.52	<2.50	1.0
Fluoranthene	<0.62	<0.62	<0.63	<0.62	1.0
Fluorene	<0.62	<0.62	<0.63	<0.62	1.0
Indeno(1,2,3-cd)pyrene	<0.62	<0.62	<0.63	<0.62	1.0
2-Methylanthracene	<1.24	<1.25	<1.26	<1.25	1.0
3-Methylcholanthrene	<2.47	<2.50	<2.52	<2.50	1.0
1-Methylnaphthalene	<1.24	<1.25	<1.26	<1.25	1.0
2-Methylnaphthalene	<0.62	<0.62	<0.63	<0.62	1.0
1-Methylphenanthrene	<1.24	<1.25	<1.26	<1.25	1.0
9-Methylphenanthrene	<0.62	<0.62	<0.63	<0.62	1.0
Naphthalene	<1.24	<1.25	<1.26	<1.25	1.0
Perylene	<2.47	<2.50	<2.52	<2.50	1.0
Phenanthrene	<0.62	<0.62	<0.63	<0.62	1.0
Pyrene	<0.62	<0.62	<0.63	<0.62	1.0
Quinoline	<2.47	<2.50	<2.52	<2.50	1.0
Tetralin	<1.24	<1.25	<1.26	<1.25	1.0
m-Terphenyl	<1.24	<1.25	<1.26	<1.25	1.0
o-Terphenyl	<1.24	<1.25	<1.26	<1.25	1.0
p-Terphenyl	<1.24	<1.25	<1.26	<1.25	1.0
Triphenylene	<0.62	<0.62	<0.63	<0.62	1.0
Total	<46.3	<46.9	<47.2	<46.8	1.0

TABLE 79
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Polycyclic Aromatic Hydrocarbon Emission Data

Compound	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
Acenaphthene	<24.9	<42.3	<32.4	<35.4	<0.62
Acenaphthylene	<24.9	<42.3	<32.4	<35.4	<0.62
Anthracene	<24.9	<42.3	<32.4	<35.4	<0.62
Benzo(a)anthracene	<24.9	<42.3	<32.4	<35.4	<0.62
Benzo(b)fluoranthene	<24.9	<42.3	<32.4	<35.4	<0.62
Benzo(k)fluoranthene	<24.9	<42.3	<32.4	<35.4	<0.62
Benzo(a)fluorene	<99.7	<169	<130	<142	<2.50
Benzo(b)fluorene	<49.8	<84.6	<64.8	<70.8	<1.25
Benzo(g,h,i)perylene	<24.9	<42.3	<32.4	<35.4	<0.62
Benzo(a)pyrene	<24.9	<42.3	<32.4	<35.4	<0.62
Benzo(e)pyrene	<49.8	<84.6	<64.8	<70.8	<1.25
Biphenyl	<49.8	<84.6	<64.8	<70.8	<1.25
2-Chloronaphthalene	<49.8	<84.6	<64.8	<70.8	<1.25
Chrysene	<24.9	<42.3	<32.4	<35.4	<0.62
Coronene	<99.7	<169	<130	<142	<2.50
Dibenzo(a,c) anthracene + Picene	<24.9	<42.3	<32.4	<35.4	<0.62
Dibenz(a,h)anthracene	<24.9	<42.3	<32.4	<35.4	<0.62
Dibenzo(a,e)pyrene	<99.7	<169	<130	<142	<2.50
9,10-Dimethylanthracene	<99.7	<169	<130	<142	<2.50
7,12-Dimethylbenzo(a)anthracene	<99.7	<169	<130	<142	<2.50
Fluoranthene	<24.9	<42.3	<32.4	<35.4	<0.62
Fluorene	<24.9	<42.3	<32.4	<35.4	<0.62
Indeno(1,2,3-cd)pyrene	<24.9	<42.3	<32.4	<35.4	<0.62
2-Methylanthracene	<49.8	<84.6	<64.8	<70.8	<1.25
3-Methylcholanthrene	<99.7	<169	<130	<142	<2.50
1-Methylnaphthalene	<49.8	<84.6	<64.8	<70.8	<1.25
2-Methylnaphthalene	<24.9	<42.3	<32.4	<35.4	<0.62
1-Methylphenanthrene	<49.8	<84.6	<64.8	<70.8	<1.25
9-Methylphenanthrene	<24.9	<42.3	<32.4	<35.4	<0.62
Naphthalene	<49.8	<84.6	<64.8	<70.8	<1.25
Perylene	<99.7	<169	<130	<142	<2.50
Phenanthrene	<24.9	<42.3	<32.4	<35.4	<0.62
Pyrene	<24.9	<42.3	<32.4	<35.4	<0.62
Quinoline	<99.7	<169	<130	<142	<2.50
Tetralin	<49.8	<84.6	<64.8	<70.8	<1.25
m-Terphenyl	<49.8	<84.6	<64.8	<70.8	<1.25
o-Terphenyl	<49.8	<84.6	<64.8	<70.8	<1.25
p-Terphenyl	<49.8	<84.6	<64.8	<70.8	<1.25
Triphenylene	<24.9	<42.3	<32.4	<35.4	<0.62
Total	<1869	<3171	<2430	<2656	<46.8

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 80

Covanta - Durham York Energy Centre

Boiler No. 2 BH Outlet

Blank Polycyclic Aromatic Hydrocarbon Analyses

Compound	Blank Train µg	Laboratory Blank µg
Acenaphthene	<0.30	<0.30
Acenaphthylene	<0.30	<0.30
Anthracene	<0.30	<0.30
Benzo(a)anthracene	<0.30	<0.30
Benzo(b)fluoranthene	<0.30	<0.30
Benzo(k)fluoranthene	<0.30	<0.30
Benzo(a)fluorene	<1.2	<1.2
Benzo(b)fluorene	<0.60	<0.60
Benzo(g,h,i)perylene	<0.30	<0.30
Benzo(a)pyrene	<0.30	<0.30
Benzo(e)pyrene	<0.60	<0.60
Biphenyl	<0.60	<0.60
2-Chloronaphthalene	<0.60	<0.60
Chrysene	<0.30	<0.30
Coronene	<1.2	<1.2
Dibenzo(a,c) anthracene + Picene	<0.30	<0.30
Dibenz(a,h)anthracene	<0.30	<0.30
Dibenzo(a,e)pyrene	<1.2	<1.2
9,10-Dimethylanthracene	<1.2	<1.2
7,12-Dimethylbenzo(a)anthracene	<1.2	<1.2
Fluoranthene	<0.30	<0.30
Fluorene	<0.30	<0.30
Indeno(1,2,3-cd)pyrene	<0.30	<0.30
2-Methylanthracene	<0.60	<0.60
3-Methylcholanthrene	<1.2	<1.2
1-Methylnaphthalene	<0.60	<0.60
2-Methylnaphthalene	<0.30	<0.30
1-Methylphenanthrene	<0.60	<0.60
9-Methylphenanthrene	<0.30	<0.30
Naphthalene	<0.60	<0.60
Perylene	<1.2	<1.2
Phenanthrene	<0.30	<0.30
Pyrene	<0.30	<0.30
Quinoline	<1.2	<1.2
Tetralin	<0.60	<0.60
m-Terphenyl	<0.60	<0.60
o-Terphenyl	<0.60	<0.60
p-Terphenyl	<0.60	<0.60
Triphenylene	<0.30	<0.30
Total	<22.5	<22.5

"<" indicates that the amount detected is less than the analytical detection limit (<MDL). In these cases the value of the detection limit was used to calculate the total collected.

TABLE 81
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Acetaldehyde, Formaldehyde and Acrolein Emission Data

Acetaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acetaldehyde Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Acetaldehyde Emission Rate mg/s
1	<2	0.0278	<41.6	<71.9	<55.0	<60.0	<1.07
2	<2	0.0297	<39.1	<67.4	<51.6	<56.3	<1.00
3	<2	0.0288	<40.2	<69.4	<53.0	<58.0	<1.03
Average			<40.3	<69.6	<53.2	<58.1	<1.03
Blank	<2						

Formaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Formaldehyde Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Formaldehyde Emission Rate mg/s
1	0.9	0.0278	18.7	32.3	24.7	27.0	0.48
2	0.8	0.0297	15.6	27.0	20.6	22.5	0.40
3	0.7	0.0288	14.1	24.3	18.6	20.3	0.36
Average			16.1	27.9	21.3	23.3	0.41
Blank	0.3						

Acrolein

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acrolein Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Acrolein Emission Rate mg/s
1	<2	0.0278	<41.6	<71.9	<55.0	<60.0	<1.07
2	<2	0.0297	<39.1	<67.4	<51.6	<56.3	<1.00
3	<2	0.0288	<40.2	<69.4	<53.0	<58.0	<1.03
Average			<40.3	<69.6	<53.2	<58.1	<1.03
Blank	<2						

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

Sampling was conducted at a single point. Volumetric flowrates from the corresponding isokinetic tests were used to calculate emission data.

* At 25 °C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 82
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Analyses
Test No. 1

Compound	Cartridge Amount Collected				Coefficient of Variation	Total Collected
	Run No. 1 Tube 16A/16B	Run No. 2 Tube 17A/17B	Run No. 3 Tube 18A/18B	Average		
	µg	µg	µg	µg	%	µg
Acetone	0.46	0.14	0.14	0.25	74.9	0.74
Benzene	0.025	0.022	0.023	0.024	6.0	0.071
Bromodichloromethane	0.024	0.024	0.029	0.026	11.2	0.077
Bromoform	<0.014	<0.014	<0.014	<0.014	-	<0.042
Bromomethane	<0.015	<0.015	<0.015	<0.015	-	<0.045
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	-	<0.075
2-Butanone	<0.036	<0.036	<0.036	<0.036	-	<0.11
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	-	<0.048
Chlorobenzene	<0.011	<0.011	<0.011	<0.011	-	<0.033
Chloroform	0.025	0.026	0.031	0.027	11.8	0.082
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Dibromochloromethane	0.011	0.011	0.012	0.011	4.9	0.034
Dichlorodifluoromethane	<0.020	<0.020	0.030	<0.023	24.7	<0.070
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	-	<0.021
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	-	<0.030
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	-	<0.033
Ethylbenzene	0.022	<0.014	<0.014	<0.017	27.7	<0.050
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	-	<0.030
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Methylene Chloride	<0.019	<0.019	0.027	<0.022	21.3	<0.065
Styrene	0.014	<0.012	<0.012	<0.013	9.1	<0.038
Tetrachloroethene	0.072	0.030	0.020	0.041	67.8	0.12
Toluene	0.044	0.16	0.17	0.12	56.1	0.37
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	-	<0.042
Trichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	-	<0.048
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	-	<0.075
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	-	<0.030
M&P-Xylene	0.026	<0.015	<0.015	<0.019	34.0	<0.056
O-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	-	<0.039
Total	<1.08	<0.81	<0.85	<0.91	16.3	<2.73

Dry Gas Volume Sampled (Rm^3*) :

Run No. 1	0.0192
Run No. 2	0.0195
Run No. 3	0.0203

* At 25°C and 1 atmosphere.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). For the purpose of determining average and total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 83
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Analyses
Test No. 2

Compound	Cartridge Amount Collected				Coefficient	Total
	Run No. 1 Tube 22A/22B	Run No. 2 Tube 23A/23B	Run No. 3 Tube 24A/24B	Average	of Variation	Collected
	µg	µg	µg	µg	%	µg
Acetone	0.108	0.068	0.074	0.083	25.9	0.25
Benzene	0.030	0.039	0.032	0.034	13.3	0.10
Bromodichloromethane	0.025	0.026	0.024	0.025	4.0	0.075
Bromoform	<0.014	<0.014	<0.014	<0.014	-	<0.042
Bromomethane	<0.015	<0.015	<0.015	<0.015	-	<0.045
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	-	<0.075
2-Butanone	<0.036	<0.036	<0.036	<0.036	-	<0.11
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	-	<0.048
Chlorobenzene	<0.011	<0.011	<0.011	<0.011	-	<0.033
Chloroform	0.027	0.029	0.026	0.027	5.6	0.082
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Dibromochloromethane	0.011	0.011	0.010	0.011	7.0	0.032
Dichlorodifluoromethane	0.023	<0.020	0.033	<0.025	26.9	<0.076
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	-	<0.021
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	-	<0.030
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	-	<0.033
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	-	<0.042
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	-	<0.030
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Methylene Chloride	0.026	<0.019	<0.019	<0.021	18.9	<0.064
Styrene	<0.012	<0.012	<0.012	<0.012	-	<0.036
Tetrachloroethene	<0.018	<0.018	<0.018	<0.018	-	<0.054
Toluene	0.027	0.037	0.039	0.034	18.7	0.10
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	-	<0.042
Trichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	-	<0.048
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	-	<0.075
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	-	<0.030
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
O-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	-	<0.039
Total	<0.66	<0.63	<0.64	<0.64	2.3	<1.92

Dry Gas Volume Sampled (Rm^3*) :

Run No. 1	0.0201
Run No. 2	0.0204
Run No. 3	0.0205

* At 25°C and 1 atmosphere.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). For the purpose of determining average and total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 84
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Analyses
Test No. 3

Compound	Cartridge Amount Collected Run No. 1 Tube 26A/26B	Run No. 2 Tube 27A/27B	Run No. 3 Tube 28A/28B	Average	Coefficient of Variation	Total Collected
	µg	µg	µg	µg	%	µg
Acetone	0.061	0.062	0.046	0.056	15.9	0.17
Benzene	0.024	0.022	0.024	0.023	3.7	0.070
Bromodichloromethane	0.023	0.024	0.021	0.023	6.7	0.068
Bromoform	<0.014	<0.014	<0.014	<0.014	-	<0.042
Bromomethane	<0.015	<0.015	<0.015	<0.015	-	<0.045
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	-	<0.075
2-Butanone	<0.036	<0.036	<0.036	<0.036	-	<0.11
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	-	<0.048
Chlorobenzene	<0.011	<0.011	<0.011	<0.011	-	<0.033
Chloroform	0.025	0.028	0.023	0.025	9.9	0.076
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Dibromochloromethane	0.010	0.012	<0.0090	<0.010	12.6	<0.031
Dichlorodifluoromethane	<0.020	<0.020	<0.020	<0.020	-	<0.060
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	-	<0.021
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	-	<0.030
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	-	<0.033
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	-	<0.042
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	-	<0.030
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	-	<0.075
Methylene Chloride	<0.019	<0.019	<0.019	<0.019	-	<0.057
Styrene	<0.012	<0.012	<0.012	<0.012	-	<0.036
Tetrachloroethene	0.026	0.018	<0.018	<0.021	-	<0.062
Toluene	0.026	0.028	0.026	0.027	4.3	0.080
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	-	<0.042
Trichloroethene	<0.011	<0.011	<0.011	<0.011	-	<0.033
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	-	<0.048
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	-	<0.075
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	-	<0.030
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
O-Xylene	<0.015	<0.015	<0.015	<0.015	-	<0.045
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	-	<0.039
Total	<0.59	<0.59	<0.57	<0.59	2.7	<1.76

Dry Gas Volume Sampled (Rm^3*) :

Run No. 1	0.0182
Run No. 2	0.0194
Run No. 3	0.0182

* At 25°C and 1 atmosphere.

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit). For the purpose of determining average and total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 85
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 1

Compound	Total Collected µg	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3**	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	0.74	7.35	12.6	9.68	10.6	0.19
Benzene	0.071	0.70	1.20	0.93	1.02	0.018
Bromodichloromethane	0.077	0.76	1.31	1.01	1.11	0.019
Bromoform	<0.042	<0.42	<0.71	<0.55	<0.60	<0.011
Bromomethane	<0.045	<0.45	<0.76	<0.59	<0.65	<0.011
1,3-Butadiene	<0.075	<0.74	<1.27	<0.98	<1.08	<0.019
2-Butanone	<0.11	<1.07	<1.83	<1.41	<1.55	<0.027
Carbon Tetrachloride	<0.048	<0.48	<0.81	<0.63	<0.69	<0.012
Chlorobenzene	<0.033	<0.33	<0.56	<0.43	<0.47	<0.0083
Chloroform	0.082	0.81	1.39	1.07	1.18	0.021
Cumene (Isopropylbenzene)	<0.075	<0.74	<1.27	<0.98	<1.08	<0.019
Dibromochloromethane	0.034	0.34	0.57	0.44	0.49	0.0085
Dichlorodifluoromethane	<0.070	<0.70	<1.19	<0.92	<1.00	<0.018
1,2-Dichloroethane	<0.021	<0.21	<0.36	<0.27	<0.30	<0.0053
trans,1,2-Dichloroethene	<0.030	<0.30	<0.51	<0.39	<0.43	<0.0075
1,1-Dichloroethene	<0.033	<0.33	<0.56	<0.43	<0.47	<0.0083
1,2-Dichloropropane	<0.033	<0.33	<0.56	<0.43	<0.47	<0.0083
Ethylbenzene	<0.050	<0.50	<0.85	<0.65	<0.72	<0.013
Ethylene Dibromide	<0.030	<0.30	<0.51	<0.39	<0.43	<0.0075
Mesitylene (1,3,5-Trimethylbenzene)	<0.075	<0.74	<1.27	<0.98	<1.08	<0.019
Methylene Chloride	<0.065	<0.65	<1.10	<0.85	<0.93	<0.016
Styrene	<0.038	<0.38	<0.65	<0.50	<0.55	<0.0095
Tetrachloroethene	0.12	1.21	2.07	1.60	1.75	0.031
Toluene	0.37	3.67	6.28	4.84	5.31	0.093
1,1,1-Trichloroethane	<0.042	<0.42	<0.71	<0.55	<0.60	<0.011
Trichloroethene	<0.033	<0.33	<0.56	<0.43	<0.47	<0.0083
1,1,2-Trichloroethane	<0.048	<0.48	<0.81	<0.63	<0.69	<0.012
Trichlorotrifluoroethane	<0.075	<0.74	<1.27	<0.98	<1.08	<0.019
Trichlorofluoromethane	<0.030	<0.30	<0.51	<0.39	<0.43	<0.0075
M&P-Xylene	<0.056	<0.56	<0.95	<0.73	<0.80	<0.014
O-Xylene	<0.045	<0.45	<0.76	<0.59	<0.65	<0.011
Vinyl Chloride	<0.039	<0.39	<0.66	<0.51	<0.56	<0.0098
Total	<2.73	<27.2	<46.4	<35.8	<39.3	<0.69

Dry Gas Volume Sampled (Rm^3*) :	0.0589
Actual Flowrate (m^3/s) :	25.3
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.2
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 86
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 2

Compound	Total Collected µg	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3**	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	0.25	2.38	4.09	3.13	3.41	0.061
Benzene	0.10	0.96	1.65	1.26	1.37	0.025
Bromodichloromethane	0.075	0.71	1.23	0.94	1.02	0.018
Bromoform	<0.042	<0.40	<0.69	<0.53	<0.57	<0.010
Bromomethane	<0.045	<0.43	<0.74	<0.56	<0.61	<0.011
1,3-Butadiene	<0.075	<0.71	<1.23	<0.94	<1.02	<0.018
2-Butanone	<0.11	<1.03	<1.77	<1.35	<1.47	<0.027
Carbon Tetrachloride	<0.048	<0.46	<0.79	<0.60	<0.66	<0.012
Chlorobenzene	<0.033	<0.31	<0.54	<0.41	<0.45	<0.0081
Chloroform	0.082	0.78	1.34	1.03	1.12	0.020
Cumene (Isopropylbenzene)	<0.075	<0.71	<1.23	<0.94	<1.02	<0.018
Dibromochloromethane	0.032	0.31	0.53	0.40	0.44	0.0079
Dichlorodifluoromethane	<0.076	<0.72	<1.24	<0.95	<1.04	<0.019
1,2-Dichloroethane	<0.021	<0.20	<0.34	<0.26	<0.29	<0.0052
trans,1,2-Dichloroethene	<0.030	<0.29	<0.49	<0.38	<0.41	<0.0074
1,1-Dichloroethene	<0.033	<0.31	<0.54	<0.41	<0.45	<0.0081
1,2-Dichloropropane	<0.033	<0.31	<0.54	<0.41	<0.45	<0.0081
Ethylbenzene	<0.042	<0.40	<0.69	<0.53	<0.57	<0.010
Ethylene Dibromide	<0.030	<0.29	<0.49	<0.38	<0.41	<0.0074
Mesitylene (1,3,5-Trimethylbenzene)	<0.075	<0.71	<1.23	<0.94	<1.02	<0.018
Methylene Chloride	<0.064	<0.61	<1.05	<0.80	<0.87	<0.016
Styrene	<0.036	<0.34	<0.59	<0.45	<0.49	<0.0088
Tetrachloroethene	<0.054	<0.51	<0.88	<0.68	<0.74	<0.013
Toluene	0.10	0.98	1.69	1.29	1.41	0.025
1,1,1-Trichloroethane	<0.042	<0.40	<0.69	<0.53	<0.57	<0.010
Trichloroethene	<0.033	<0.31	<0.54	<0.41	<0.45	<0.0081
1,1,2-Trichloroethane	<0.048	<0.46	<0.79	<0.60	<0.66	<0.012
Trichlorotrifluoroethane	<0.075	<0.71	<1.23	<0.94	<1.02	<0.018
Trichlorofluoromethane	<0.030	<0.29	<0.49	<0.38	<0.41	<0.0074
M&P-Xylene	<0.045	<0.43	<0.74	<0.56	<0.61	<0.011
O-Xylene	<0.045	<0.43	<0.74	<0.56	<0.61	<0.011
Vinyl Chloride	<0.039	<0.37	<0.64	<0.49	<0.53	<0.0096
Total	<1.92	<18.3	<31.4	<24.1	<26.2	<0.47

Dry Gas Volume Sampled (Rm^3*) :	0.0611
Actual Flowrate (m^3/s) :	25.8
Dry Reference Flowrate (Rm^3/s*) :	15.0
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 87
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 3

Compound	Total Collected µg	Actual Concentration µg/m³	Dry Reference Concentration µg/Rm³*	Dry Adjusted Concentration µg/Rm³**	Wet Reference Concentration µg/Rm³*	Emission Rate mg/s
Acetone	0.17	1.76	3.03	2.32	2.52	0.045
Benzene	0.070	0.73	1.25	0.96	1.04	0.019
Bromodichloromethane	0.068	0.71	1.22	0.93	1.01	0.018
Bromoform	<0.042	<0.44	<0.75	<0.58	<0.63	<0.011
Bromomethane	<0.045	<0.47	<0.81	<0.62	<0.67	<0.012
1,3-Butadiene	<0.075	<0.78	<1.34	<1.03	<1.12	<0.020
2-Butanone	<0.11	<1.12	<1.93	<1.48	<1.61	<0.029
Carbon Tetrachloride	<0.048	<0.50	<0.86	<0.66	<0.72	<0.013
Chlorobenzene	<0.033	<0.34	<0.59	<0.45	<0.49	<0.0089
Chloroform	0.076	0.79	1.36	1.04	1.13	0.020
Cumene (Isopropylbenzene)	<0.075	<0.78	<1.34	<1.03	<1.12	<0.020
Dibromochloromethane	<0.031	<0.32	<0.55	<0.42	<0.46	<0.0083
Dichlorodifluoromethane	<0.060	<0.62	<1.07	<0.82	<0.90	<0.016
1,2-Dichloroethane	<0.021	<0.22	<0.38	<0.29	<0.31	<0.0056
trans,1,2-Dichloroethene	<0.030	<0.31	<0.54	<0.41	<0.45	<0.0081
1,1-Dichloroethene	<0.033	<0.34	<0.59	<0.45	<0.49	<0.0089
1,2-Dichloropropane	<0.033	<0.34	<0.59	<0.45	<0.49	<0.0089
Ethylbenzene	<0.042	<0.44	<0.75	<0.58	<0.63	<0.011
Ethylene Dibromide	<0.030	<0.31	<0.54	<0.41	<0.45	<0.0081
Mesitylene (1,3,5-Trimethylbenzene)	<0.075	<0.78	<1.34	<1.03	<1.12	<0.020
Methylene Chloride	<0.057	<0.59	<1.02	<0.78	<0.85	<0.015
Styrene	<0.036	<0.37	<0.64	<0.49	<0.54	<0.0097
Tetrachloroethene	<0.062	<0.65	<1.11	<0.85	<0.93	<0.017
Toluene	0.080	0.83	1.43	1.10	1.19	0.021
1,1,1-Trichloroethane	<0.042	<0.44	<0.75	<0.58	<0.63	<0.011
Trichloroethene	<0.033	<0.34	<0.59	<0.45	<0.49	<0.0089
1,1,2-Trichloroethane	<0.048	<0.50	<0.86	<0.66	<0.72	<0.013
Trichlorotrifluoroethane	<0.075	<0.78	<1.34	<1.03	<1.12	<0.020
Trichlorofluoromethane	<0.030	<0.31	<0.54	<0.41	<0.45	<0.0081
M&P-Xylene	<0.045	<0.47	<0.81	<0.62	<0.67	<0.012
O-Xylene	<0.045	<0.47	<0.81	<0.62	<0.67	<0.012
Vinyl Chloride	<0.039	<0.41	<0.70	<0.53	<0.58	<0.010
Total	<1.76	<18.3	<31.4	<24.1	<26.2	<0.47

Dry Gas Volume Sampled (Rm³*) :	0.0558
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 88
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Actual Concentrations

Compound	Actual Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	µg/m^3	µg/m^3	µg/m^3	µg/m^3
Acetone	7.35	2.38	1.76	3.83
Benzene	0.70	0.96	0.73	0.80
Bromodichloromethane	0.76	0.71	0.71	0.73
Bromoform	<0.42	<0.40	<0.44	<0.42
Bromomethane	<0.45	<0.43	<0.47	<0.45
1,3-Butadiene	<0.74	<0.71	<0.78	<0.75
2-Butanone	<1.07	<1.03	<1.12	<1.08
Carbon Tetrachloride	<0.48	<0.46	<0.50	<0.48
Chlorobenzene	<0.33	<0.31	<0.34	<0.33
Chloroform	0.81	0.78	0.79	0.80
Cumene (Isopropylbenzene)	<0.74	<0.71	<0.78	<0.75
Dibromochloromethane	0.34	0.31	<0.32	<0.32
Dichlorodifluoromethane	<0.70	<0.72	<0.62	<0.68
1,2-Dichloroethane	<0.21	<0.20	<0.22	<0.21
trans,1,2-Dichloroethene	<0.30	<0.29	<0.31	<0.30
1,1-Dichloroethene	<0.33	<0.31	<0.34	<0.33
1,2-Dichloropropane	<0.33	<0.31	<0.34	<0.33
Ethylbenzene	<0.50	<0.40	<0.44	<0.44
Ethylene Dibromide	<0.30	<0.29	<0.31	<0.30
Mesitylene (1,3,5-Trimethylbenzene)	<0.74	<0.71	<0.78	<0.75
Methylene Chloride	<0.65	<0.61	<0.59	<0.62
Styrene	<0.38	<0.34	<0.37	<0.36
Tetrachloroethene	1.21	<0.51	<0.65	<0.79
Toluene	3.67	0.98	0.83	1.83
1,1,1-Trichloroethane	<0.42	<0.40	<0.44	<0.42
Trichloroethene	<0.33	<0.31	<0.34	<0.33
1,1,2-Trichloroethane	<0.48	<0.46	<0.50	<0.48
Trichlorotrifluoroethane	<0.74	<0.71	<0.78	<0.75
Trichlorofluoromethane	<0.30	<0.29	<0.31	<0.30
M&P-Xylene	<0.56	<0.43	<0.47	<0.48
O-Xylene	<0.45	<0.43	<0.47	<0.45
Vinyl Chloride	<0.39	<0.37	<0.41	<0.39
Total	<27.2	<18.3	<18.3	<21.2

TABLE 89
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Dry Reference Concentrations

Compound	Dry Reference Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*
Acetone	12.6	4.09	3.03	6.56
Benzene	1.20	1.65	1.25	1.37
Bromodichloromethane	1.31	1.23	1.22	1.25
Bromoform	<0.71	<0.69	<0.75	<0.72
Bromomethane	<0.76	<0.74	<0.81	<0.77
1,3-Butadiene	<1.27	<1.23	<1.34	<1.28
2-Butanone	<1.83	<1.77	<1.93	<1.85
Carbon Tetrachloride	<0.81	<0.79	<0.86	<0.82
Chlorobenzene	<0.56	<0.54	<0.59	<0.56
Chloroform	1.39	1.34	1.36	1.37
Cumene (Isopropylbenzene)	<1.27	<1.23	<1.34	<1.28
Dibromochloromethane	0.57	0.53	<0.55	<0.55
Dichlorodifluoromethane	<1.19	<1.24	<1.07	<1.17
1,2-Dichloroethane	<0.36	<0.34	<0.38	<0.36
trans,1,2-Dichloroethene	<0.51	<0.49	<0.54	<0.51
1,1-Dichloroethene	<0.56	<0.54	<0.59	<0.56
1,2-Dichloropropane	<0.56	<0.54	<0.59	<0.56
Ethylbenzene	<0.85	<0.69	<0.75	<0.76
Ethylene Dibromide	<0.51	<0.49	<0.54	<0.51
Mesitylene (1,3,5-Trimethylbenzene)	<1.27	<1.23	<1.34	<1.28
Methylene Chloride	<1.10	<1.05	<1.02	<1.06
Styrene	<0.65	<0.59	<0.64	<0.63
Tetrachloroethene	2.07	<0.88	<1.11	<1.36
Toluene	6.28	1.69	1.43	3.13
1,1,1-Trichloroethane	<0.71	<0.69	<0.75	<0.72
Trichloroethene	<0.56	<0.54	<0.59	<0.56
1,1,2-Trichloroethane	<0.81	<0.79	<0.86	<0.82
Trichlorotrifluoroethane	<1.27	<1.23	<1.34	<1.28
Trichlorofluoromethane	<0.51	<0.49	<0.54	<0.51
M&P-Xylene	<0.95	<0.74	<0.81	<0.83
O-Xylene	<0.76	<0.74	<0.81	<0.77
Vinyl Chloride	<0.66	<0.64	<0.70	<0.67
Total	<46.4	<31.4	<31.4	<36.4

* At 25°C and 1 atmosphere

TABLE 90
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration			
	Test No. 1	Test No. 2	Test No. 3	Average
	$\mu g/Rm^3$*	$\mu g/Rm^3$*	$\mu g/Rm^3$*	$\mu g/Rm^3$*
Acetone	9.68	3.13	2.32	5.04
Benzene	0.93	1.26	0.96	1.05
Bromodichloromethane	1.01	0.94	0.93	0.96
Bromoform	<0.55	<0.53	<0.58	<0.55
Bromomethane	<0.59	<0.56	<0.62	<0.59
1,3-Butadiene	<0.98	<0.94	<1.03	<0.98
2-Butanone	<1.41	<1.35	<1.48	<1.42
Carbon Tetrachloride	<0.63	<0.60	<0.66	<0.63
Chlorobenzene	<0.43	<0.41	<0.45	<0.43
Chloroform	1.07	1.03	1.04	1.05
Cumene (Isopropylbenzene)	<0.98	<0.94	<1.03	<0.98
Dibromochloromethane	0.44	0.40	<0.42	<0.42
Dichlorodifluoromethane	<0.92	<0.95	<0.82	<0.90
1,2-Dichloroethane	<0.27	<0.26	<0.29	<0.28
trans,1,2-Dichloroethene	<0.39	<0.38	<0.41	<0.39
1,1-Dichloroethene	<0.43	<0.41	<0.45	<0.43
1,2-Dichloropropane	<0.43	<0.41	<0.45	<0.43
Ethylbenzene	<0.65	<0.53	<0.58	<0.59
Ethylene Dibromide	<0.39	<0.38	<0.41	<0.39
Mesitylene (1,3,5-Trimethylbenzene)	<0.98	<0.94	<1.03	<0.98
Methylene Chloride	<0.85	<0.80	<0.78	<0.81
Styrene	<0.50	<0.45	<0.49	<0.48
Tetrachloroethene	1.60	<0.68	<0.85	<1.04
Toluene	4.84	1.29	1.10	2.41
1,1,1-Trichloroethane	<0.55	<0.53	<0.58	<0.55
Trichloroethene	<0.43	<0.41	<0.45	<0.43
1,1,2-Trichloroethane	<0.63	<0.60	<0.66	<0.63
Trichlorotrifluoroethane	<0.98	<0.94	<1.03	<0.98
Trichlorofluoromethane	<0.39	<0.38	<0.41	<0.39
M&P-Xylene	<0.73	<0.56	<0.62	<0.64
O-Xylene	<0.59	<0.56	<0.62	<0.59
Vinyl Chloride	<0.51	<0.49	<0.53	<0.51
Total	<35.8	<24.1	<24.1	<28.0

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 91
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Wet Reference Concentrations

Compound	Wet Reference Concentration Test No. 1 µg/Rm³*	Test No. 2 µg/Rm³*	Test No. 3 µg/Rm³*	Average µg/Rm³*
Acetone	10.6	3.41	2.52	5.52
Benzene	1.02	1.37	1.04	1.14
Bromodichloromethane	1.11	1.02	1.01	1.05
Bromoform	<0.60	<0.57	<0.63	<0.60
Bromomethane	<0.65	<0.61	<0.67	<0.64
1,3-Butadiene	<1.08	<1.02	<1.12	<1.07
2-Butanone	<1.55	<1.47	<1.61	<1.55
Carbon Tetrachloride	<0.69	<0.66	<0.72	<0.69
Chlorobenzene	<0.47	<0.45	<0.49	<0.47
Chloroform	1.18	1.12	1.13	1.14
Cumene (Isopropylbenzene)	<1.08	<1.02	<1.12	<1.07
Dibromochloromethane	0.49	0.44	<0.46	<0.46
Dichlorodifluoromethane	<1.00	<1.04	<0.90	<0.98
1,2-Dichloroethane	<0.30	<0.29	<0.31	<0.30
trans,1,2-Dichloroethene	<0.43	<0.41	<0.45	<0.43
1,1-Dichloroethene	<0.47	<0.45	<0.49	<0.47
1,2-Dichloropropane	<0.47	<0.45	<0.49	<0.47
Ethylbenzene	<0.72	<0.57	<0.63	<0.64
Ethylene Dibromide	<0.43	<0.41	<0.45	<0.43
Mesitylene (1,3,5-Trimethylbenzene)	<1.08	<1.02	<1.12	<1.07
Methylene Chloride	<0.93	<0.87	<0.85	<0.89
Styrene	<0.55	<0.49	<0.54	<0.52
Tetrachloroethene	1.75	<0.74	<0.93	<1.14
Toluene	5.31	1.41	1.19	2.64
1,1,1-Trichloroethane	<0.60	<0.57	<0.63	<0.60
Trichloroethene	<0.47	<0.45	<0.49	<0.47
1,1,2-Trichloroethane	<0.69	<0.66	<0.72	<0.69
Trichlorotrifluoroethane	<1.08	<1.02	<1.12	<1.07
Trichlorofluoromethane	<0.43	<0.41	<0.45	<0.43
M&P-Xylene	<0.80	<0.61	<0.67	<0.70
O-Xylene	<0.65	<0.61	<0.67	<0.64
Vinyl Chloride	<0.56	<0.53	<0.58	<0.56
Total	<39.3	<26.2	<26.2	<30.6

* At 25°C and 1 atmosphere

TABLE 92
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Rates

Compound	Emission Rate			
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s
Acetone	0.19	0.061	0.045	0.098
Benzene	0.018	0.025	0.019	0.020
Bromodichloromethane	0.019	0.018	0.018	0.019
Bromoform	<0.011	<0.010	<0.011	<0.011
Bromomethane	<0.011	<0.011	<0.012	<0.011
1,3-Butadiene	<0.019	<0.018	<0.020	<0.019
2-Butanone	<0.027	<0.027	<0.029	<0.028
Carbon Tetrachloride	<0.012	<0.012	<0.013	<0.012
Chlorobenzene	<0.0083	<0.0081	<0.0089	<0.0084
Chloroform	0.021	0.020	0.020	0.020
Cumene (Isopropylbenzene)	<0.019	<0.018	<0.020	<0.019
Dibromochloromethane	0.0085	0.0079	<0.0083	<0.0082
Dichlorodifluoromethane	<0.018	<0.019	<0.016	<0.017
1,2-Dichloroethane	<0.0053	<0.0052	<0.0056	<0.0054
trans,1,2-Dichloroethene	<0.0075	<0.0074	<0.0081	<0.0077
1,1-Dichloroethene	<0.0083	<0.0081	<0.0089	<0.0084
1,2-Dichloropropane	<0.0083	<0.0081	<0.0089	<0.0084
Ethylbenzene	<0.013	<0.010	<0.011	<0.011
Ethylene Dibromide	<0.0075	<0.0074	<0.0081	<0.0077
Mesitylene (1,3,5-Trimethylbenzene)	<0.019	<0.018	<0.020	<0.019
Methylene Chloride	<0.016	<0.016	<0.015	<0.016
Styrene	<0.0095	<0.0088	<0.0097	<0.0094
Tetrachloroethene	0.031	<0.013	<0.017	<0.020
Toluene	0.093	0.025	0.021	0.047
1,1,1-Trichloroethane	<0.011	<0.010	<0.011	<0.011
Trichloroethene	<0.0083	<0.0081	<0.0089	<0.0084
1,1,2-Trichloroethane	<0.012	<0.012	<0.013	<0.012
Trichlorotrifluoroethane	<0.019	<0.018	<0.020	<0.019
Trichlorofluoromethane	<0.0075	<0.0074	<0.0081	<0.0077
M&P-Xylene	<0.014	<0.011	<0.012	<0.012
O-Xylene	<0.011	<0.011	<0.012	<0.011
Vinyl Chloride	<0.0098	<0.0096	<0.010	<0.010
Total	<0.69	<0.47	<0.47	<0.54

TABLE 93
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Volatile Organic Emission Data

Compound	Actual Concentration $\mu g/m^3$	Dry Reference Concentration $\mu g/Rm^3$*	Dry Adjusted Concentration $\mu g/Rm^3$*	Wet Reference Concentration $\mu g/Rm^3$*	Emission Rate mg/s
Acetone	3.83	6.56	5.04	5.52	0.098
Benzene	0.80	1.37	1.05	1.14	0.020
Bromodichloromethane	0.73	1.25	0.96	1.05	0.019
Bromoform	<0.42	<0.72	<0.55	<0.60	<0.011
Bromomethane	<0.45	<0.77	<0.59	<0.64	<0.011
1,3-Butadiene	<0.75	<1.28	<0.98	<1.07	<0.019
2-Butanone	<1.08	<1.85	<1.42	<1.55	<0.028
Carbon Tetrachloride	<0.48	<0.82	<0.63	<0.69	<0.012
Chlorobenzene	<0.33	<0.56	<0.43	<0.47	<0.0084
Chloroform	0.80	1.37	1.05	1.14	0.020
Cumene (Isopropylbenzene)	<0.75	<1.28	<0.98	<1.07	<0.019
Dibromochloromethane	<0.32	<0.55	<0.42	<0.46	<0.0082
Dichlorodifluoromethane	<0.68	<1.17	<0.90	<0.98	<0.017
1,2-Dichloroethane	<0.21	<0.36	<0.28	<0.30	<0.0054
trans,1,2-Dichloroethene	<0.30	<0.51	<0.39	<0.43	<0.0077
1,1-Dichloroethene	<0.33	<0.56	<0.43	<0.47	<0.0084
1,2-Dichloropropane	<0.33	<0.56	<0.43	<0.47	<0.0084
Ethylbenzene	<0.44	<0.76	<0.59	<0.64	<0.011
Ethylene Dibromide	<0.30	<0.51	<0.39	<0.43	<0.0077
Mesitylene (1,3,5-Trimethylbenzene)	<0.75	<1.28	<0.98	<1.07	<0.019
Methylene Chloride	<0.62	<1.06	<0.81	<0.89	<0.016
Styrene	<0.36	<0.63	<0.48	<0.52	<0.0094
Tetrachloroethene	<0.79	<1.36	<1.04	<1.14	<0.020
Toluene	1.83	3.13	2.41	2.64	0.047
1,1,1-Trichloroethane	<0.42	<0.72	<0.55	<0.60	<0.011
Trichloroethene	<0.33	<0.56	<0.43	<0.47	<0.0084
1,1,2-Trichloroethane	<0.48	<0.82	<0.63	<0.69	<0.012
Trichlorotrifluoroethane	<0.75	<1.28	<0.98	<1.07	<0.019
Trichlorofluoromethane	<0.30	<0.51	<0.39	<0.43	<0.0077
M&P-Xylene	<0.48	<0.83	<0.64	<0.70	<0.012
O-Xylene	<0.45	<0.77	<0.59	<0.64	<0.011
Vinyl Chloride	<0.39	<0.67	<0.51	<0.56	<0.010
Total	<21.2	<36.4	<28.0	<30.6	<0.54

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 94
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Blank Volatile Organic Analyses

Compound	Field Blank Tube 10A/10B µg	Field Blank Tube 15A/15B µg	Field Blank Tube 21A/21B µg	Trip Blank Tube 30A/30B µg	Method Blank µg
Acetone	<0.045	<0.045	<0.045	<0.045	<0.045
Benzene	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090
Bromodichloromethane	<0.011	<0.011	<0.011	<0.011	<0.011
Bromoform	<0.014	<0.014	<0.014	<0.014	<0.014
Bromomethane	<0.015	<0.015	<0.015	<0.015	<0.015
1,3-Butadiene	<0.025	<0.025	<0.025	<0.025	<0.025
2-Butanone	<0.036	<0.036	<0.036	<0.036	<0.036
Carbon Tetrachloride	<0.016	<0.016	<0.016	<0.016	<0.016
Chlorobenzene	<0.011	<0.011	<0.011	<0.011	<0.011
Chloroform	<0.011	<0.011	<0.011	<0.011	<0.011
Cumene (Isopropylbenzene)	<0.025	<0.025	<0.025	<0.025	<0.025
Dibromochloromethane	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090
Dichlorodifluoromethane	<0.020	<0.020	<0.020	<0.020	<0.020
1,2-Dichloroethane	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
trans,1,2-Dichloroethene	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethene	<0.011	<0.011	<0.011	<0.011	<0.011
1,2-Dichloropropane	<0.011	<0.011	<0.011	<0.011	<0.011
Ethylbenzene	<0.014	<0.014	<0.014	<0.014	<0.014
Ethylene Dibromide	<0.010	<0.010	<0.010	<0.010	<0.010
Mesitylene (1,3,5-Trimethylbenzene)	<0.025	<0.025	<0.025	<0.025	<0.025
Methylene Chloride	<0.019	<0.019	<0.019	<0.019	<0.019
Styrene	<0.012	<0.012	<0.012	<0.012	<0.012
Tetrachloroethene	<0.018	<0.018	<0.018	<0.018	<0.018
Toluene	<0.014	<0.014	<0.014	<0.014	<0.014
1,1,1-Trichloroethane	<0.014	<0.014	<0.014	<0.014	<0.014
Trichloroethene	<0.011	<0.011	<0.011	<0.011	<0.011
1,1,2-Trichloroethane	<0.016	<0.016	<0.016	<0.016	<0.016
Trichlorotrifluoroethane	<0.025	<0.025	<0.025	<0.025	<0.025
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	<0.010
M&P-Xylene	<0.015	<0.015	<0.015	<0.015	<0.015
O-Xylene	<0.015	<0.015	<0.015	<0.015	<0.015
Vinyl Chloride	<0.013	<0.013	<0.013	<0.013	<0.013
Total	<0.52	<0.52	<0.52	<0.52	<0.52

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit).
For the purpose of determining the total analytical results for each compound, any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

APPENDIX 3

Particulate and Metals Field Data Sheets
(30 pages)

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	Particulate/Metals
Test Date	May 2, 2016
Test Location	APC Outlet No. 1
Operator Signature	Angela Moran

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 1	
Impinger Box No.:	7	

Pitot Factor	.841	
DGMCF	.983	
Barometric Pressure	29.74	"Hg
Static Pressure	-9.3	"H2O
Nozzle Size	.2539	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	6	inches

Particulate Gain

Filter	1.30	mg
Probe	3.1	mg

Moisture Gain

CWTR	465.7	g
WCBDA	20.1	g

Combustion Gas Concentration

Oxygen	7.46	%
Carbon Dioxide	11.69	%
Carbon Monoxide	16.2	ppm

Measuring Device	MII Numbers
Probe / Pitot S2	B037162
Trendicator	COE20094
Control Box TEAM 1	COE20094
Incline Manometer	COE20094
Comb.Gas.Analyzer	
Micromanometer	—
Barometer	ENV. CAN.
Calipers	CAN22136

Nozzle Measurements	
1	0.2535
2	0.2545
3	0.2540
4	0.2535
Average:	0.2539

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

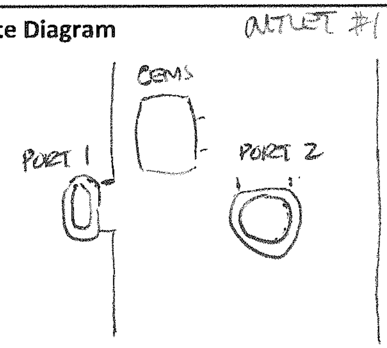
Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal /Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram



Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 2/16	Plant: Covanta DYEC	Test No.: Particulate/Metals	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
1	0	66.16	.69	.72	279	246	255	68	91	78	78	1.8	3.0
	2.5	68.29	.75	.74	287	246	257	52	198	79	78	1.7	3.0
	5	70.10	.79	.76	288	245	256	49	210	79	78	1.8	3.0
2	7.5	71.93	.75	.74	289	246	256	47	210	79	79	1.8	3.0
	10	73.78	.73	.73	289	246	256	45	210	79	79	1.8	3.0
	12.5	75.63	.79	.76	290	247	256	44	211	80	79	1.9	3.0
3	15	77.51	.66	.70	292	247	256	44	211	80	79	1.65	3.0
	17.5	79.29	.68	.71	292	247	256	43	210	80	79	1.7	3.0
	20	81.05	.74	.74	292	247	256	43	210	80	79	1.8	3.0
4	22.5	82.89	.66	.70	292	247	256	43	210	80	79	1.7	3.0
	25	~~83.96~~ 84.67	.63	.68	291	247	256	43	211	80	79	1.6	3.0
	27.5	86.42	.72	.73	291	247	256	43	211	81	79	1.8	3.0
5	30	88.25	.67	.70	291	247	256	43	212	80	79	1.7	3.0
	32.5	90.05	.64	.69	291	247	256	43	213	81	79	1.7	3.0
	35	91.84	.69	.71	291	247	256	43	219	81	79	1.7	3.0
6	37.5	93.62	.71	.72	292	246	255	43	219	81	79	1.7	3.0
	40	95.40	.64	.69	293	247	256	44	199	81	80	1.7	3.0
	42.5	97.18	.70	.72	294	247	256	43	210	81	80	1.8	3.0
7	45	99.00	.68	.71	295	247	255	43	211	81	80	1.75	3.0
	47.5	100.79	.66	.70	295	246	256	43	211	82	80	1.7	3.0
	50	102.58	.64	.69	296	247	256	43	211	82	80	1.7	3.0

Traverse: Port 2			
Start Time: 10:45	Initial Leak Check: .007	cfm@ 15	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: May 2/16	Plant:	Covanta DYEC	Test No.:	Particulate/Metals	Page 3 of 5
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
8	52.5	104.36	.167	.170	296	247	256	44	211	82	80	1.7	3.0
	55	106.14	.165	.169	296	246	256	44	211	82	80	1.7	3.0
	57.5	107.90	.169	.171	296	247	256	43	211	82	80	1.8	3.0
9	60	109.71	.167	.170	295	246	255	43	210	82	80	1.8	3.0
	62.5	111.53	.165	.169	294	247	256	43	211	82	80	1.7	3.0
	65	113.31	.165	.169	293	246	256	43	211	82	80	1.7	3.0
10	67.5	115.08	.159	.166	292	246	255	43	212	82	80	1.5	3.0
	70	116.79	.160	.167	292	246	256	43	213	82	80	1.5	3.0
	72.5	118.48	.160	.167	293	246	256	43	216	82	81	1.5	3.0
11	75	120.18	.150	.161	293	246	256	44	218	82	81	1.2	3.0
	77.5	121.75	.154	.163	292	246	256	44	217	83	81	1.2	3.0
	80	123.28	.150	.161	292	245	256	44	216	82	81	1.2	3.0
12	82.5	124.81	.150	.161	291	245	256	44	216	82	81	1.2	3.0
	85	126.35	.158	.166	291	245	255	44	216	83	81	1.4	3.0
	87.5	128.00	.155	.164	290	246	256	44	216	83	81	1.3	3.0
	90	129.60											

Traverse: PORT 2		
Start Time: —	Initial Leak Check: — cfm@ — "Hg	
Finish Time: 12:15	Final Leak Check: .006 cfm@ 15 "Hg	

Project No.: 21656

Operator : AN

Field Data Sheet

Date: May 2/16	Plant: Covanta DYEC	Test No.: 1 Particulate/Metals	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot ΔP "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure ΔH "H_2O	* Pump Vacuum "Hg Gauge
1	0	130.20	.72	.73	283	246	256	63	162	82	81	1.9	3.5
	2.5	132.10	.77	.76	288	246	257	54	207	82	81	1.9	3.5
	5	134.00	.74	.74	288	245	256	48	212	82	82	1.85	3.5
2	7.5	135.88	.70	.72	287	246	256	47	217	83	82	1.75	3.5
	10	137.68	.68	.71	287	246	256	46	219	83	82	1.75	3.5
	12.5	139.51	.74	.74	286	246	256	46	221	83	82	1.85	3.5
3	15	141.40	.67	.71	286	246	256	46	222	83	82	1.7	3.5
	17.5	143.17	.66	.70	285	246	256	46	221	83	82	1.7	3.5
	20	144.95	.72	.73	285	246	256	46	223	83	82	1.8	3.0
4	22.5	146.79	.69	.72	285	246	256	46	225	83	82	1.8	3.0
	25	148.63	.64	.69	286	247	256	46	225	83	82	1.6	3.0
	27.5	150.38	.68	.71	286	246	256	47	225	83	82	1.7	3.0
5	30	152.15	.65	.70	285	246	256	47	225	84	82	1.7	3.0
	32.5	153.92	.63	.69	285	247	256	48	225	83	82	1.7	3.0
	35	155.67	.60	.67	285	247	257	49	225	84	83	1.6	3.0
6	37.5	157.40	.63	.69	285	247	256	48	225	84	83	1.5	3.0
	40	159.10	.61	.68	286	246	256	50	225	84	83	1.5	3.0
	42.5	160.79	.58	.66	286	247	256	50	225	84	83	1.5	3.0
7	45	162.50	.63	.69	287	247	256	50	225	84	83	1.6	3.0
	47.5	164.21	.59	.67	286	247	256	50	210	84	83	1.6	3.0
	50	165.93	.59	.67	286	247	256	49	210	84	82	1.5	3.0

Traverse: PORT 1			
Start Time: 12:46	Initial Leak Check: .004	cfm@ 14.0	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: May 2/16	Plant:	Covanta DYEC	Test No.:	Particulate/Metals	Page 5 of 5
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	52.5	167.63	.59	.167	286	247	256	48	210	84	83	1.5	3.0
	55	169.30	.59	.167	286	247	256	48	210	84	83	1.5	3.0
	57.5	171.00	.59	.167	286	247	256	48	210	85	83	1.5	3.0
9	60	172.67	.55	.164	286	247	256	47	210	85	83	1.4	3.0
	62.5	174.30	.61	.169	285	247	256	47	210	85	83	1.6	3.0
	65	176.04	.56	.165	284	247	256	47	210	85	83	1.4	3.0
10	67.5	177.69	.42	.156	285	247	256	47	210	84	83	1.0	3.0
	70	179.13	.41	.156	284	246	256	47	209	84	83	1.0	3.0
	72.5	180.52	.41	.156	284	246	256	47	209	85	83	1.0	3.0
11	75	181.91	.54	.164	285	246	256	47	209	85	83	1.3	3.0
	77.5	183.42	.54	.164	285	246	256	47	211	85	83	1.5	3.0
	80	185.10	.53	.163	284	246	256	47	214	85	83	1.4	3.0
12	82.5	186.75	.45	.158	284	246	256	48	217	85	83	1.1	3.0
	85	188.25	.45	.158	284	246	256	48	217	85	83	1.1	3.0
	87.5	189.72	.43	.157	285	246	257	48	216	85	83	1.1	3.0
	90	191.14											

Traverse: Port 1				
Start Time: —	Initial Leak Check: —	cfm@	—	"Hg
Finish Time: 14:16	Final Leak Check: .005	cfm@	15	"Hg

Project No.: 21656

Operator : AN

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 Particulate/Metals
Test Date	May 2, 2016
Test Location	APC Outlet No. 1
Operator Signature	Angela Nolan

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 1	
Impinger Box No.:	5	

Measuring Device	MII Numbers
Probe / Pitot ~~88~~	~~B03709~~ SEE T1
Trendicator	SEE
Control Box	
Incline Manometer	TEST
Comb.Gas.Analyzer	
Micromanometer	
Barometer	#1
Calipers	

Pitot Factor	~~.846~~ .841	
DGMCF	.983	
Barometric Pressure	29.73	"Hg
Static Pressure	-9.3	"H2O
Nozzle Size	.2539	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	1.20	mg
Probe	1.9	mg

Moisture Gain

CWTR	446.0	g
WCBDA	19.5	g

Combustion Gas Concentration

Oxygen	7.75	%
Carbon Dioxide	11.24	%
Carbon Monoxide	16.9	ppm

Nozzle Measurements	
1	0.2535
2	0.2540
3	0.2535
4	0.2545
Average:	0.2539

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / ~~Teflon~~ / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: 05/02/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	91.78	.75	.75	280	247	252	75	65	84	83	2.0	3.0
	2.5	93.70	.75	.75	285	247	252	65	184	84	83	1.9	3.0
	5	95.63	.71	.73	286	246	250	60	211	84	83	1.8	3.0
2	7.5	97.46	.73	.74	285	246	250	59	212	84	83	1.9	3.0
	10	99.33	.74	.75	285	247	253	58	212	83	83	1.9	3.0
	12.5	101.23	.74	.75	285	247	253	58	212	83	84	1.9	3.0
3	15	103.10	.68	.72	284	246	253	59	212	84	83	1.75	3.0
	17.5	104.92	.67	.71	284	246	254	58	211	84	83	1.7	3.0
	20	106.73	.68	.72	284	240	254	59	211	84	83	1.7	3.0
4	22.5	108.55	.61	.68	284	246	254	60	211	83	83	1.5	3.0
	25	110.23	.63	.69	283	246	254	58	212	84	83	1.6	3.0
	27.5	111.88	.68	.72	284	245	255	56	213	84	87	1.7	3.0
5	30	113.76	.72	.74	284	245	254	54	212	84	83	1.9	3.0
	32.5	115.63	.71	.74	284	246	254	53	212	84	83	1.9	3.0
	35	117.50	.68	.72	286	247	256	56	213	86	86	1.7	3.0
6	37.5	119.35	.60	.67	285	246	256	53	212	85	84	1.6	3.0
	40	121.10	.60	.67	285	246	256	53	212	85	84	1.6	3.0
	42.5	122.79	.61	.67	286	245	255	55	231	84	83	1.6	3.0
7	45	124.54	.55	.64	285	246	256	53	270	84	83	1.45	3.0
	47.5	126.24	.57	.64	285	246	256	53	230	84	83	1.45	3.0
	50	127.87	.56	.64	285	245	255	50	231	84	87	1.45	3.0

Traverse: PORT 1					
Start Time: 15:00	Initial Leak Check:	.008	cfm@	15	"Hg
Finish Time: —	Final Leak Check:	—	cfm@	—	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/02/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	52.5	129.54	.57	.65	285	246	256	50	232	84	83	1.5	3.0
	55	131.22	.60	.65	284	246	255	50	232	84	83	1.5	3.0
	57.5	132.92	.61	.65	284	246	255	50	232	84	83	1.5	3.0
9	60	134.58	.59	.67	284	245	255	49	233	85	83	1.6	3.0
	62.5	136.30	.58	.66	284	245	255	49	233	85	84	1.5	3.0
	65	138.01	.59	.67	284	245	256	49	233	84	83	1.5	3.0
10	67.5	139.70	.55	.64	284	245	255	49	232	85	83	1.4	3.0
	70	141.32	.50	.61	284	245	255	49	232	84	83	1.3	3.0
	72.5	142.89	.53	.63	284	245	255	50	230	85	84	1.35	3.0
11	75	144.47	.48	.60	283	245	256	50	230	85	84	1.3	3.0
	77.5	146.05	.50	.62	283	245	256	50	230	85	84	1.3	3.0
	80	147.65	.48	.60	283	244	255	51	231	85	84	1.2	3.0
12	82.5	149.17	.50	.62	283	245	256	51	230	85	84	1.3	3.0
	85	150.73	.50	.62	283	245	255	51	230	85	84	1.3	3.0
	87.5	152.28	.53	.63	283	244	256	51	230	85	84	1.3	3.0
	90	153.85											

Traverse: PORT 1				
Start Time: —	Initial Leak Check: —	cfm@	—	"Hg
Finish Time: 16:30	Final Leak Check: .005	cfm@	16	"Hg

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: 05/02/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	154.60	.81	.78	280	246	258	65	160	84	83	2.1	3.5
	2.5	156.59	.85	.80	284	246	254	55	221	84	83	2.1	3.5
	5	158.63	.83	.79	285	247	256	49	234	84	84	2.1	3.5
2	7.5	160.64	.83	.79	286	247	257	49	236	84	84	2.1	3.5
	10	162.65	.74	.75	286	247	257	47	238	84	84	1.9	3.5
	12.5	164.55	.75	.75	286	248	257	47	238	84	84	1.9	3.5
3	15	166.45	.78	.76	287	248	256	47	238	83	83	1.9	3.5
	17.5	168.38	.84	.79	288	247	256	48	239	84	83	2.1	4.0
	20	170.37	.85	.80	288	248	256	47	240	84	84	2.1	4.0
4	22.5	172.38	.81	.78	288	248	256	47	240	84	84	2.1	4.0
	25	174.33	.80	.78	290	248	256	48	241	84	83	2.1	4.0
	27.5	176.36	.80	.78	290	248	256	49	242	83	83	2.1	4.0
5	30	178.35	.80	.77	292	248	256	49	242	84	83	2.1	4.0
	32.5	180.36	.75	.75	293	249	255	49	241	84	83	1.95	4.0
	35	182.28	.74	.74	293	249	255	49	242	84	83	1.95	4.0
6	37.5	184.26	.73	.74	293	248	257	50	240	84	83	1.95	4.0
	40	186.08	.64	.69	293	248	257	51	241	84	83	1.6	3.5
	42.5	187.87	.65	.70	293	248	256	51	239	84	83	1.6	3.5
7	45	189.63	.69	.72	292	248	256	51	238	84	83	1.7	3.5
	47.5	191.41	.67	.71	291	249	257	51	239	84	83	1.7	3.5
	50	193.19	.67	.71	290	248	256	50	239	84	83	1.7	3.5

Traverse: PORT 2				
Start Time: 16:44	Initial Leak Check: .005	cfm@ 16	"Hg	
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg	

Project No.: 21656

Operator : FN

Field Data Sheet

Date: 05/02/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	52.5	195.00	.168	.71	290	248	256	57	239	84	83	1.7	3.5
	55	196.78	.168	.71	289	248	256	57	239	84	83	1.7	3.5
	57.5	198.57	.168	.71	289	248	256	51	239	84	83	1.7	3.5
9	60	200.38	.168	.71	289	248	257	52	239	84	83	1.7	3.5
	62.5	202.17	.168	.71	288	248	257	50	236	84	83	1.7	3.5
	65	203.97	.168	.71	288	248	255	49	237	84	83	1.7	3.5
10	67.5	205.78	.161	.168	288	248	256	48	236	84	83	1.5	3.5
	70	207.47	.161	.168	289	248	256	48	236	84	83	1.5	3.5
	72.5	209.16	.161	.168	287	255	261	51	237	86	85	1.5	3.5
11	75	210.84	.160	.167	287	248	256	47	235	84	83	1.5	3.5
	77.5	212.52	.155	.164	287	247	256	47	234	84	83	1.4	3.5
	80	214.16	.157	.165	286	247	256	48	234	84	83	1.4	3.5
12	82.5	215.80	.156	.165	286	247	256	48	234	84	83	1.4	3.5
	85	217.43	.150	.161	285	247	256	48	234	84	83	1.2	3.0
	87.5	218.98	.150	.161	285	246	257	49	233	84	83	1.2	3.0
	90	220.57											

Traverse: PORT 2			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 18:14	Final Leak Check: .004	cfm@ 15	"Hg

Project No.: 21656

Operator : AN

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particulate/Metals
Test Date	May 4 2016
Test Location	APC Outlet No. 1
Operator Signature	

Project No.:	21656
Page	1 of 5
Probe No.:	6-Series
Meter Box No.:	Team 1
Impinger Box No.:	5

Pitot Factor	.841	
DGMCF	.983	
Barometric Pressure	29.44	"Hg
Static Pressure	-12.2	"H2O
Nozzle Size	.2531	inches
Stack Diameter	4.5	feet
Length	-	feet
Width	-	feet
Port length:		inches

Particulate Gain

Filter	60.3	mg
Probe	0.9	mg

Moisture Gain

CWTR	432.6	g
WCBDA	19.4	g

Combustion Gas Concentration

Oxygen	7.09	%
Carbon Dioxide	11.73	%
Carbon Monoxide	19.4	ppm

Measuring Device	MII Numbers
Probe / Pitot S2	B03762
Trendicator	COE20094
Control Box	COE 20094
Incline Manometer	COE 20094
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Nozzle Measurements	
1	.2530
2	.2535
3	.2530
4	.2530
Average:	.2531

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: May 4, 2016	Plant: Covanta DYEC	Test No.: 3	Particulate/Metals	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	* Clock Time	* Dry Gas Meter ft³	* Pitot ΔP "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure ΔH "H_2O	* Pump Vacuum "Hg Gauge
1	0	85.76	.59	.67	288	252	255	78	67	84	83	1.5	3
	2.5	87.53	.72	.73	292	248	257	59	209	85	84	1.9	3.5
	5	89.37	.75	.75	292	248	258	55	210	85	84	1.95	3.5
2	7.5	91.24	.79	.77	292	249	258	54	210	84	84	2.05	3.5
	10	93.17	.76	.75	293	249	257	51	208	84	84	2.0	3.5
	12.5	95.10	.77	.76	293	248	257	51	216	84	84	2.0	3.5
3	15	97.04	.71	.73	293	249	257	50	216	84	84	1.85	3.5
	17.5	98.90	.73	.74	293	248	256	49	239	85	84	1.9	3.5
	20	100.76	.71	.73	293	248	256	50	239	85	84	1.8	3.5
4	22.5	102.60	.70	.72	292	249	257	50	240	85	84	1.75	3.5
	25	104.44	.64	.69	292	249	257	49	238	85	84	1.6	3
	27.5	106.18	.69	.72	291	249	256	49	238	85	84	1.8	3
5	30	108.03	.64	.69	290	249	257	49	238	85	84	1.6	3
	32.5	109.78	.61	.68	290	249	257	50	237	85	84	1.55	3
	35	111.48	.67	.71	290	249	257	50	238	85	84	1.7	3
6	37.5	113.26	.68	.71	291	249	257	50	239	85	84	1.7	3
	40	115.06	.65	.70	291	249	256	50	239	86	84	1.7	3
	42.5	116.84	.61	.68	292	249	257	50	237	86	84	1.55	3
7	45	118.57	.57	.65	291	249	257	50	236	86	84	1.4	3
	47.5	120.23	.54	.63	292	249	257	50	233	85	84	1.3	3
	50	121.80	.55	.64	293	248	256	50	234	86	84	1.4	3

Traverse:					
Start Time: 14:56	Initial Leak Check:	0.04	cfm@	16	"Hg
Finish Time:	Final Leak Check:		cfm@		"Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 4, 2016	Plant: Covanta DYEC	Test No.: 3	Particulate/Metals	
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
8	52.5	123.44	.63	.69	294	249	257	50	235	86	85	1.6	3
	55	125.16	.60	.67	294	249	256	49	235	86	85	1.5	3
	57.5	126.85	.58	.66	294	248	256	49	236	86	85	1.4	3
9	60	128.47	.61	.68	293	248	256	49	235	86	85	1.5	3
	62.5	130.17	.61	.68	292	248	256	49	235	87	85	1.5	3
	65	131.85	.65	.70	292	249	257	50	235	87	85	1.65	3
10	67.5	133.62	.61	.68	290	248	256	50	236	87	85	1.6	3
	70	135.36	.58	.66	288	249	256	50	235	87	85	1.5	3
	72.5	137.04	.58	.66	287	248	256	50	235	87	85	1.5	3
11	75	138.70	.49	.61	287	248	257	51	235	87	85	1.2	3
	77.5	140.25	.50	.61	287	248	256	52	233	86	85	1.25	3
	80	141.79	.51	.62	286	248	256	52	233	87	85	1.3	3
12	82.5	143.38	.51	.62	286	247	256	52	233	87	85	1.3	3
	85	144.93	.44	.58	285	248	256	52	232	87	85	1.05	3
	87.5	146.39	.43	.57	285	247	256	52	231	87	86	1.05	3
	90	147.84											

Traverse:		
Start Time: —	Initial Leak Check: — cfm@ — "Hg	
Finish Time: 16:26	Final Leak Check: .005 cfm@ 16 "Hg	

Project No.: 21656

Operator :

Field Data Sheet

Date: May 4, 2016	Plant: Covanta DYEC	Test No.: 3 Particulate/Metals	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	148.42	.60	.67	285	247	256	68	152	87	86	1.6	3
	2.5	150.19	.67	.71	289	248	257	57	221	87	86	1.7	3
	5	151.99	.65	.70	289	248	258	54	236	87	86	1.65	3
2	7.5	153.77	.69	.72	288	248	258	54	238	87	86	1.75	3
	10	155.57	.67	.71	287	248	257	53	239	87	86	1.75	3
	12.5	157.39	.64	.70	287	249	258	53	234	87	86	1.6	3
3	15	159.16	.64	.70	286	248	257	53	208	87	86	1.6	3
	17.5	160.92	.64	.70	286	248	257	52	210	87	86	1.6	3
	20	162.67	.62	.69	286	248	257	51	210	87	86	1.6	3
4	22.5	164.41	.61	.68	286	248	257	51	210	88	86	1.55	3
	25	166.14	.61	.68	286	249	257	51	211	88	86	1.55	3
	27.5	167.85	.60	.67	286	248	257	50	235	88	86	1.55	3
5	30	169.54	.59	.67	286	248	257	50	236	88	86	1.55	3
	32.5	171.27	.59	.67	288	249	257	50	237	87	87	1.55	3
	35	172.96	.58	.66	288	249	257	50	236	87	86	1.55	3
6	37.5	174.65	.53	.63	289	249	257	50	236	88	86	1.35	3
	40	176.27	.52	.63	289	249	257	50	235	88	87	1.3	3
	42.5	177.87	.52	.63	289	249	257	50	235	88	87	1.3	3
7	45	179.47	.54	.64	289	249	257	50	234	88	87	1.4	3
	47.5	181.07	.53	.63	289	249	257	51	234	88	87	1.4	3
	50	182.69	.54	.64	289	248	257	51	235	88	87	1.4	3

Traverse:					
Start Time: 16:35	Initial Leak Check:	.004	cfm@	16	"Hg
Finish Time: —	Final Leak Check:	—	cfm@	—	"Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 4 2016	Plant: Covanta DYEC	Test No.: 3	Particulate/Metals	
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
8	52.5	184.32	.57	.66	288	248	257	51	234	88	87	1.45	3
	55	185.97	.56	.65	288	248	257	51	236	88	87	1.45	3
	57.5	187.65	.56	.65	288	249	257	52	236	88	87	1.4	3
9	60	189.29	.60	.67	287	248	257	52	235	88	87	1.55	3
	62.5	191.00	.60	.67	287	248	256	51	234	88	87	1.55	3
	65	192.70	.59	.67	287	247	257	51	234	88	87	1.55	3
10	67.5	194.43	.59	.67	286	249	258	51	234	88	87	1.55	3
	70	196.12	.57	.66	285	247	257	51	234	88	87	1.45	3
	72.5	197.79	.57	.66	285	248	257	51	234	88	87	1.45	3
11	75	199.45	.53	.64	285	248	257	51	234	88	87	1.3	3
	77.5	201.04	.57	.66	284	248	257	52	234	88	87	1.45	3
	80	202.70	.57	.66	285	248	257	51	234	88	87	1.45	3
12	82.5	204.37	.51	.62	285	247	256	51	235	88	87	1.3	3
	85	205.92	.51	.62	284	248	257	52	234	88	87	1.3	3
	87.5	207.50	.50	.62	285	247	256	52	234	88	87	1.3	3
	90	209.08											

Traverse:		
Start Time: —	Initial Leak Check: — cfm@ — "Hg	
Finish Time: 18:05	Final Leak Check: .005 cfm@ 15 "Hg	

Project No.: 21656
Operator :

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	1 Particulate/Metals
Test Date	May 3, 2016
Test Location	APC Outlet No. 2
Operator Signature	Angela Nolan

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 4	
Impinger Box No.:	7	

Measuring Device	MII Numbers
Probe / Pitot S2	B037762
Trendicator	OE20090
Control Box TEAM 4	OE20090
Incline Manometer	OE20090
Comb.Gas.Analyzer	
Micromanometer	—
Barometer	ENV. CAN.
Calipers	CAN 22136

Pitot Factor	.841	
DGMCF	.984	
Barometric Pressure	29.65	"Hg
Static Pressure	-10.0	"H2O
Nozzle Size	.2539	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Particulate Gain

Filter	60.3	mg
Probe	1.8	mg

Moisture Gain

CWTR	482.7	g
WCBDA	19.2	g

Combustion Gas Concentration

Oxygen	8.41	%
Carbon Dioxide	10.94	%
Carbon Monoxide	24.4	ppm

Nozzle Measurements

1 0.2535
2 0.2545
3 0.2540
4 0.2535
Average: 0.2539

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

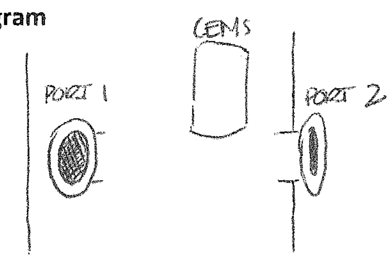
Probe Liner Glass / Metal / Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None / Metal / ~~Teflon~~ / Other__________

Pitot Leak Checked? Yes No

Site Diagram



Notes:

Rev. November 27, 2014

Field Data Sheet

Date: 05/03/16	Plant: Covanta DYEC	Test No.: 1 Particulate/Metals	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
*	*	*	*		*			*		*	*	*	*
1	0	76.93	.91	.81	285	247	246	61	95	75	75	2.3	6.0
	2.5	78.98	.94	.82	293	244	250	45	201	76	76	2.4	6.0
	5	81.17	.95	.83	293	243	248	39	211	76	76	2.4	6.0
2	7.5	83.37	.95	.83	294	243	253	37	216	76	76	2.3	6.0
	10	85.52	.96	.83	294	244	247	37	217	76	77	2.2	5.5
	12.5	87.62	.94	.82	294	244	250	36	218	77	77	2.1	5.5
3	15	89.66	.92	.81	294	244	251	37	218	77	77	2.1	5.5
	17.5	91.69	.90	.81	293	244	249	37	219	77	78	2.0	5.0
	20	93.71	.87	.79	293	244	253	37	219	77	79	2.0	5.0
4	22.5	95.70	.82	.77	293	244	247	37	220	77	79	1.9	5.0
	25	97.64	.83	.78	293	244	252	37	220	77	80	1.9	5.0
	27.5	99.61	.82	.77	293	244	246	38	220	77	81	1.9	5.0
5	30	101.55	.78	.75	294	244	252	38	221	77	82	1.8	5.0
	32.5	103.44	.74	.73	293	244	246	39	220	77	82	1.7	5.0
	35	105.29	.74	.73	293	244	251	40	220	77	83	1.7	5.0
6	37.5	107.14	.69	.71	293	243	252	40	218	78	84	1.5	5.0
	40	108.91	.69	.71	292	244	250	39	218	78	84	1.6	5.0
	42.5	110.69	.69	.71	292	243	252	39	217	78	85	1.6	5.0
7	45	112.49	.68	.71	292	244	247	39	218	78	85	1.6	5.0
	47.5	114.30	.64	.69	292	244	254	38	217	78	86	1.5	5.0
	50	116.05	.66	.70	291	243	249	38	217	78	86	1.5	5.0

Traverse: PORT 2				
Start Time: 08:47	Initial Leak Check: .004	cfm@ 16	"Hg	
Finish Time: ——	Final Leak Check: ——	cfm@ ——	"Hg	

Stopped

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: 05/03/16	Plant: Covanta DYEC	Test No.: | Particulate/Metals	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft³	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
8	52.5	117.79	.67	.70	293	243	254	38	217	79	86	1.6	5.0
	55	119.57	.67	.70	290	243	248	38	218	79	87	1.6	5.0
	57.5	121.36	.67	.70	290	243	253	38	218	79	87	1.6	5.0
9	60	123.14	.70	.72	290	243	247	38	217	79	87	1.7	5.0
	62.5	124.95	.72	.73	290	243	249	38	217	79	87	1.7	5.0
	65	126.81	.71	.72	291	243	253	39	218	79	87	1.7	5.0
10	67.5	128.65	.71	.72	290	243	247	39	218	79	87	1.7	5.0
	70	130.48	.70	.72	289	243	253	39	218	79	87	1.6	5.0
	72.5	132.28	.70	.72	289	243	249	39	218	80	87	1.6	5.0
11	75	134.07	.66	.70	289	243	250	40	218	80	87	1.6	5.0
	77.5	135.86	.66	.70	289	243	252	40	218	80	87	1.5	5.0
	80	137.65	.63	.68	289	243	248	40	218	80	87	1.5	5.0
12	82.5	139.38	.60	.67	287	243	253	40	217	80	88	1.4	5.0
	85	141.06	.60	.67	285	243	247	41	216	80	88	1.4	5.0
	87.5	142.74	.61	.68	285	243	252	41	217	80	89	1.4	5.0
	90	144.44											

Traverse: PORT 2			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 10:17	Final Leak Check: .002	cfm@ 17	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/03/16	Plant: Covanta DYEC	Test No.: 1 Particulate/Metals	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
1	0	144.97	.79	.76	285	243	248	54	154	80	82	2.0	6.0
	2.5	146.91	.78	.76	288	244	252	46	209	80	83	1.8	5.5
	5	148.85	.76	.75	288	243	250	41	215	80	84	1.7	5.5
2	7.5	150.73	.78	.76	287	243	250	39	216	80	84	1.8	5.5
	10	152.63	.80	.77	287	243	254	38	217	80	85	1.9	5.5
	12.5	154.57	.79	.77	286	244	248	38	219	80	85	1.9	5.5
3	15	156.50	.75	.75	287	244	254	38	219	80	86	1.8	5.5
	17.5	158.42	.75	.75	286	244	248	37	217	80	86	1.7	5.5
	20	160.29	.76	.75	286	244	255	37	217	80	86	1.8	5.5
4	22.5	162.19	.73	.74	286	244	247	37	218	81	87	1.7	5.5
	25	164.05	.73	.74	285	244	253	37	219	81	87	1.7	5.5
	27.5	165.92	.72	.73	285	244	249	38	219	81	87	1.7	5.5
5	30	167.76	.68	.71	285	244	250	38	219	81	87	1.6	5.0
	32.5	169.58	.65	.70	285	244	251	38	220	81	88	1.65	5.5
	35	171.37	.66	.70	285	244	252	38	219	81	88	1.65	5.5
6	37.5	173.18	.62	.68	285	244	252	38	219	81	88	1.60	5.5
	40	174.90	.62	.68	285	244	255	38	220	81	89	1.6	5.5
	42.5	176.73	.61	.67	291	244	252	38	221	81	88	1.3	5.0
7	45	178.39	.75	.76	273	244	252	39	219	81	89	1.7	5.5
	47.5	180.23	.76	.75	286	244	251	39	221	81	89	1.8	5.5
	50	182.12	.70	.72	286	244	253	39	221	81	89	1.7	5.5

Traverse: PORT 1

Start Time: 10:25	Initial Leak Check: .003	cfm@ 17	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/03/16	Plant:	Covanta DYEC	Test No.:	1 Particulate/Metals	Page 5 of 5
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
8	52.5	183.97	.74	.74	287	244	248	40	220	81	88	1.7	5.5
	55	185.85	.75	.75	286	244	253	40	220	81	88	1.75	5.5
	57.5	187.73	.75	.75	287	244	248	41	220	81	88	1.8	5.5
9	60	189.64	.77	.76	287	244	251	41	221	81	88	1.8	6.0
	62.5	191.56	.77	.76	290	244	253	41	221	82	88	1.8	6.0
	65	193.48	.76	.75	287	244	249	41	221	81	88	1.8	6.0
10	67.5	195.37	.81	.78	287	244	254	42	220	81	88	1.9	6.0
	70	197.33	.80	.78	288	243	253	42	221	81	87	1.9	6.0
	72.5	199.28	.79	.77	287	244	250	42	221	82	87	1.9	6.0
11	75	201.24	.74	.74	287	244	258	42	220	81	87	1.85	6.0
	77.5	203.18	.73	.74	287	243	258	42	220	81	87	1.85	6.0
	80	205.08	.72	.73	287	242	250	43	220	82	87	1.8	6.0
12	82.5	207.00	.68	.71	287	243	252	43	220	82	87	1.8	6.0
	85	208.85	.68	.71	287	243	252	43	220	82	87	1.8	6.0
	87.5	210.70	.67	.71	286	243	250	43	219	82	88	1.8	6.0
	90	212.60											

Traverse: Port 1		
Start Time: —	Initial Leak Check: — cfm@ — "Hg	
Finish Time: 11:55	Final Leak Check: .006 cfm@ 18 "Hg	

Project No.: 21656

Operator : AN

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 Particulate/Metals
Test Date	May 3, 2016
Test Location	APC Outlet No. 2
Operator Signature	Angela Molar

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 4	
Impinger Box No.:	5	

Pitot Factor	.841	
DGMCF	.984	
Barometric Pressure	29.59	"Hg
Static Pressure	-10.0	"H2O
Nozzle Size	.2539	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	40.30	mg
Probe	2.1	mg

Moisture Gain

CWTR	448.4	g
WCBDA	20.4	g

Combustion Gas Concentration

Oxygen	8.22	%
Carbon Dioxide	11.18	%
Carbon Monoxide	19.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	
Trendicator	SEE TEST #1
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements

1 ______ SEE TEST #1
2 ______
3 ______
4 ______
Average:

Probe Liner Glass / Metal / Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None / Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: 05/03/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft³	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
1	0	13.50	.85	.79	280	244	258	71	123	79	79	2.2	5.0
	2.5	15.55	.85	.79	286	244	248	63	200	79	78	2.0	5.0
	5	17.60	.82	.77	285	243	255	59	220	79	78	1.7	5.0
2	7.5	19.47	.85	.79	287	243	250	56	223	79	79	1.9	5.0
	10	21.41	.95	.84	285	244	246	55	224	79	80	2.4	5.5
	12.5	23.57	.81	.77	284	244	252	54	228	79	82	1.8	5.0
3	15	25.53	.81	.77	285	244	252	53	230	79	81	1.8	5.0
	17.5	27.42	.76	.75	285	244	248	53	224	79	81	1.8	5.0
	20	29.31	.78	.76	284	244	248	52	227	79	83	1.9	5.0
4	22.5	31.23	.74	.74	285	244	253	51	231	79	83	1.8	5.0
	25	33.18	.76	.75	286	244	250	50	231	79	84	1.7	5.0
	27.5	35.05	.75	.75	285	244	247	50	230	79	84	1.8	5.0
5	30	36.94	.66	.70	284	244	253	50	231	79	85	1.6	5.0
	32.5	38.75	.67	.71	284	245	250	49	232	79	85	1.6	5.0
	35	40.55	.67	.71	284	245	247	50	230	79	86	1.6	5.0
6	37.5	42.37	.65	.70	284	244	252	50	230	79	87	1.5	5.0
	40	44.06	.65	.70	284	245	252	50	232	79	87	1.5	5.0
	42.5	45.81	.66	.70	285	244	249	50	230	80	87	1.5	5.0
7	45	47.54	.66	.70	284	245	252	50	230	80	88	1.5	5.0
	47.5	49.27	.66	.70	285	244	252	50	232	80	88	1.5	5.0
	50	51.00	.65	.70	285	245	247	50	230	89	88	1.5	5.0

Traverse: PORT 2				
Start Time: 12:51	Initial Leak Check: .007	cfm@ 18	"Hg	
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg	

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/03/16	Plant:	Covanta DYEC	Test No.:	2 Particulate/Metals	Page 3 of 5
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft³	* Pitot Δ P "H₂O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H₂O	* Pump Vacuum "Hg Gauge
8	52.5	52.76	.63	.69	285	244	251	50	229	80	89	1.5	5.0
	55	54.48	.63	.69	284	245	253	50	230	80	89	1.5	5.0
	57.5	56.22	.60	.67	284	244	249	49	223	80	89	1.4	5.0
9	60	57.92	.62	.68	284	244	246	48	223	80	90	1.4	5.0
	62.5	59.63	.62	.68	284	243	253	47	227	80	89	1.5	5.0
	65	61.35	.62	.68	285	244	253	47	230	81	89	1.5	5.0
10	67.5	63.07	.62	.68	284	244	247	46	228	81	89	1.5	5.0
	70	64.80	.62	.68	284	243	249	46	226	81	89	1.5	5.0
	72.5	66.52	.61	.68	284	244	254	46	229	81	89	1.4	5.0
11	75	68.22	.60	.67	284	244	250	46	228	81	89.	1.4	5.0
	77.5	69.92	.50	.61	284	243	247	46	226	81	90	1.1	5.0
	80	71.47	.47	.59	284	243	254	46	225	81	89	1.1	5.0
12	82.5	72.96	.50	.61	283	243	253	46	226	81	90	1.15	5.0
	85	74.47	.50	.61	283	243	249	46	226	81	90	1.2	5.0
	87.5	76.03	.50	.61	283	243	248	46	225	81	90	1.2	5.0
	90	77.57											

Traverse: PORT 2				
Start Time: —	Initial Leak Check: —	cfm@	—	"Hg
Finish Time: 14:21	Final Leak Check: .008	cfm@	19	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/03/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	78.20	.77	.76	280	243	250	63	139	81	82	1.8	5.0
	2.5	80.05	.79	.76	285	244	253	51	221	81	82	1.8	5.0
	5	81.97	.78	.76	285	243	251	48	232	81	83	1.8	5.0
2	7.5	83.86	.78	.76	286	244	248	48	232	81	84	1.8	5.0
	10	85.77	.75	.75	285	244	253	48	233	81	84	1.7	5.0
	12.5	87.65	.77	.76	286	244	252	49	234	81	85	1.8	5.0
3	15	89.55	.73	.74	285	245	248	50	233	81	85	1.7	5.0
	17.5	91.42	.73	.74	285	244	249	50	232	81	86	1.7	5.0
	20	93.29	.71	.73	285	245	254	50	234	81	86	1.6	5.0
4	22.5	95.12	.69	.72	284	245	251	51	234	81	86	1.6	5.0
	25	96.93	.70	.72	285	245	247	51	232	81	87	1.6	5.0
	27.5	98.73	.70	.72	285	244	251	52	233	81	87	1.6	5.0
5	30	100.55	.63	.69	284	244	252	52	234	81	88	1.5	5.0
	32.5	102.32	.65	.70	285	245	249	53	233	81	88	1.5	5.0
	35	104.07	.64	.69	285	244	248	53	222	81	88	1.5	5.0
6	37.5	105.83	.60	.67	285	244	253	52	229	81	88	1.4	5.0
	40	107.53	.60	.67	284	244	251	52	230	81	88	1.4	5.0
	42.5	109.22	.61	.68	284	244	247	51	228	81	88	1.5	5.0
7	45	110.93	.58	.66	284	244	252	50	229	81	88	1.3	5.0
	47.5	112.60	.58	.66	284	244	249	50	229	81	88	1.3	5.0
	50	114.25	.58	.66	283	244	251	50	228	81	89	1.3	5.0

Traverse: PORT 1					
Start Time: 14:34	Initial Leak Check:	.004	cfm@	16	"Hg
Finish Time: —	Final Leak Check:	—	cfm@	—	"Hg

Project No.: 21656

Operator : AW

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: 05/03/16	Plant: Covanta DYEC	Test No.: 2 Particulate/Metals	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
8	52.5	115.92	.62	.68	283	244	251	50	228	81	89	1.5	5.0
	55	117.60	.61	.67	283	244	248	50	228	81	89	1.5	5.0
	57.5	119.34	.62	.68	283	244	248	50	228	81	89	1.5	5.0
9	60	121.08	.65	.70	283	244	250	50	230	82	88	1.55	5.5
	62.5	122.83	.65	.70	284	244	248	50	229	82	88	1.55	5.5
	65	124.59	.65	.70	284	244	249	50	229	82	88	1.55	5.5
10	67.5	126.35	.68	.71	284	244	250	50	230	82	87	1.7	5.5
	70	128.17	.67	.71	284	244	248	50	230	82	87	1.7	5.5
	72.5	129.98	.68	.71	284	244	248	50	230	82	87	1.7	5.5
11	75	131.80	.71	.73	284	244	251	50	231	82	87	1.8	5.8
	77.5	133.70	.70	.72	284	249	248	50	230	82	87	1.8	5.8
	80	135.59	.70	.72	284	244	252	50	230	82	86	1.7	5.5
12	82.5	137.46	.69	.72	284	243	254	51	232	82	86	1.7	5.5
	85	139.30	.67	.71	283	243	250	51	232	82	86	1.6	5.5
	87.5	141.12	.67	.71	283	243	248	52	230	82	86	1.6	5.5
	90	142.92											

Traverse: PORT 1			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 16:04	Final Leak Check: .002	cfm@ 17	"Hg

Project No.: 21656

Operator : AN

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	3 Particulate/Metals
Test Date	May 4, 2016
Test Location	APC Outlet No. 2
Operator Signature	Angela Nolan

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 4	
Impinger Box No.:	7	

Pitot Factor	.848	
DGMCF	.984	
Barometric Pressure	29.44	"Hg
Static Pressure	-10.0	"H2O
Nozzle Size	.2543	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Particulate Gain

Filter	60.30	mg
Probe	1.8	mg

Moisture Gain

CWTR	454.4	g
WCBDA	20.8	g

Combustion Gas Concentration

Oxygen	8.06	%
Carbon Dioxide	11.15	%
Carbon Monoxide	20.2	ppm

Measuring Device	MII Numbers
Probe / Pitot S6	B03767
Trendicator	COE20090
Control Box TEAM 4	COE20090
Incline Manometer	COE20090
Comb.Gas.Analyzer	
Micromanometer	—
Barometer	ENV. CAN
Calipers	CAN 22136

Nozzle Measurements	
1	.2540
2	.2550
3	.2530
4	.2550
Average:	.2543

Reading Interval	2.5	
Number of Ports	2	
Number of Points/Port	12	

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / ~~Teflon~~ / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: 05/04/16	Plant: Covanta DYEC	Test No.: 3 Particulate/Metals	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
1	0	64.02	.69	.73	280	241	248	51	32	81	80	1.7	5.0
	2.5	65.95	.68	.72	284	247	251	47	33	81	81	1.7	5.0
	5	67.82	.65	.71	285	242	253	45	203	81	81	1.6	5.0
2	7.5	69.62	.75	.76	285	247	247	44	204	81	82	1.8	5.0
	10	71.49	.75	.76	285	248	251	42	208	81	83	1.9	5.0
	12.5	73.44	.77	.77	285	243	252	42	214	81	84	1.9	5.0
3	15	75.40	.77	.77	286	243	248	42	217	81	84	1.9	5.0
	17.5	77.35	.78	.78	286	249	254	42	218	82	85	1.95	5.0
	20	79.34	.78	.78	286	243	248	42	218	82	86	1.95	5.0
4	22.5	81.30	.70	.74	287	249	252	42	219	82	86	1.7	5.0
	25	83.17	.70	.74	287	249	251	41	218	82	86	1.7	5.0
	27.5	85.02	.72	.75	286	244	251	41	218	82	86	1.8	5.0
5	30	86.92	.68	.73	286	244	254	41	218	82	87	1.6	5.0
	32.5	88.78	.67	.72	286	244	254	41	218	82	87	1.6	5.0
	35	90.55	.66	.72	286	243	251	40	218	82	87	1.6	5.0
6	37.5	92.35	.61	.69	286	247	250	40	217	82	88	1.5	5.0
	40	94.12	.60	.68	286	249	254	40	218	82	88	1.4	5.0
	42.5	95.82	.59	.68	286	244	251	39	216	83	88	1.4	5.0
7	45	97.53	.55	.65	286	248	252	39	217	83	88	1.3	5.0
	47.5	99.18	.55	.66	285	243	254	39	216	83	89	1.35	5.0
	50	100.85	.55	.65	286	243	250	39	217	83	89	1.35	5.0

Traverse: PORT 2				
Start Time: 14:59	Initial Leak Check: .006	cfm@	16	"Hg
Finish Time: ——	Final Leak Check: ——	cfm@	——	"Hg

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: 05/04/16	Plant: Covanta DYEC	Test No.: 3 Particulate/Metals	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
8	52.5	102.53	.57	.167	285	248	255	39	216	83	89	1.4	5.0
	55	104.22	.58	.167	286	248	250	39	217	83	90	1.4	5.0
	57.5	105.92	.57	.167	285	246	255	39	216	83	89	1.4	5.0
9	60	107.62	.56	.166	285	248	248	39	216	83	89	1.4	5.0
	62.5	109.32	.59	.168	285	244	256	40	216	83	90	1.4	5.0
	65	~~110.~~ 111.02	.59	.168	285	246	249	40	216	83	89	1.4	5.0
10	67.5	112.74	.63	.170	284	243	254	41	216	83	89	1.6	5.0
	70	114.54	.59	.168	284	247	248	41	217	83	89	1.5	5.0
	72.5	116.30	.60	.169	284	244	256	42	217	84	90	1.5	5.0
11	75	118.06	.60	.169	284	246	249	42	216	84	89	1.4	5.0
	77.5	119.80	.59	.168	284	254	244	42	216	84	89	1.4	5.0
	80	121.52	.59	.168	283	248	251	42	215	84	89	1.4	5.0
12	82.5	123.24	.61	.169	283	242	252	43	216	84	90	1.5	5.0
	85	125.00	.62	.170	283	248	254	43	215	84	91	1.5	5.0
	87.5	126.79	.62	.170	284	248	249	43	216	84	90	1.5	5.0
	90	128.55											

Traverse: PORT 2			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 16:29	Final Leak Check: .004	cfm@ 15	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/04/16	Plant: Covanta DYEC	Test No.: 3 Particulate/Metals	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	129.10	.71	.74	285	248	250	60	153	84	85	1.7	5.0
	2.5	131.01	.70	.74	285	243	250	46	212	84	84	1.7	5.0
	5	132.89	.71	.74	285	246	250	44	212	84	85	1.7	5.0
2	7.5	134.74	.69	.73	285	248	251	42	214	84	85	1.7	5.0
	10	136.60	.78	.78	285	247	255	41	214	83	86	2.0	6.0
	12.5	138.60	.77	.77	285	243	251	40	216	84	87	1.95	6.0
3	15	140.58	.77	.77	284	245	257	39	216	83	87	1.9	6.0
	17.5	142.54	.79	.78	285	244	250	39	217	84	87	1.9	6.0
	20	144.51	.78	.78	284	248	256	39	217	84	88	1.9	6.0
4	22.5	146.49	.72	.75	285	249	248	39	217	84	88	1.8	5.0
	25	148.40	.73	.76	284	249	255	39	217	84	88	1.8	5.0
	27.5	150.30	.72	.75	284	245	248	39	217	84	88	1.8	5.0
5	30	152.22	.66	.72	284	249	253	40	218	84	88	1.6	5.0
	32.5	154.05	.65	.71	284	249	254	40	217	84	89	1.6	5.0
	35	155.89	.66	.72	284	248	252	40	217	84	89	1.6	5.0
6	37.5	157.72	.61	.69	283	246	254	40	217	84	89	1.5	5.0
	40	159.48	.62	.70	284	245	252	40	217	84	89	1.5	5.0
	42.5	161.25	.60	.69	284	245	255	40	217	84	89	1.5	5.0
7	45	162.99	.60	.69	282	245	251	40	217	84	90	1.5	5.0
	47.5	164.73	.61	.69	282	248	256	40	216	84	90	1.5	5.0
	50	166.49	.60	.69	283	248	250	40	217	84	90	1.5	5.0

Traverse: PORT 1

Start Time: 16:42	Initial Leak Check: .004	cfm@ 15	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: 05/04/16	Plant: Covanta DYEC	Test No.: 3 Particulate/Metals	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft³	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
*	*	*	*		*			*		*	*	*	*
8	52.5	168.25	.61	.69	287	246	255	40	217	84	90	1.5	5.0
	55	170.02	.61	.69	282	249	249	40	216	84	90	1.5	5.0
	57.5	171.77	.62	.70	282	247	255	41	215	84	90	1.5	5.0
9	60	173.52	.66	.72	282	248	248	41	215	84	90	1.6	5.0
	62.5	175.34	.63	.70	282	242	253	41	216	84	90	1.5	5.0
	65	177.11	.63	.70	282	243	250	42	215	84	90	1.6	5.0
10	67.5	178.91	.64	.71	283	244	253	42	216	84	90	1.6	5.0
	70	180.70	.70	.74	283	242	251	42	215	84	90	1.8	6.0
	72.5	182.59	.70	.74	284	244	250	43	217	84	89	1.8	6.0
11	75	184.48	.70	.74	284	243	255	43	216	84	89	1.7	6.0
	77.5	186.36	.70	.74	282	246	248	43	216	84	89	1.7	6.0
	80	188.22	.70	.74	282	248	254	43	216	84	89	1.7	6.0
12	82.5	190.10	.73	.76	283	248	249	44	215	84	89	1.8	6.0
	85	192.02	.71	.75	283	243	251	44	216	84	89	1.8	6.0
	87.5	193.91	.71	.75	283	249	255	44	215	84	89	1.8	6.0
	90	195.82											

Traverse: PORT 1			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 18:12	Final Leak Check: .004	cfm@ 16	"Hg

Project No.: 21656
Operator : AN

APPENDIX 4

Particle Size Distribution Field Data Sheets
(12 pages)

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Particule Size
Test Date	MAY 3, 2016
Test Location	APC Outlet No. 1
Operator Signature	[illegible]

Project No.:	21656
Page	1 of 2
Probe No.:	
Meter Box No.:	TEAM 1
Impinger Box No.:	9

Pitot Factor	0.846	
DGMCF	0.983	
Barometric Pressure	29.63	"Hg
Static Pressure	-12.1	"H2O
Nozzle Size	0.1773	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	11	inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	167.0	g
WCBDA	15.8	g

Combustion Gas Concentration

Oxygen	7.40	%
Carbon Dioxide	11.56	%
Carbon Monoxide	12.4	ppm

Measuring Device	MII Numbers
Probe / Pitot	COE 21001
Trendicator	COE 20094
Control Box	↓
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	COE 20030
Barometer	ENV. CAN
Calipers	CAN 22136

Nozzle Measurements	
1	0.1770
2	0.1770
3	0.1775
4	0.1775
Average:	0.1773

Reading Interval	/
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal /Teflon / Other

Nozzle Glass / Metal / Other

Union None /Metal / Teflon / Other

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: MAY 3, 2016	Plant: Covanta DYEC	Test No.: 1 ~~SVOC~~ PM10/2.5	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	23.24	0.88	0.35	282	255	256	56		80	79	.45	3
2	10.5	27.28	0.82	0.35	284	253	254	69		80	79	.45	3
3	20.75	31.18	0.72	0.35	284	256	253	69		80	79	.45	3
4	30.75	34.95	0.69	0.35	288	253	254	63		80	79	.45	3
5	40.25	38.50	.71	0.35	286	254	254	57		80	79	.45	3
6	49.25	41.95	.70	0.35	287	252	253	56		80	79	.45	3
	58.25	45.01								80	79	.45	3
1	0	45.01	.75	0.35	284	256	251	57		80	79	.45	3
2	11.25	49.33	.81	0.35	287	254	255	51		81	80	.45	3
3	22.5	53.55	.69	0.35	287	254	255	50		80	80	.45	3
4	33.0	57.51	.68	0.35	287	256	254	50		81	80	.45	3
5	43.0	61.27	.70	0.35	287	252	254	49		81	80	.45	3
6	52.25	64.70	.75	0.35	287	253	254	49		81	80	.45	3
	61.25	68.2											

Traverse: 1			
Start Time: 1003	Initial Leak Check: .004	cfm@ 17	"Hg
Finish Time: 1102	Final Leak Check:	cfm@	"Hg

Traverse: 2			
Start Time: 1104	Initial Leak Check: —	cfm @ —	"Hg
Finish Time: 1205	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : D. O.

Rev: April 28, 2005

ORTECH Environmental

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particule Size
Test Date	3May16
Test Location	APC Outlet No. 1
Operator Signature	

Project No.:	21656	
Page	1 of 2	
Probe No.:		
Meter Box No.:	TEAM 1	
Impinger Box No.:	14	

Pitot Factor	0.846	
DGMCF	0.983	
Barometric Pressure	29.58	"Hg
Static Pressure	-12.1	"H2O
Nozzle Size	0.1773	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	11	inches

Reading Interval	
Number of Ports	2
Number of Points/Port	~~12~~

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	155.1	g
WCBDA	14.2	g

Combustion Gas Concentration

Oxygen	6.82	%
Carbon Dioxide	12.18	%
Carbon Monoxide	21.4	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST 1
Incline Manometer	
Comb.Gas.Analyzer	UNIT 2
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	SEE
2	TEST
3	1
4	
Average:	

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: MAY 3/16	Plant: Covanta DYEC	Test No.: 2 ~~SVOC~~ PM10/2.5	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
1	0	68.96	.80	0.35	280	254	253	70		80	79	.45	3
2	10.5	73.00	.67		283	253	255	56		80	79	.45	3
3	21.0	77.00	.58		283	253	255	55		80	79	.45	3
4	30.75	80.60	.57		281	255	253	51		80	79	.45	3
5	40.5	84.30	.56		283	254	254	51		80	79	.45	3
6	50.5	88.1	.56		280	254	254	50		80	79	.45	3
	60.25	91.41											
1	0	91.41	.77		283	254	254	50		80	79	.45	3
2	10.0	95.37	.72		289	255	254	52		80	80	.45	3
3	20.5	99.20	.65		291	255	255	53		81	80	.45	3
4	30.25	102.79	.58		291	252	254	53		81	80	.45	3
5	39.75	106.29	.62		287	252	254	52		82	81	.45	3
6	49.50	109.83	.62		287	255	254	53		82	81	.45	3
	59.50	113.66											

Traverse: 1			
Start Time: 1337	Initial Leak Check: .01	cfm@ 17	"Hg
Finish Time: 1437	Final Leak Check:	cfm@	"Hg

Traverse: 2			
Start Time: ~~1440~~ 1447	Initial Leak Check:	cfm @	"Hg
Finish Time: 1547	Final Leak Check: .01	cfm @ 14.5	"Hg

Project No.: 21656

Operator : [signature]

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	3 Particule Size
Test Date	3 MAY 16
Test Location	APC Outlet No. 1
Operator Signature	D. D.

Project No.:	21656	
Page	1 of 2	
Probe No.:		
Meter Box No.:	TEAM 1	
Impinger Box No.:	9	

Pitot Factor	0.846	
DGMCF	0.983	
Barometric Pressure	29.54	"Hg
Static Pressure	-12.1	"H2O
Nozzle Size	0.1773	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	4	inches

Reading Interval	
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	163.4	g
WCBDA	10.9	g

Combustion Gas Concentration

Oxygen	7.22	%
Carbon Dioxide	11.82	%
Carbon Monoxide	23.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	586
Trendicator	
Control Box	T851
Incline Manometer	
Comb.Gas.Analyzer	1
Micromanometer	UNIT 2
Barometer	
Calipers	

Nozzle Measurements

1 588
2 T851
3 |
4
Average:

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None / Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: MAY 3, 2016	Plant: Covanta DYEC	Test No.: 3	~~SVOC~~ PM10/2.5	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
1	0	13.63	.78	.35	291	254	252	77		83	82	.45	3
2	11.25	18.00	.67		291	255	253	70		83	82	.45	3
3	21.5	21.79	.68		290	256	253	69		84	83	.45	3
4	31.0	25.36	.62		282	255	255	66		84	82	.45	3
5	40.5	28.93	.61		280	255	255	57		85	83	.45	3
6	50.0	32.45	.50		282	255	255	56		85	83	.45	3
	59.25	36.00											
1	0	36.00	.80		290	252	250	57		85	83	.45	3
2	11.0	40.06	.73		291	250	251	56		85	83	.45	3
3	21.5	43.91	.65		287	250	252	55		85	83	.45	3
4	31.5	47.58	.60		286	250	252	53		84	83	.45	3
5	41.0	51.11	.65		285	253	254	54		84	83	.45	3
6	50.75	54.83	.58		285	254	254	54		84	83	.45	3
	60.5	58.46											

Traverse: 1			
Start Time: 1710	Initial Leak Check: .01	cfm@ 15	"Hg
Finish Time: 1809	Final Leak Check: —	cfm@ —	"Hg

Traverse: 2			
Start Time: 1811	Initial Leak Check: —	cfm @ —	"Hg
Finish Time: 1911	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : [signature]

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Particle Size
Test Date	MAY 2, 2016
Test Location	APC Outlet No. 2
Operator Signature	

Project No.:	21656	
Page	1 of 2	
Probe No.:		
Meter Box No.:	TEAM 4	
Impinger Box No.:	14	

Pitot Factor	.846	
DGMCF	0.984	
Barometric Pressure	29.74	"Hg
Static Pressure	-9.1	"H2O
Nozzle Size	0.1773	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	11	inches

Reading Interval	
Number of Ports	2
Number of Points/Port	~~12~~

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Particulate Gain

Filter		mg
Probe		mg

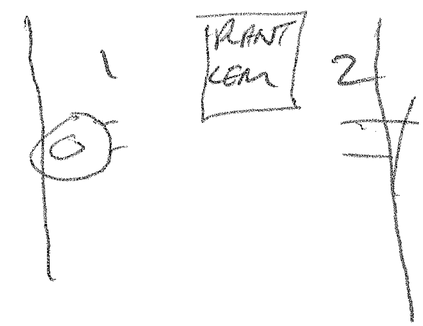
Moisture Gain

CWTR	152.5	g
WCBDA	10.9	g

Combustion Gas Concentration

Oxygen	8.42	%
Carbon Dioxide	11.15	%
Carbon Monoxide	17.0	ppm

Site Diagram



Measuring Device	MII Numbers
Probe / Pitot	PH02.5 COE21001
Trendicator	COE22090
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	PLANT
Micromanometer	COE20830
Barometer	ENV.CAN
Calipers	CAN22136

Nozzle Measurements

1	0.1775
2	0.1770
3	0.1770
4	0.1775
Average:	0.1773

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: MAY 2/16	Plant: Covanta DYEC	Test No.: PM10/2.5 ~~SVOC~~ 1	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	43.42	.84	.36	272	255	245	69	34	75	76	0.45	5
2	11	47.57	.83		283	254	253	60		76	77	0.45	5
3	22	51.75	.74		284	254	249	55		76	81	0.45	5
4	32.5	55.63	.69		284	256	252	54		77	83	0.45	5
5	42.5	59.40	.58		282	256	253	51		77	84	0.45	5
6	51.50	62.76	.50		282	256	247	49		78	85	0.45	15
	60.5	65.85											
1	0	65.85	.90		284	256	243	54		78	81	0.45	5
2	10.5	70.14	.82		285	255	254	50		78	85	0.45	5
3	22.0	~~78.00~~ 73.92	.69		285	255	250	50		79	87	0.45	5
4	32	78.00	.62		285	256	250	50		79	87	0.45	5
5	41.5	81.63	.60		278	255	250	50		79	87	0.45	5
6	51.0	85.27	.60		278	254	250	50		80	87		
	61.5 ~~60.5~~	88.26											

Traverse: 1		
Start Time: 1044	Initial Leak Check: .009	cfm@ 14.5 "Hg
Finish Time: 1145	Final Leak Check: —	cfm@ — "Hg

Traverse: 2		
Start Time: 1147	Initial Leak Check: /	cfm @ / "Hg
Finish Time: 1247	Final Leak Check: /	cfm @ / "Hg

Project No.: 21656

Operator: D U / JG

BACK UP FILTER IS IN PORT @ RES.
WITH HIGH NEGATIVE COOLS IT DOWN TO MUCH ↑ IN VAC
WILL DO 8 POINTS FOR NEXT TEST.

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particule Size
Test Date	MAY 2, 2016
Test Location	APC Outlet No. 2
Operator Signature	

Project No.:	21656
Page	1 of 2
Probe No.:	
Meter Box No.:	TEAM 4
Impinger Box No.:	9

Pitot Factor	0.846	
DGMCF	0.984	
Barometric Pressure	29.73	"Hg
Static Pressure	-9.7	"H2O
Nozzle Size	0.1773	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	11	inches

Reading Interval	—
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	146.3	g
WCBDA	11.6	g

Combustion Gas Concentration

Oxygen	8.11	%
Carbon Dioxide	11.42	%
Carbon Monoxide	12.8	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	TEST
Control Box	1
Incline Manometer	
Comb.Gas.Analyzer	UNIT 2
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements

1 SEE

2 TEST 1

3 ____

4 ____

Average:

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 2, 2016	Plant: Covanta DYEC	Test No.: 2 ~~SVOC~~ PM 10/2.5	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point *	Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	389.42	0.85	0.36	277	256	252	79	~~78~~	79	79	.4	5
2	11.5	393.57	0.85	0.36	282	255	248	~~80~~	81	70	81	.4	5
3	22	397.72	0.70	0.36	284	255	284	~~79~~ 60	85	79	85	.4	5
4	32.5	401.10	0.68	.36	292	255	254	58		80	86	.4	5
5	42.5	404.83	0.60	.36	291	255	246	56	N/A	80	88	.4	5
6	51.50	409.05	0.60		281	~~255~~	246	56		80	88	.4	5
	60.5	411.37											
1	0	411.37	.86		278	257	250	59		80	85	.4	5
2	11.5	415.70	.72		284	255	253	48		81	86	.4	5
3	22	419.30	.68		283	255	247	49		81	88	.4	5
4	32.0	422.90	.57		277	256	256	49		81	89	.4	5
5	41.5	426.35	.53		277	256	254	49		81	89	.4	5
6	51.0	429.75	.56		277	256	254	49		81	89	.4	5
	61.5	433.0											

Traverse: 1			
Start Time: 1353	Initial Leak Check: .01	cfm@ 15	"Hg
Finish Time: 1453	Final Leak Check:	cfm@	"Hg

Traverse: 2			
Start Time: 1500	Initial Leak Check:	cfm @	"Hg
Finish Time: 1600	Final Leak Check: .01	cfm @ 15	"Hg

* MAY OF WROTE DOWN WRONG READING

Project No.: 21656
Operator : [signature]

ORTECH Environmental

Plant	Covanta DYEC	
Plant Location	Courtice, Ontario	
Test No.:	3	Particule Size
Test Date	MAY 2, 2016	
Test Location	APC Outlet No. 2	
Operator Signature	[signature]	

Project No.:	21656	
Page	1 of 2	
Probe No.:		
Meter Box No.:	TEAM 4	
Impinger Box No.:	14	

Pitot Factor	0.846	
DGMCF	0.984	
Barometric Pressure	29.73	"Hg
Static Pressure	-9.7	"H2O
Nozzle Size	0.1773	inches
Stack Diameter	4.5	feet
Length	0	feet
Width	0	feet
Port length:	11	inches

Reading Interval	
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None / Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	142.4	g
WCBDA	11.9	g

Combustion Gas Concentration

Oxygen	8.29	%
Carbon Dioxide	11.32	%
Carbon Monoxide	31.9	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot	SEE TEST
Trendicator	
Control Box	1
Incline Manometer	
Comb.Gas.Analyzer	UNIT
Micromanometer	2
Barometer	
Calipers	

Nozzle Measurements

1 SEE
2 TEST
3 1
4
Average:

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: MAY 2, 2016	Plant:	Covanta DYEC	Test No.:	3 ~~SVOC~~ PM 10/2.5	Page 2 of 2
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft^3	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
1	0	433.13	.81	0.35	275	257	247	75		79	78	.35	5
2	11	36.85	.80		283	254	250	61		79	81	.35	5
3	22	40.60	.75		283	257	246	55		79	84	.35	5
4	32.5	44.22	.75		285	256	245	53		79	86	.35	5
5	42.5	47.67	.75		282	254	250	53		79	87	.35	5
6	51.75	50.91	.73		280	256	250	53		79	88	.35	5
	61.	54.13											
1	0	54.13	.95		279	257	245	56		79	85	.35	5
2	11.25	58.00	.78		286	257	252	52		79	87	.35	5
3	21.5	61.52	.73		285	257	249	51		79	88	.35	5
4	31.5	64.96	.68		284	255	251	51		79	86	.35	5
5	40.5	68.05	.67		282	256	247	51		79	88	.35	5
6	49.75	71.24	.57		280	256	246	51		79	86	.35	5
	59.0	74.43											

Traverse: 1			
Start Time: 1811	Initial Leak Check: <.005	cfm@ 15	"Hg
Finish Time: 1912	Final Leak Check:	cfm@	"Hg

Traverse:			
Start Time: 19:14	Initial Leak Check:	cfm @	"Hg
Finish Time: 20:13	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : [signature]

APPENDIX 5

SVOC Data Sheets
(30 pages)

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Semi-Volatile Organic Compounds
Test Date	May 9 2016
Test Location	APC Outlet No. 1
Operator Signature	[signature]

Project No.:	21656
Page	1 of 5
Probe No.:	G-Series
Meter Box No.:	Team ~~1~~ 1
Impinger Box No.:	4

Pitot Factor	.841	
DGMCF	.983	
Barometric Pressure	29.84	"Hg
Static Pressure	-10.3	"H2O
Nozzle Size	.2531	inches
Stack Diameter	4.5	feet
Length	—	feet
Width	—	feet
Port length:		inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal /Teflon / Other________

Nozzle Glass / Metal / Other________

Union None /Metal / Teflon / Other________

Pitot Leak Checked? Yes No

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	905.3	g
WCBDA	19.1	g

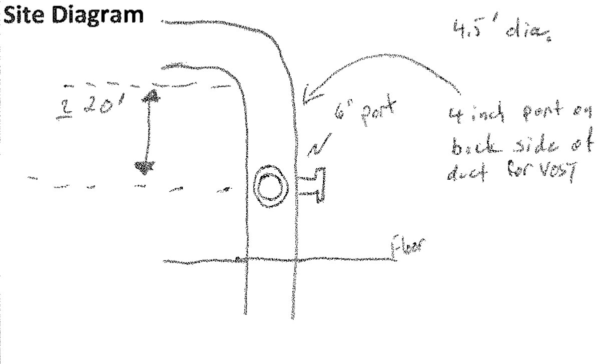
Combustion Gas Concentration

Oxygen	7.51	%
Carbon Dioxide	11.79	%
Carbon Monoxide	21.8	ppm

Measuring Device	MII Numbers
Probe / Pitot S2	B03762
Trendicator	COE 20094
Control Box	COE 20094
Incline Manometer	COE 20094
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Nozzle Measurements	
1	0.2530
2	0.2535
3	0.2530
4	0.2530
Average:	0.2531

Site Diagram



Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 9, 2016	Plant:	Covanta DYEC	Test No.: 1	SVOC	Page ~~4~~ 2 of 5
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot ΔP "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure ΔH "H_2O	* Pump Vacuum "Hg Gauge
1	0	44.56	.64	.67	293	251	252	74	42	73	72	1.55	5
	5	47.91	.67	.69	293	253	253	52	41	75	74	1.6	5.5
	10	51.33	.67	.69	293	255	254	50	40	74	74	1.65	5.5
2	15	54.77	.70	.70	293	255	254	48	40	75	74	1.75	6
	20	58.31	.66	.68	294	254	253	50	41	75	74	1.65	6
	25	61.78	.64	.67	294	255	253	51	42	75	74	1.6	6
3	30	65.21	.63	.67	293	255	253	48	40	75	74	1.6	6
	35	68.63	.64	.67	293	255	253	50	37	75	74	1.55	5.5
	40	72.00	.64	.67	293	254	254	50	38	75	75	1.55	5.5
4	45	75.43	.66	.68	293	254	254	49	38	75	74	1.6	5.5
	50	78.80	.62	.66	293	254	254	48	37	76	75	1.5	5.5
	55	82.15	.65	.68	294	254	253	51	37	76	75	1.6	5.5
5	60	85.56	.64	.67	294	254	253	50	38	76	75	1.55	5.5
	65	88.94	.60	.65	294	254	253	47	37	76	75	1.5	5.5
	70	92.26	.58	.64	292	254	253	49	36	76	75	1.45	5
6	75	95.53	.54	.62	294	254	255	50	37	76	75	1.3	5
	80	98.65	.56	.63	292	254	255	47	36	76	75	1.4	5
	85	101.82	.58	.64	294	253	253	45	36	75	74	1.4	5
7	90	105.05	.50	.60	294	254	254	47	37	76	75	1.2	5
	95	108.05	.49	.59	293	254	254	46	36	76	75	1.15	5
	100	111.03	.53	.61	292	252	253	45	35	75	74	1.25	5

Traverse:			
Start Time: 10:05	Initial Leak Check: .005	cfm@ 14.5	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator :

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: May 9 2016	Plant: Covanta DYEC	Test No.: 1 SVOC	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	105	114.07	.57	.60	293	250	253	45	36	75	75	1.2	5
	110	117.09	.55	.62	293	254	254	46	37	76	75	1.35	5
	115	120.24	.57	.63	294	253	253	46	38	75	75	1.4	5
9	120	123.48	.57	.64	294	253	253	45	39	76	75	1.4	5
	125	126.68	.63	.67	294	253	253	46	38	76	75	1.55	5.5
	130	130.06	.60	.65	294	253	253	45	39	76	75	1.5	5.5
10	135	133.38	.65	.68	294	253	253	45	36	75	75	1.6	5.5
	140	136.87	.65	.68	294	253	253	45	35	74	75	1.6	5.5
	145	140.25	.59	.65	294	252	254	45	35	75	75	1.45	5.5
11	150	143.53	.60	.65	293	247	252	45	34	74	74	1.45	5.5
	155	146.80	.58	.64	292	246	253	45	35	75	74	1.45	5.5
	160	150.07	.55	.62	293	251	253	45	34	74	74	1.40	5.5
12	165	153.29	.53	.61	293	251	253	45	35	74	74	1.25	5
	170	156.35	.52	.62	294	252	253	45	35	74	74	1.25	5
	175	159.41	.54	.62	293	251	253	46	35	74	74	1.3	5
	180	162.52											

Traverse:		
Start Time: —	Initial Leak Check: — cfm@ — "Hg	
Finish Time: 1305	Final Leak Check: .005 cfm@ 14 "Hg	

Traverse:		
Start Time:	Initial Leak Check:	cfm @ "Hg
Finish Time:	Final Leak Check:	cfm @ "Hg

Project No.: 21656

Operator :

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: May 9, 2016	Plant: Covanta DYEC	Test No.: 1 SVOC	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	162.94	.60	.63	288	252	254	57	37	74	74	1.45	5
	5	166.24	.71	.71	288	252	253	45	38	74	74	1.8	6
	10	169.84	.70	.70	287	253	254	45	38	73	73	1.75	6
2	15	173.39	.69	.70	287	253	254	45	37	73	73	1.75	6
	20	176.96	.65	.68	287	253	254	46	39	73	73	1.6	6
	25	180.40	.63	.67	287	253	253	46	39	73	72	1.55	6
3	30	183.78	.63	.67	287	253	254	46	41	73	73	1.55	6
	35	187.15	.62	.66	286	254	254	46	39	73	73	1.5	5.5
	40	190.48	.60	.65	285	254	254	46	36	72	72	1.45	5.5
4	45	193.76	.56	.63	285	253	254	46	38	72	72	1.4	5
	50	196.93	.57	.64	285	253	254	47	38	72	72	1.4	5
	55	200.16	.57	.64	284	253	254	47	38	72	72	1.4	5
5	60	203.40	.53	.61	284	253	254	47	36	73	73	1.3	5
	65	206.50	.54	.62	284	253	254	47	36	73	72	1.35	5
	70	209.65	.53	.61	284	254	254	48	36	73	72	1.3	5
6	75	212.79	.51	.60	284	254	255	48	36	73	73	1.2	5
	80	215.77	.51	.60	283	254	254	48	35	73	72	1.25	5
	85	218.83	.52	.61	284	253	254	49	35	74	73	1.3	5
7	90	221.91	.50	.60	283	254	254	49	36	74	73	1.25	5
	95	225.01	.50	.60	283	254	254	49	35	74	73	1.25	5
	100	228.08	.54	.62	283	254	254	49	36	74	73	1.35	5

Traverse:		Traverse:	
Start Time: 13:12	Initial Leak Check: .004 cfm@ 17 "Hg	Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time: —	Final Leak Check: — cfm@ — "Hg	Finish Time:	Final Leak Check: cfm @ "Hg

Static −10.3

Project No.: 21656

Operator :

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: May 9, 2016	Plant: Covanta DYEC	Test No.: 1 SVOC	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	105	231.22	.56	.63	283	254	254	49	36	74	73	1.4	5
	110	234.42	.55	.63	284	253	254	50	36	74	73	1.4	5
	115	237.59	.54	.62	284	253	254	50	36	74	73	1.4	5
9	120	240.78	.55	.63	285	253	254	50	36	74	73	1.4	5
	125	243.90	.56	.64	286	253	255	50	36	74	73	1.4	5
	130	247.16	.57	.64	286	253	254	51	37	74	73	1.4	5
10	135	250.35	.56	.64	287	253	255	51	37	74	73	1.4	5
	140	253.54	.56	.64	285	253	254	52	38	74	73	1.4	5
	145	256.75	.57	.64	286	253	254	51	36	75	74	1.4	5
11	150	259.95	.54	.62	286	253	254	48	36	74	73	1.4	5
	155	263.07	.52	.61	286	252	254	48	37	75	73	1.4	5
	160	266.33	.52	.61	286	253	254	46	36	74	73	1.25	5
12	165	269.40	.48	.59	286	253	254	46	36	74	73	1.1	5
	170	272.22	.48	.59	286	252	254	46	37	74	74	1.1	5
	175	275.26	.48	.59	286	252	254	46	37	74	74	1.1	5
	180	278.23											

Traverse:			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 16:12	Final Leak Check: .005	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator :

ORTECH Environmental

Plant	Covanta DYEC	
Plant Location	Courtice, Ontario	
Test No.: 2	Semi-Volatile Organic Compounds	
Test Date	May 10, 2010	
Test Location	APC Outlet No. 1	
Operator Signature		

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 Series	
Meter Box No.:	Team I	
Impinger Box No.:	Z	

Pitot Factor	.841	
DGMCF	.983	
Barometric Pressure	29.99	"Hg
Static Pressure	-11.3	"H2O
Nozzle Size	.2531	inches
Stack Diameter	4.5	feet
Length	-	feet
Width	-	feet
Port length:		inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	912.3	g
WCBDA	23.6	g

Combustion Gas Concentration

Oxygen	7.67	%
Carbon Dioxide	11.82	%
Carbon Monoxide	14.9	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot S2	B03762
Trendicator	COE 20094
Control Box	COE 20094
Incline Manometer	COE 20094
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Notes:

Field Data Sheet

Date: May 10 2016	Plant: Covanta DYEC	Test No.: 2 SVOC	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	79.24	.66	.68	293	253	253	75	68	76	76	1.65	5
	5	82.70	.66	.68	293	254	255	56	47	76	76	1.65	5
	10	86.14	.68	.69	293	254	254	53	44	77	76	1.7	5
2	15	89.59	.69	.70	291	254	253	50	44	76	76	1.75	5.5
	20	93.15	.69	.70	291	255	254	49	42	77	76	1.75	5.5
	25	96.67	.66	.68	291	255	254	52	43	77	76	1.65	5.5
3	30	100.15	.64	.68	289	254	253	52	43	77	76	1.6	5.5
	35	103.58	.65	.68	290	255	254	50	43	78	77	1.6	5.5
	40	106.00	.64	.68	289	255	253	49	40	77	76	1.6	5.5
4	45	110.43	.61	.66	288	255	253	51	41	78	77	1.55	5
	50	113.79	.62	.67	288	255	253	54	42	78	77	1.55	5
	55	117.17	.64	.68	287	255	253	53	42	79	77	1.6	5.3
5	60	120.63	.61	.66	287	255	254	52	41	78	77	1.55	5.3
	65	123.97	.58	.65	288	255	254	54	42	79	77	1.4	5
	70	127.21	.57	.64	287	254	253	56	42	79	78	1.4	5
6	75	130.44	.54	.62	286	254	254	56	42	79	78	1.35	5
	80	133.63	.54	.62	286	255	254	53	41	79	78	1.3	5
	85	136.75	.56	.64	286	254	254	53	42	79	78	1.4	5
7	90	140.01	.47	.58	286	254	253	53	43	78	78	1.1	4.5
	95	142.96	.47	.58	286	255	254	52	40	79	78	1.1	4.5
	100	145.81	.45	.57	287	254	253	51	37	79	78	1.1	4.5

Traverse:					
Start Time: 8:55	Initial Leak Check:	.003	cfm@	16	"Hg
Finish Time: —	Final Leak Check:	—	cfm@	—	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 10, 2016	Plant: Covanta DYEC	Test No.: 2 SVOC	
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	105	148.65	.47	.58	288	254	253	49	37	79	78	1.2	4.5
	110	151.63	.49	.59	289	254	253	49	38	79	78	1.2	4.5
	115	154.63	.57	.64	290	254	253	49	38	79	78	1.4	5
9	120	157.80	.56	.63	291	254	253	48	39	79	78	1.4	5
	125	160.04	.58	.64	291	254	253	48	38	79	78	1.45	5
	130	164.30	.56	.63	291	254	253	48	39	79	78	1.4	5
10	135	167.54	.56	.63	291	254	254	48	39	80	79	1.4	5
	140	170.78	.60	.66	289	254	253	48	39	79	78	1.5	5
	145	174.11	.58	.65	288	254	254	48	40	80	79	1.45	5
11	150	177.40	.54	.62	288	254	254	49	40	79	79	1.35	5
	155	180.57	.51	.61	287	254	254	49	40	80	79	1.25	5
	160	183.65	.51	.61	287	254	254	49	39	80	79	1.25	5
12	165	186.72	.52	.61	288	254	254	49	40	80	79	1.25	5
	170	189.80	.51	.61	288	253	254	50	41	80	79	1.30	5
	175	192.91	.54	.62	288	253	254	50	43	80	79	1.3	5
	180	196.09											

Traverse:		Traverse:	
Start Time: —	Initial Leak Check: — cfm@ — "Hg	Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time: 11:53	Final Leak Check: .002 cfm@ 14 "Hg	Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 10, 2016	Plant: Covanta DYEC	Test No.: 2 SVOC	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	196.46	.66	.69	288	253	253	67	45	80	79	1.65	5.3
	5	199.95	.68	.70	291	253	255	51	42	79	79	1.7	5.5
	10	203.48	.66	.69	291	255	255	51	43	80	79	1.65	5.5
2	15	206.93	.68	.70	289	254	254	50	41	79	78	1.65	5.8
	20	210.42	.68	.70	289	254	254	51	41	79	79	1.65	5.8
	25	213.88	.68	.70	290	255	254	52	42	79	79	1.65	5.8
3	30	217.32	.65	.68	290	255	254	50	42	79	78	1.6	5.8
	35	220.76	.70	.71	289	255	254	47	42	80	79	1.75	6
	40	224.35	.68	.70	288	254	253	46	42	79	78	1.7	6
4	45	227.90	.66	.69	289	255	254	46	43	80	79	1.65	6
	50	231.41	.61	.66	289	256	254	46	43	80	79	1.55	5.7
	55	234.79	.64	.68	290	254	253	45	42	79	78	1.6	5.5
5	60	238.25	.57	.64	291	255	253	45	42	79	78	1.4	5
	65	241.47	.58	.65	291	255	254	46	42	80	79	1.45	5
	70	244.75	.60	.66	292	255	254	47	43	80	79	1.5	5
6	75	248.06	.49	.59	290	254	253	46	43	79	79	1.25	5
	80	251.14	.54	.62	290	255	253	47	43	80	79	1.3	5
	85	254.26	.56	.64	290	255	253	47	43	80	79	1.4	5
7	90	257.47	.63	.67	289	255	254	47	40	80	79	1.6	5.5
	95	260.86	.64	.68	289	255	254	46	39	80	79	1.6	5.5
	100	264.31	.66	.69	290	255	254	46	41	80	79	1.65	5.5

Traverse:				
Start Time: 12:05	Initial Leak Check: .006	cfm@ 15	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Traverse:				
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : [signature]

Field Data Sheet

Date: May 10, 2016	Plant:	Covanta DYEC	Test No.: 2	SVOC	Page 5 of 5
	Plant Location:	Courtice, Ontario	Test Location:	APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	105	267.80	.66	.69	290	255	254	47	41	81	80	1.65	6
	110	271.29	.71	.71	292	255	253	46	41	80	79	1.75	6
	115	274.90	.69	.70	293	255	254	46	41	81	79	1.7	6
9	120	278.44	.71	.71	295	254	253	47	41	80	79	1.75	6
	125	282.04	.64	.68	295	255	254	46	41	81	79	1.6	6
	130	285.48	.62	.67	294	255	254	47	40	80	80	1.55	5.5
10	135	288.87	.62	.67	294	255	254	47	39	80	79	1.55	5.5
	140	292.28	.58	.65	294	255	254	48	40	80	80	1.45	5.5
	145	295.56	.58	.65	293	254	253	48	40	81	80	1.45	5.5
11	150	298.86	.60	.66	293	255	254	49	40	81	80	1.5	5.5
	155	302.17	.62	.67	293	255	254	48	40	80	79	1.55	5.5
	160	305.55	.62	.67	292	255	254	50	42	81	80	1.55	5.5
12	165	308.94	.60	.66	290	255	254	50	42	81	80	1.5	5.5
	170	312.27	.42	.55	290	254	254	50	40	81	80	1.0	4.5
	175	315.09	.43	.56	288	254	253	51	39	81	80	1.0	4.5
	180	317.94											

Traverse:				
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg	
Finish Time: 15:05	Final Leak Check: .002	cfm@ 14	"Hg	

Traverse:				
Start Time:	Initial Leak Check:	cfm @	"Hg	
Finish Time:	Final Leak Check:	cfm @	"Hg	

Project No.: 21656

Operator :

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Semi-Volatile Organic Compounds
Test Date	May 11, 2016
Test Location 3	APC Outlet No. 1
Operator Signature	

Project No.:	21656
Page	1 of 5
Probe No.:	6 series
Meter Box No.:	Team 1
Impinger Box No.:	4

Pitot Factor	.841	
DGMCF	.983	
Barometric Pressure	29.93	"Hg
Static Pressure	– 11.2	"H2O
Nozzle Size	.2531	inches
Stack Diameter	4.5	feet
Length	—	feet
Width	—	feet
Port length:		inches

Particulate Gain

Filter	—	mg
Probe	—	mg

Moisture Gain

CWTR	973.2	g
WCBDA	20.0	g

Combustion Gas Concentration

Oxygen	7.53	%
Carbon Dioxide	11.92	%
Carbon Monoxide	11.9	ppm

Measuring Device	MII Numbers
Probe / Pitot S2	B03762
Trendicator	COE 20094
Control Box	COE 20094
Incline Manometer	COE 20094
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Probe Liner Glass / Metal / Teflon / Other________

Nozzle Glass / Metal / Other________

Union None / Metal / Teflon / Other________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: May 11, 2016	Plant:	Covanta DYEC	Test No.:	3	SVOC	Page 2 of 5
	Plant Location:	Courtice, Ontario	Test Location:		APC Outlet No. 1	

Point	Clock Time	Dry Gas Meter ft³	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
*	*	*	*		*			*		*	*	*	*
1	0	19.62	.66	.69	281	256	253	73	42	81	80	1.65	4
	5	23.14	.69	.71	283	256	257	57	37	81	80	1.75	4.5
	10	26.68	.71	.72	284	256	256	57	37	81	80	1.8	5
2	15	30.30	.73	.73	286	256	256	57	39	80	80	1.85	5
	20	33.99	.76	.74	287	255	256	59	42	80	80	1.9	5
	25	37.69	.75	.74	288	256	257	57	42	81	80	1.9	5
3	30	41.38	.73	.73	288	256	256	55	38	80	80	1.8	5
	35	45.01	.80	.76	288	256	257	58	39	81	80	2.0	5
	40	48.81	.73	.73	288	256	258	60	42	81	80	1.8	5
4	45	52.45	.71	.72	289	256	257	59	41	81	80	1.75	5
	50	56.05	.76	.74	289	255	256	56	38	81	80	1.9	5
	55	59.78	.67	.70	290	256	257	56	38	82	81	1.65	5
5	60	63.30	.67	.70	289	255	257	57	38	81	80	1.65	5
	65	66.78	.64	.68	289	255	257	60	39	82	81	1.6	5
	70	70.23	.66	.69	289	255	256	58	42	82	81	1.65	5
6	75	73.72	.62	.67	290	255	257	55	42	82	81	1.55	5
	80	77.13	.61	.66	289	255	256	55	42	82	81	1.50	5
	85	80.47	.61	.66	290	255	256	52	43	82	81	1.50	5
7	90	83.80	.55	.63	291	255	257	51	43	82	81	1.40	5
	95	87.05	.55	.63	292	255	256	49	43	83	82	1.40	4.8
	100	90.25	.56	.64	292	255	256	49	43	83	82	1.40	4.8

Traverse: 1					
Start Time: 8:20	Initial Leak Check:	.002	cfm@	15	"Hg
Finish Time: —	Final Leak Check:	—	cfm@	—	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 11, 2016	Plant: Covanta DYEC	Test No.: 3 SVOC	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
8	105	93.45	.56	.64	292	255	256	47	43	83	82	1.4	4.8
	110	96.66	.56	.64	291	255	256	47	43	83	82	1.4	4.8
	115	99.86	.58	.65	291	255	256	47	43	83	82	1.45	4.8
9	120	103.12	.61	.66	290	255	257	47	43	83	83	1.5	4.8
	125	106.43	.66	.69	290	255	257	47	43	83	82	1.65	5
	130	109.90	.59	.65	290	255	257	46	38	83	82	1.50	5.0
10	135	113.28	.62	.67	289	254	256	45	37	82	82	1.5	5.0
	140	116.65	.63	.68	289	255	257	46	39	83	82	1.6	5.0
	145	120.08	.62	.67	289	255	257	45	39	83	82	1.55	5.0
11	150	123.49	.53	.62	288	255	256	45	38	83	82	1.3	4.0
	155	126.65	.55	.63	288	254	256	46	38	83	82	1.4	4.0
	160	129.85	.54	.63	288	254	255	46	38	83	82	1.4	4.0
12	165	133.04	.54	.63	288	254	257	46	39	83	82	1.4	4.0
	170	136.25	.50	.60	288	253	255	46	38	83	82	1.25	4.0
	175	139.32	.50	.60	288	253	255	47	39	83	82	1.25	4.0
	180	142.39											

Traverse: 1		
Start Time: —	Initial Leak Check: —	cfm@ — "Hg
Finish Time: 11:20	Final Leak Check: .003	cfm@ 15 "Hg

Traverse:		
Start Time:	Initial Leak Check:	cfm @ "Hg
Finish Time:	Final Leak Check:	cfm @ "Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 11, 2016	Plant: Covanta DYEC	Test No.: 3 SVOC	
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	142.86	.75	.74	285	253	255	64	39	82	82	1.9	5.0
	5	146.58	.74	.73	285	253	257	46	37	82	82	1.9	5.0
	10	150.31	.73	.73	286	255	257	46	37	82	82	1.9	5.0
2	15	154.04	.69	.71	286	255	256	45	37	82	82	1.75	5.0
	20	157.66	.71	.72	286	256	256	46	37	82	82	1.8	5
	25	161.31	.72	.72	286	256	257	46	37	82	82	1.8	5
3	30	164.96	.71	.72	286	256	256	46	37	82	82	1.8	5
	35	168.62	.73	.73	287	256	256	46	38	82	82	1.85	5
	40	172.29	.69	.71	288	256	256	46	39	82	81	1.75	5
4	45	175.91	.67	.70	289	256	256	46	38	82	81	1.65	5
	50	179.43	.67	.70	290	256	256	45	39	82	81	1.65	5
	55	182.96	.66	.69	291	256	256	46	39	82	81	1.6	5
5	60	186.46	.65	.69	291	256	257	46	40	82	82	1.6	5
	65	189.98	.61	.66	291	256	256	46	40	82	82	1.5	5
	70	193.32	.63	.68	292	256	257	47	40	83	82	1.6	5
6	75	196.76	.60	.66	290	256	257	47	40	83	82	1.5	5.0
	80	200.15	.60	.66	290	256	256	47	40	83	82	1.5	5.0
	85	203.48	.63	.68	289	256	256	47	37	82	82	1.6	5.0
7	90	206.92	.60	.66	289	256	257	48	38	83	82	1.5	5.0
	95	210.27	.60	.66	289	256	257	49	38	83	82	1.5	5.0
	100	213.63	.62	.67	289	256	256	49	39	83	82	1.55	5.0

Traverse: 2			
Start Time: 11:28	Initial Leak Check: .002	cfm@ 15	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator :

Field Data Sheet

Date: May 11, 2016	Plant: Covanta DYEC	Test No.: 3 SVOC	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	* Clock Time	* Dry Gas Meter ft³	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
8	105	216.99	.62	.67	289	255	256	49	39	83	82	1.55	5.0
	110	220.38	.62	.67	289	256	257	50	39	84	82	1.55	5.0
	115	223.75	.62	.67	289	255	256	50	39	84	82	1.55	5.0
9	120	227.12	.63	.68	290	255	256	50	38	83	82	1.55	5.0
	125	230.63	.65	.69	292	257	258	52	40	84	83	1.6	5.0
	130	233.94	.64	.68	292	255	256	51	37	83	82	1.6	5.0
10	135	237.34	.66	.69	292	255	257	51	37	83	83	1.6	5.0
	140	240.77	.65	.68	291	256	256	51	37	83	83	1.6	5.0
	145	244.15	.70	.71	290	255	256	51	37	84	82	1.8	5.3
11	150	247.75	.64	.68	290	255	256	51	37	83	82	1.6	5.0
	155	251.22	.66	.69	288	256	257	52	38	84	83	1.7	5.0
	160	254.75	.63	.68	288	255	256	52	39	84	83	1.6	5.0
12	165	258.24	.55	.63	288	254	256	52	38	84	83	1.4	5.0
	170	261.53	.50	.60	287	254	256	52	37	84	83	1.25	4.0
	175	264.60	.48	.59	287	254	255	52	36	84	83	1.2	4.0
	180	267.61											

Traverse: 2	
Start Time: —	Initial Leak Check: — cfm@ — "Hg
Finish Time: 14:28	Final Leak Check: .002 cfm@ 15 "Hg

Traverse:	
Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator : AW / CB / TT

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	1 Semi-Volatile Organic Compounds
Test Date	May 5, 2016
Test Location	APC Outlet No. 2
Operator Signature	Angela Nolan

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 4	
Impinger Box No.:	4	

Pitot Factor	.848	
DGMCF	.984	
Barometric Pressure	29.57	"Hg
Static Pressure	-10.3	"H2O
Nozzle Size	.2543	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Particulate Gain

Filter	Ø	mg
Probe	Ø	mg

Moisture Gain

CWTR	1007.8	g
WCBDA	24.5	g

Combustion Gas Concentration

Oxygen	7.99	%
Carbon Dioxide	11.41	%
Carbon Monoxide	17.5	ppm

Measuring Device	MII Numbers
Probe / Pitot S6	B037467
Trendicator	COE20090
Control Box	COE20090
Incline Manometer	COE20090
Comb.Gas.Analyzer	
Micromanometer	—
Barometer	ENV. CAN.
Calipers	CAN22136

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Nozzle Measurements	
1	.2540
2	.2550
3	.2530
4	.2550
Average:	.2543

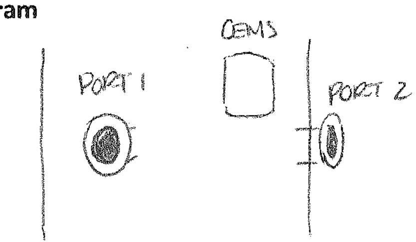
Probe Liner Glass / Metal / Teflon / Other

Nozzle Glass / Metal / Other

Union None / Metal / Teflon / Other

Pitot Leak Checked? Yes No

Site Diagram



Notes:

Field Data Sheet

Date: 05/05/16	Plant: Covanta DYEC	Test No.: SVOC	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	1.60	.68	.73	280	244	246	72	43	80	82	1.8	7.0
	5	5.35	.64	.70	284	248	253	45	46	82	82	1.5	7.0
	10	8.85	.65	.71	283	247	252	45	44	82	83	1.6	7.0
2	15	12.45	.73	.75	283	248	251	45	45	82	85	1.8	7.0
	20	16.24	.76	.77	283	247	254	44	46	82	85	1.9	7.5
	25	20.14	.78	.78	283	248	248	44	48	82	86	1.95	7.5
3	30	24.09	.80	.79	284	247	254	45	49	82	86	2.0	8.0
	35	28.10	.80	.79	285	249	248	45	50	83	86	2.0	8.0
	40	32.11	.79	.78	285	246	253	45	51	83	86	1.95	8.0
4	45	36.08	.78	.78	285	245	252	46	52	83	86	1.95	8.0
	50	40.04	.76	.77	286	243	251	46	50	83	86	1.9	8.0
	55	43.97	.77	.77	286	244	254	46	50	83	86	1.85	8.0
5	60	47.86	.70	.74	286	246	249	47	50	83	86	1.75	7.5
	65	51.63	.72	.75	286	244	254	47	46	83	86	1.75	7.5
	70	55.39	.70	.74	286	244	248	47	44	83	87	1.7	7.5
6	75	59.11	.67	.72	286	249	253	48	44	83	87	1.65	7.0
	80	62.78	.67	.72	286	249	251	48	43	83	87	1.65	7.0
	85	66.44	.67	.72	285	246	251	48	44	83	87	1.65	7.0
7	90	70.10	.65	.71	285	246	254	49	45	83	87	1.6	7.5
	95	73.73	.64	.71	285	243	248	47	44	83	87	1.55	7.0
	100	77.26	.62	.70	285	246	254	47	44	83	88	1.5	7.0

Traverse: PORT 1		Traverse:	
Start Time: 09:19	Initial Leak Check: .006 cfm@ 16 "Hg	Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time: —	Final Leak Check: — cfm@ — "Hg	Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/05/16	Plant: Covanta DYEC	Test No.: SVOC	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
8	105	80.78	.64	.71	285	243	251	46	43	83	88	1.55	7.0
	110	84.25	.65	.71	285	247	252	46	43	83	88	1.6	7.0
	115	87.90	.65	.71	285	243	254	46	44	83	88	1.6	7.0
9	120	91.55	.67	.73	284	248	254	46	45	83	88	1.6	7.0
	125	95.18	.68	.73	285	245	254	46	46	83	88	1.7	7.5
	130	98.90	.70	.74	284	242	250	47	47	83	88	1.7	7.5
10	135	102.62	.71	.74	284	243	251	47	48	83	87	1.75	7.5
	140	106.40	.71	.74	285	243	254	47	46	83	87	1.75	8.0
	145	110.17	.79	.78	286	246	248	47	46	83	87	2.0	8.0
11	150	114.18	.69	.73	287	249	253	47	47	83	86	1.7	8.0
	155	117.99	.66	.72	282	248	252	47	44	83	87	1.6	7.5
	160	121.66	.66	.72	282	242	250	47	43	83	86	1.55	7.0
12	165	125.25	.73	.76	281	242	254	47	42	83	87	1.8	7.5
	170	129.05	.74	.76	284	242	248	47	44	83	87	1.8	8.0
	175	132.89	.72	.75	287	244	252	48	44	83	86	1.75	8.0
	180	136.68											

Traverse: PORT 1		Traverse:	
Start Time: —	Initial Leak Check: — cfm@ — "Hg	Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time: 12:19	Final Leak Check: .006 cfm@ 19 "Hg	Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/05/16	Plant: Covanta DYEC	Test No.: SVOC	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	137.21	.75	.76	280	243	248	64	39	82	83	1.9	8.0
	5	141.03	.75	.76	282	244	250	48	44	82	84	1.9	8.0
	10	144.98	.74	.76	282	248	254	49	45	82	85	1.9	8.0
2	15	148.87	.81	.79	282	244	249	50	46	82	85	2.0	8.0
	20	152.86	.81	.79	283	244	254	46	48	82	86	2.0	8.0
	25	156.87	.80	.79	283	244	248	46	47	82	85	2.0	8.0
3	30	160.98	0.80	0.79	282	250	252	46	47	82	85	2.0	8.0
	35	164.84	0.75	0.76	282	249	251	45	48	82	85	1.9	8.0
	40	168.67	0.76	0.77	282	247	251	45	48	82	86	1.9	8.0
4	45	172.53	0.70	0.74	282	247	254	45	49	82	86	1.7	7.5
	50	176.22	.74	.76	284	248	249	45	49	82	86	1.8	8.0
	55	180.05	.75	.76	284	247	254	45	49	82	86	1.9	8.0
5	60	183.97	.69	.73	288	247	248	46	47	83	86	1.7	8.0
	65	187.74	.66	.72	284	244	253	46	46	83	86	1.6	7.5
	70	191.35	.70	.74	284	244	251	47	45	83	87	1.8	8.0
6	75	195.13	.58	.67	285	248	250	48	47	83	86	1.4	7.0
	80	198.37	.55	.65	285	249	254	48	43	83	86	1.4	7.0
	85	201.76	.55	.65	285	244	247	48	44	83	87	1.3	7.0
7	90	205.09	.60	.69	284	245	254	49	44	83	88	1.45	7.0
	95	208.55	.59	.68	283	247	249	49	45	83	88	1.45	7.0
	100	212.01	.59	.68	284	243	252	49	45	83	89	1.45	7.0

Traverse: PORT 2			
Start Time: 12:28	Initial Leak Check: .004	cfm@ 15.5	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: 05/05/16	Plant: Covanta DYEC	Test No.: 1 SVOC	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
8	105	215.46	.60	.69	283	247	253	49	43	83	89	1.5	7.0
	110	218.92	.60	.69	283	248	249	49	42	83	89	1.5	7.0
	115	222.37	.61	.69	283	244	253	49	40	83	89	1.6	7.0
9	120	225.92	.69	.74	284	247	248	50	41	83	89	1.7	7.5
	125	229.63	.69	.74	283	246	252	50	41	84	89	1.7	7.5
	130	233.36	.72	.75	284	247	252	50	42	84	89	1.8	8.0
10	135	237.17	.69	.74	284	248	250	51	43	84	89	1.7	8.0
	140	240.92	.70	.74	285	243	254	51	43	84	89	1.7	8.0
	145	244.65	.71	.75	284	247	248	51	42	84	89	1.8	8.0
11	150	248.48	.61	.69	285	248	253	51	43	84	89	1.5	7.5
	155	252.04	.63	.70	282	244	252	51	42	84	89	1.5	7.5
	160	255.58	.62	.70	282	243	251	52	42	84	91	1.5	7.5
12	165	259.13	.55	.65	281	246	254	51	42	84	90	1.3	7.0
	170	262.49	.56	.66	281	245	248	52	43	84	90	1.35	7.0
	175	265.85	.59	.68	281	247	253	52	42	84	90	1.5	7.0
	180	269.30											

Traverse: PORT 2		Traverse:	
Start Time: —	Initial Leak Check: — cfm@ — "Hg	Start Time: /	Initial Leak Check: / cfm @ / "Hg
Finish Time: 15:28	Final Leak Check: .005 cfm@ 16.5 "Hg	Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 Semi-Volatile Organic Compounds
Test Date	May 9, 2016
Test Location	APC Outlet No. 2
Operator Signature	Angela Molan

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 4	
Impinger Box No.:	10	

Pitot Factor	.848	
DGMCF	.984	
Barometric Pressure	29.84	"Hg
Static Pressure	-10.3	"H2O
Nozzle Size	.2543	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	Ø	mg
Probe	Ø	mg

Moisture Gain

CWTR	961.9	g
WCBDA	21.5	g

Combustion Gas Concentration

Oxygen	7.90	%
Carbon Dioxide	11.56	%
Carbon Monoxide	19.0	ppm

Measuring Device	MII Numbers
Probe / Pitot	
Trendicator	SEE
Control Box	
Incline Manometer	TEST
Comb.Gas.Analyzer	
Micromanometer	
Barometer	#1
Calipers	

Nozzle Measurements	
1	SEE
2	TEST
3	#1
4	
Average:	

Probe Liner Glass / Metal / Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None / Metal / ~~Teflon~~ / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: May 9/16	Plant: Covanta DYEC	Test No.: 2 SVOC	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
*	*	*	*		*			*		*	*	*	*
1	0	~~34.76~~ 35.00	.68	.70	278	243	248	71	61	71	71	1.6	7.0
	5	38.62	.66	.70	278	244	251	43	36	73	73	1.5	7.5
	10	42.04	.68	.71	278	244	251	42	35	73	75	1.6	7.5
2	15	45.54	.70	.72	279	247	245	42	35	73	77	1.7	8.0
	20	49.20	.70	.72	279	244	250	42	36	73	79	1.7	8.0
	25	52.87	.73	.74	279	249	253	41	36	74	86	1.7	8.0
3	30	56.53	.70	.72	279	244	246	42	36	74	82	1.7	8.0
	35	60.18	.69	.72	280	244	248	42	36	75	83	1.7	8.0
	40	63.82	.70	.72	280	249	254	42	36	75	83	1.7	8.0
4	45	67.46	.64	.69	280	249	247	43	35	75	84	1.5	8.0
	50	70.92	.64	.69	281	244	247	42	36	75	84	1.6	7.5
	55	74.44	.66	.70	280	247	254	42	36	75	84	1.6	7.5
5	60	77.97	.59	.67	280	248	249	42	36	76	85	1.4	7.5
	65	81.36	.55	.64	281	244	249	42	35	76	85	1.3	7.0
	70	84.64	.54	.64	281	245	254	42	35	76	86	1.3	7.0
6	75	87.87	.53	.63	279	247	248	42	35	76	85	1.3	7.0
	80	91.08	.52	.63	280	248	249	41	36	76	85	1.3	7.0
	85	94.27	.51	.62	280	248	248	40	36	76	85	1.2	7.0
7	90	97.40	.50	.61	283	250	246	40	36	76	87	1.2	7.0
	95	100.51	.53	.63	282	244	250	40	36	76	86	1.3	7.0
	100	103.74	.53		281	247	252	40	36	76	85	1.3	7.0

Traverse: PORT 2	
Start Time: 10:10	Initial Leak Check: .006 cfm@ 15 "Hg
Finish Time: —	Final Leak Check: — cfm@ — "Hg

Traverse:	
Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator : AN

Rev: April 28, 2005

ORTECH Environmental

Field Data Sheet

Date: May 9/16	Plant: Covanta DYEC	Test No.: 2 SVOC	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft³	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
*	*	*	*		*			*		*	*	*	*
8	105	106.97	.54	.64	281	248	249	40	36	76	85	1.3	7.0
	110	110.19	.54	.64	281	245	248	40	36	76	85	1.3	7.0
	115	113.42	.53	.63	281	243	253	40	37	76	85	1.3	7.0
9	120	116.64	.57	.65	281	246	252	41	37	75	85	1.3	7.0
	125	119.91	.56	.65	281	249	248	41	37	75	85	1.3	7.0
	130	123.20	.56	.65	280	246	253	41	37	76	84	1.3	7.0
10	135	126.49	.56	.65	280	247	253	40	36	75	84	1.3	7.0
	140	129.78	.56	.65	280	246	246	39	36	75	84	1.3	7.0
	145	133.06	.54	.64	281	248	254	39	37	76	85	1.3	7.0
11	150	136.29	.55	.64	279	244	249	39	36	75	84	1.3	7.0
	155	139.55	.53	.63	279	247	249	39	37	75	84	1.3	7.0
	160	142.81	.54	.64	279	247	254	39	37	75	85	1.3	7.0
12	165	146.07	.54	.64	279	246	246	38	37	75	84	1.3	7.0
	170	149.29	.56	.65	279	243	248	39	37	75	83	1.3	7.0
	175	152.55	.57	.65	279	247	253	39	36	75	85	1.35	7.0
	180	155.87											

Traverse: Port 2			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 13:10	Final Leak Check: .004	cfm@ 16	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: May 9/16	Plant: Covanta DYEC	Test No.: 2 SVOC	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft³	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
1	0	156.35	.75	.74	280	247	252	50	35	73	76	1.8	8.5
	5	160.17	.65	.69	281	248	244	39	37	74	78	1.5	8.0
	10	163.73	.63	.68	281	246	252	39	38	73	79	1.4	7.5
2	15	167.10	.74	.74	281	246	252	40	39	73	80	1.8	8.0
	20	170.77	.73	.74	281	243	244	39	38	73	84	1.7	8.5
	25	174.47	.74	.74	281	243	252	38	37	73	81	1.8	8.5
3	30	178.24	.74	.74	282	244	249	38	37	73	81	1.8	8.5
	35	182.04	.74	.74	281	244	247	38	37	73	81	1.8	8.5
	40	185.75	.74	.74	282	248	250	39	37	73	81	1.8	8.5
4	45	189.55	.72	.73	282	249	246	39	37	73	81	1.7	8.5
	50	193.24	.73	.74	282	247	248	39	37	73	83	1.8	8.5
	55	196.98	.71	.73	282	246	253	39	37	74	85	1.7	8.5
5	60	200.68	.69	.71	283	248	245	40	37	73	81	1.7	8.5
	65	204.35	.68	.71	282	248	249	40	37	73	81	1.7	8.5
	70	207.99	.68	.71	282	244	253	40	37	73	81	1.6	8.0
6	75	211.59	.64	.69	282	246	244	41	37	73	82	1.5	8.0
	80	215.07	.61	.67	282	245	248	41	37	73	83	1.4	8.0
	85	218.50	.60	.67	281	243	247	41	37	73	82	1.4	8.0
7	90	222.03	.63	.68	281	244	247	41	37	73	82	1.5	8.0
	95	225.36	.62	.68	281	244	244	42	37	73	82	1.45	8.0
	100	228.74	.62	.68	281	243	252	42	37	73	82	1.45	8.0

Traverse: PORT 1			
Start Time: 13:18	Initial Leak Check: .006	cfm@ 16	"Hg
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : AN

Field Data Sheet

Date: May 9/16	Plant: Covanta DYEC	Test No.: 2 SVOC	
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
8	105	232.11	.66	.70	281	248	248	42	37	73	83	1.55	8
	110	235.55	.65	.69	282	245	244	43	38	73	83	1.55	8.0
	115	239.07	.63	.69	282	248	250	43	37	74	85	1.3	7.5
9	120	242.38	.71	.73	282	242	253	44	37	73	82	1.7	8.0
	125	245.99	.70	.72	282	247	244	43	37	73	83	1.7	8.0
	130	249.60	.68	.71	282	242	251	44	38	74	82	1.65	8.5
10	135	253.22	.70	.72	283	245	252	44	38	74	82	1.7	8.5
	140	256.88	.70	.72	282	246	245	45	39	74	83	1.7	8.5
	145	260.55	.67	.71	281	244	257	45	39	74	83	1.65	8.5
11	150	264.17	.69	.72	281	247	252	45	39	74	82	1.65	8.5
	155	267.79	.65	.70	277	242	244	46	39	74	83	1.5	8.0
	160	271.29	.64	.69	279	248	251	46	39	74	83	1.5	8.0
12	165	274.78	.69	~~.72~~	277	244	253	46	40	74	83	1.6	8.0
	170	278.36	.63	.69	276	242	244	46	41	74	83	1.6	8.0
	175	281.95	.66	.70	276	244	244	47	42	74	83	1.6	8.0
	180	285.50											

Traverse: PORT 1			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 16:18	Final Leak Check: .004	cfm@ 15	"Hg

4:12 4:18

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator : AN

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	3 Semi-Volatile Organic Compounds
Test Date	May 10, 2016
Test Location	APC Outlet No. 2
Operator Signature	Angela Nolan

Project No.:	21656	
Page	1 of 5	
Probe No.:	6 SERIES	
Meter Box No.:	TEAM 4	
Impinger Box No.:	1	

Pitot Factor	.848	
DGMCF	.984	
Barometric Pressure	29.99	"Hg
Static Pressure	-10.3	"H2O
Nozzle Size	.2543	inches
Stack Diameter	4.5	feet
Length	Ø	feet
Width	Ø	feet
Port length:	6	inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	Ø	mg
Probe	Ø	mg

Moisture Gain

CWTR	944.8	g
WCBDA	20.7	g

Combustion Gas Concentration

Oxygen	8.12	%
Carbon Dioxide	11.41	%
Carbon Monoxide	15.0	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE TEST #1
Trendicator	
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements

1 SEE
2 TEST
3
4 #1
Average:

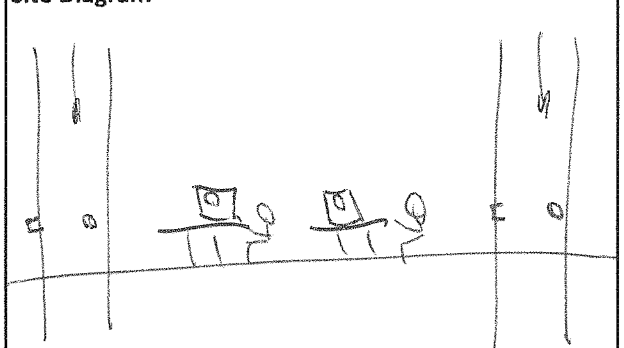
Probe Liner Glass / Metal / Teflon / Other

Nozzle Glass / Metal / Other

Union None / Metal / ~~Teflon~~ / Other

Pitot Leak Checked? Yes No

Site Diagram



Notes:

Rev. November 27, 2014

Field Data Sheet

Date: 05/10/16	Plant: Covanta DYEC	Test No.: 3 SVOC	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	86.32	.68	.71	280	245	251	74	41	74	76	1.6	7.0
	5	89.98	.65	.69	282	247	245	43	37	74	74	1.45	7.0
	10	93.38	.68	.71	281	247	248	43	37	74	76	1.55	7.0
2	15	96.84	.75	.74	281	249	250	42	37	75	78	1.8	8.0
	20	100.58	.71	.73	281	245	252	41	38	75	80	1.7	8.0
	25	104.28	.71	.73	281	248	252	41	37	75	82	1.7	8.0
3	30	107.95	.72	.73	281	246	247	40	37	76	83	1.7	8.0
	35	111.62	.72	.73	280	244	247	41	37	76	84	1.7	8.0
	40	115.27	.72	.73	281	248	246	40	37	76	85	1.7	8.0
4	45	118.93	.67	.71	280	245	246	40	37	77	85	1.5	7.2
	50	122.38	.67	.71	280	244	250	40	37	77	86	1.6	7.4
	55	125.98	.68	.72	280	247	251	40	38	77	86	1.6	7.4
5	60	129.53	.66	.71	280	247	251	40	38	77	86	1.6	7.4
	65	133.10	.66	.71	281	245	253	41	37	78	87	1.6	7.4
	70	136.67	.66	.71	281	245	253	41	37	78	87	1.6	7.4
6	75	140.24	.60	.67	280	244	248	41	37	78	87	1.4	7.0
	80	143.61	.60	.67	280	245	247	40	37	78	87	1.4	7.0
	85	146.98	.60	.67	279	249	250	41	37	78	88	1.4	7.0
7	90	150.37	.60	.67	280	244	250	41	37	79	88	1.4	7.0
	95	153.70	.59	.67	280	249	253	40	38	79	88	1.4	7.0
	100	157.05	.59	.67	280	246	254	40	36	79	88	1.4	7.0

Traverse: Port 1		
Start Time: ~~8:56~~ 8:56	Initial Leak Check: .006 cfm@ 15 "Hg	
Finish Time: —	Final Leak Check: — cfm@ — "Hg	

Traverse:		
Start Time:	Initial Leak Check: cfm @ "Hg	
Finish Time:	Final Leak Check: cfm @ "Hg	

Project No.: 21656
Operator : AN

Field Data Sheet

Date: 05/10/16	Plant: Covanta DYEC	Test No.: 3 SVOC	
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	* Clock Time	* Dry Gas Meter ft³	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
8	105	160.34	.63	.69	281	248	253	40	36	79	88	1.5	7.2
	110	163.88	.62	.69	281	246	247	40	36	79	88	1.5	7.2
	115	167.28	.63	.69	281	245	251	41	37	79	88	1.5	7.2
9	120	170.78	.70	.73	282	249	248	40	37	79	88	1.6	7.6
	125	174.34	.66	.71	284	248	252	40	37	79	88	1.6	8.0
	130	177.93	.66	.71	282	244	254	40	36	79	92	1.6	8.0
10	135	181.53	.69	.72	282	248	253	40	37	79	90	1.7	8.0
	140	185.20	.68	.72	283	244	252	41	38	79	88	1.7	8.0
	145	188.88	.68	.72	282	248	246	40	37	79	88	1.65	8.0
11	150	192.53	.70	.73	282	244	247	41	38	79	88	1.7	8.0
	155	196.22	.67	.71	282	248	251	41	39	80	88	1.6	8.0
	160	199.84	.68	.72	282	245	254	41	39	79	88	1.65	8.0
12	165	203.49	.68	.72	282	245	253	41	40	79	88	1.65	8.0
	170	207.16	.65	.70	283	249	252	42	40	79	88	1.55	8.0
	175	210.75	.63	.69	281	247	247	42	40	79	88	1.5	7.5
	180	214.29											

Traverse: Port 1			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 11:56	Final Leak Check: .005	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656
Operator : AN

Field Data Sheet

Date: 05/10/16	Plant: Covanta DYEC	Test No.: 3 SVOC	Page 4 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft³	Pitot Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*			*		*	*	*	*
1	0	214.73	.70	.73	280	245	247	64	41	79	82	1.7	8.0
	5	218.42	.68	.71	280	243	246	41	38	79	82	1.6	8.0
	10	222.04	.66	.71	280	249	247	42	38	79	84	1.6	8.0
2	15	225.61	.73	.74	280	246	249	42	38	79	85	1.8	8.0
	20	229.34	.77	.76	280	249	253	42	38	79	87	1.9	8.5
	25	233.20	.79	.77	280	247	254	43	38	79	87	1.95	9.0
3	30	237.15	.77	.76	282	249	253	43	38	79	87	1.9	9.0
	35	241.05	.77	.76	281	248	254	44	39	79	87	1.9	9.0
	40	244.97	.78	.77	282	249	247	44	38	79	87	1.9	9.0
4	45	248.87	.70	.73	281	250	248	44	39	79	88	1.7	8.2
	50	252.59	.70	.73	281	251	249	44	38	79	88	1.7	8.2
	55	256.30	.70	.73	281	250	248	44	38	79	88	1.7	8.2
5	60	259.98	.65	.70	281	244	250	45	39	79	88	1.5	8.0
	65	263.50	.64	.70	281	247	254	46	39	79	88	1.5	8.0
	70	266.98	.64	.70	281	244	252	46	38	80	89	1.5	8.0
6	75	270.43	.61	.68	282	244	247	46	39	80	89	1.4	7.6
	80	273.80	.61	.68	282	244	246	46	37	80	89	1.4	7.6
	85	277.16	.62	.69	282	249	249	45	36	80	89	1.45	7.7
7	90	280.60	.57	.66	282	249	249	45	36	80	89	1.40	7.5
	95	283.97	.60	.68	281	247	250	45	36	80	89	1.4	7.5
	100	287.32	.60		283	249	253	46	36	80	90	1.45	7.5

Traverse: PORT 2				
Start Time: 12:09	Initial Leak Check: .004	cfm@ 15	"Hg	
Finish Time: —	Final Leak Check: —	cfm@ —	"Hg	

Traverse: /			
Start Time: /	Initial Leak Check: /	cfm @ /	"Hg
Finish Time: /	Final Leak Check: /	cfm @ /	"Hg

Project No.: 21656

Operator : AN / CB.

Field Data Sheet

Date: 05/10/16	Plant: Covanta DYEC	Test No.: 3 SVOC	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet~~/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
8	105	290.73	.58	.66	283	248	254	46	37	80	90	1.35	7.5
	110	294.10	.60	.68	284	247	252	46	36	80	90	1.45	7.5
	115	297.52	.56	.65	283	248	250	47	36	81	91	1.3	7.5
9	120	300.80	.61	.68	282	246	247	47	36	81	90	1.45	7.5
	125	304.21	.61	.68	283	248	246	44	37	81	90	1.45	7.5
	130	307.62	.62	.69	283	247	250	43	36	81	90	1.45	7.5
10	135	311.04	.61	.68	282	243	251	43	36	81	90	1.45	7.5
	140	314.46	.61	.68	284	246	254	43	36	81	90	1.45	7.5
	145	317.86	.62	.69	283	248	254	43	36	81	90	1.45	7.5
11	150	321.31	.58	.66	283	245	249	43	36	81	90	1.35	7.5
	155	324.62	.57	.65	283	245	249	44	36	81	90	1.35	7.5
	160	327.95	.57	.65	282	247	248	44	36	81	90	1.35	7.5
12	165	331.28	.51	.62	282	247	248	44	36	81	90	1.25	7.2
	170	334.39	.51	.62	282	247	248	44	36	81	90	1.25	7.2
	175	337.66	.51	.62	282	244	251	44	37	81	90	1.15	7.0
	180	340.78											

Traverse: PORT 2		
Start Time: —	Initial Leak Check: —	cfm@ — "Hg
Finish Time: 15:09	Final Leak Check: .004	cfm@ 15 "Hg

Traverse:		
Start Time:	Initial Leak Check:	cfm @ "Hg
Finish Time:	Final Leak Check:	cfm @ "Hg

Project No.: 21656
Operator : AW / CB

APPENDIX 6

Acid Gas Field Data Sheets
(12 pages)

ORTECH Environmental

Plant	Covanta DYEC	
Plant Location	Courtice, Ontario	
Test No.:	1	M26A
Test Date	May 2 2016	
Test Location	APC Outlet No. 1	
Operator Signature		

Project No.:	21656	
Page	1 of 2	
Probe No.:	6 Series	
Meter Box No.:	Team 2	
Impinger Box No.:	13	

Pitot Factor	.841	
DGMCF	.980	
Barometric Pressure	29.74	"Hg
Static Pressure	-9.3	"H2O
Nozzle Size	.2553	inches
Stack Diameter	4.5	feet
Length	-	feet
Width	-	feet
Port length:		inches

Reading Interval	5
Number of Ports	~~2~~ 1
Number of Points/Port	~~12~~ 1

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	161.7	g
WCBDA	9.5	g

Combustion Gas Concentration

Oxygen	7.17	%
Carbon Dioxide	11.95	%
Carbon Monoxide	14.5	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot S3	B03763
Trendicator	COE 20092
Control Box Team 2	COE 20092
Incline Manometer	COE 20092
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Nozzle Measurements

1	.2556
2	.2545
3	.2555
4	.2555
Average:	.2553

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 2, 2016	Plant: Covanta DYEC	Test No.: 1 ~~Particulate/Metals~~ 26a	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1 21656	

Point	M26A Clock Time *	Dry Gas Meter ft³ *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp ~~Inlet/Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	96.45	.66	.70	285	253	250	75	125	78	77	~~1~~ 1.65	4
~~2~~	5	~~98~~ 100.10	.69	.71	291	250	251	58	233	78	78	1.6	3.5
~~3~~	10	103.67	.68	.71	292	251	250	54	233	78	78	1.6	3.5
~~4~~	15	107.25	.67	.70	293	249	249	52	232	79	78	1.6	3.5
~~5~~	20	110.73	.67	.70	296	269	269	53	243	81	78	1.6	3.5
~~6~~	25	114.30	.66	.70	296	272	277	53	256	82	79	1.6	3.5
~~7~~	30	117.86	.65	.69	297	271	269	53	252	82	79	1.6	3.5
~~8~~	35	121.43	.68	.71	296	270	272	52	251	83	80	1.65	3.5
~~9~~	40	125.04	.66	.70	295	267	270	51	252	84	80	1.6	3.5
~~10~~	45	128.58	.69	.72	294	272	270	51	251	84	80	1.65	3.5
~~11~~	50	132.20	.66	.70	295	272	270	51	252	85	80	1.6	3.5
~~12~~	55	135.75	.66	.70	295	272	270	52	251	84	80	1.6	3.5
	60	139.31											

Traverse:			
Start Time: 11:09	Initial Leak Check: .005	cfm@ 16	"Hg
Finish Time: 12:09	Final Leak Check: .004	cfm@ 14.5	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

pt. 5 single point sampling

Project No.: 21656

Operator :

Rev: April 28, 2005

ORTECH Environmental

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	M26A
Test Date	May 2 2016
Test Location	APC Outlet No. 1
Operator Signature	

Project No.:	21656	
Page	1 of 2	
Probe No.:	6 series	
Meter Box No.:	Team 2	
Impinger Box No.:	~~13~~ 6	

Measuring Device	MII Numbers
Probe / Pitot 53	
Trendicator	COE 20092
Control Box	COE 20092
Incline Manometer	COE 20092
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Pitot Factor	.841	
DGMCF	.980	
Barometric Pressure	29.74	"Hg
Static Pressure	-9.3	"H2O
Nozzle Size	.2553	inches
Stack Diameter	4.0	feet
Length		feet
Width		feet
Port length:		inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	155.3	g
WCBDA	9.1	g

Combustion Gas Concentration

Oxygen	7.53	%
Carbon Dioxide	11.68	%
Carbon Monoxide	12.3	ppm

Reading Interval	5
Number of Ports	~~2~~ 1
Number of Points/Port	~~12~~ 1

Nozzle Measurements

1 ____
2 See
3 Test 1
4 ____
Average:

Probe Liner Glass / Metal /Teflon / Other____

Nozzle Glass / Metal / Other____

Union None /Metal / Teflon / Other____

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 2, 2016	Plant: Covanta DYEC	Test No.: 2	~~Particulate/Metals~~ M26a	
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 1 21656	

Point	* M26A Clock Time	* Dry Gas Meter ft^3	* Pitot Δ P "H_2O	Desired cfm	* Stack Temp °F	Probe Temp °F	Oven Temp °F	* Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	* Meter Temp Outlet °F	* Meter Temp Inlet °F	* Meter Pressure Δ H "H_2O	* Pump Vacuum "Hg Gauge
1	0	39.79	.67	.71	294	269	269	80	92	82	81	1.65	2.5
~~2~~	5	43.46	.61	.68	288	266	269	49	241	82	81	1.55	2.5
~~3~~	10	46.96	.64	.69	287	270	270	48	244	82	81	1.55	2.5
~~4~~	15	50.49	.60	.67	286	271	269	48	243	83	81	1.45	2.5
~~5~~	20	53.87	.66	.71	286	268	269	48	244	84	82	1.65	2.8
~~6~~	25	57.45	.64	.70	286	267	269	48	245	85	82	1.55	3
~~7~~	30	60.97	.62	.69	286	273	270	49	245	86	82	1.5	3
~~8~~	35	64.45	.66	.71	286	269	270	49	246	86	83	1.6	3
~~9~~	40	67.99	.65	.70	287	268	271	50	247	87	83	1.6	3
~~10~~	45	71.52	.66	.71	287	273	270	50	246	87	83	1.65	3
~~11~~	50	75.10	.64	.70	287	268	270	49	247	87	83	1.6	3
~~12~~	55	78.64	.60	.68	287	273	270	50	246	87	84	1.5	3
	60	82.07											

Traverse:				
Start Time: 12:47	Initial Leak Check: .004	cfm@ 14.5	"Hg	
Finish Time: 13:47	Final Leak Check: .004	cfm@ 14.5	"Hg	

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

pt. 5 single point isokinetic sampling

Project No.: 21656

Operator :

ORTECH Environmental

Plant	Covanta DYEC	
Plant Location	Courtice, Ontario	
Test No.: 3	M26A	
Test Date	May 2 2016	
Test Location	APC Outlet No. 1	
Operator Signature		

Project No.:	21656	
Page	1 of 2	
Probe No.:	6 Series	
Meter Box No.:	Team 2	
Impinger Box No.:	13	

Pitot Factor	.841	
DGMCF	.980	
Barometric Pressure	29.73	"Hg
Static Pressure	-9.3	"H2O
Nozzle Size	.2553	inches
Stack Diameter	4.3	feet
Length	-	feet
Width	-	feet
Port length:		inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	136.4	g
WCBDA	11.0	g

Combustion Gas Concentration

Oxygen	7.24	%
Carbon Dioxide	11.75	%
Carbon Monoxide	11.9	ppm

Measuring Device	MII Numbers
Probe / Pitot S3	
Trendicator	COE 20092
Control Box Team 2	COE 20092
Incline Manometer	COE 20092
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Reading Interval	5
Number of Ports	~~2~~ 1
Number of Points/Port	~~12~~ 1

Nozzle Measurements

1 ____
2 See Test
3 ____
4 ____
Average:

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: May 2, 2016	Plant: Covanta DYEC	Test No.: 3	~~Particulate/Metals~~ M26a	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 1	21656

Point	M26A Clock Time *	Dry Gas Meter ft^3 *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	82.50	.65	.70	286	268	270	79	91	83	82	1.6	2.5
~~2~~	5	86.07	.60	.67	286	270	271	57	247	82	82	1.45	2.5
~~3~~	10	89.46	.60	.67	285	272	270	56	247	82	82	1.45	2.5
~~4~~	15	92.83	.58	.66	285	273	270	56	246	83	82	1.4	2.5
~~5~~	20	96.16	.57	.66	284	267	270	57	245	84	82	1.4	2.5
~~6~~	25	99.48	.61	.68	284	270	270	58	245	85	82	1.5	2.5
~~7~~	30	102.90	.65	.70	285	273	270	57	245	85	82	1.6	3
~~8~~	35	106.45	.61	.68	286	273	270	58	246	86	83	1.5	3
~~9~~	40	109.91	.62	.69	286	273	270	59	246	87	83	1.55	3
~~10~~	45	113.44	.59	.67	286	274	270	61	246	87	84	1.45	3
~~11~~	50	116.83	.59	.67	286	269	270	62	245	87	84	1.45	3
~~12~~	55	120.22	.57	.66	285	274	270	65	245	87	84	1.4	3
	60	123.58											

Traverse:			
Start Time: 15:01	Initial Leak Check: .007	cfm@ 15	"Hg
Finish Time: 16:01	Final Leak Check: .005	cfm@ 14.5	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 21656

Operator :

Rev: April 28, 2005

ORTECH Environmental

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	M26A
Test Date	May 3 2016
Test Location	APC Outlet No. 2
Operator Signature	

Project No.:	21656	
Page	1 of 2	
Probe No.:	3 series	
Meter Box No.:	Team 2	
Impinger Box No.:	13	

Pitot Factor	.841	
DGMCF	.980	
Barometric Pressure	29.64	"Hg
Static Pressure	-10.0	"H2O
Nozzle Size	.2553	inches
Stack Diameter	4.5	feet
Length	–	feet
Width	–	feet
Port length:		inches

Reading Interval	5
Number of Ports	~~2~~ 1
Number of Points/Port	~~12~~ 1

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	146.3	g
WCBDA	10.2	g

Combustion Gas Concentration

Oxygen	8.21	%
Carbon Dioxide	11.12	%
Carbon Monoxide	17.8	ppm

Measuring Device	MII Numbers
Probe / Pitot S3	
Trendicator	COE 20092
Control Box	COE 20092
Incline Manometer	COE 20092
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Nozzle Measurements

1	0.2556
2	0.2545
3	0.2555
4	0.2555
Average:	0.2553

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / ~~Teflon~~ / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Field Data Sheet

Date: May 3, 2016	Plant: Covanta DYEC	Test No.: 1 ~~Particulate~~/Metals 26a	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2 21656	

Point	M26A Clock Time *	Dry Gas Meter ft^3 *	Pitot ΔP "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/~~Trap~~ °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure ΔH "H_2O *	Pump Vacuum "Hg Gauge *
1	0	24.28	.67	.71	291	269	266	82	117	78	77	1.6	2.5
~~2~~	5	27.79	.69	.72	293	267	272	56	247	81	80	1.65	2.5
~~3~~	10	31.36	.70	.72	292	268	271	55	247	81	80	1.7	2.5
~~4~~	15	34.98	.69	0.72	294	268	271	56	246	82	81	1.7	3.0
~~5~~	20	38.63	.69	.72	293	268	271	58	245	83	81	1.7	3
~~6~~	25	41.27	.67	.71	293	268	271	60	245	84	81	1.65	2.5
~~7~~	30	45.87	.67	.71	291	268	271	60	243	84	81	1.65	2.5
~~8~~	35	49.46	.67	.71	291	269	271	62	244	84	81	1.65	2.5
~~9~~	40	53.06	.67	.71	290	269	271	56	243	84	82	1.65	2.5
~~10~~	45	56.64	.68	.72	289	269	271	54	242	85	82	1.7	2.5
~~11~~	50	60.27	.68	.72	289	269	271	53	243	85	82	1.7	2.5
~~12~~	55	63.92	.67	.71	290	269	271	53	243	85	82	1.65	2.5
	60	67.52											

Traverse:		Traverse:	
Start Time: 10:04	Initial Leak Check: .004 cfm@ 15 "Hg	Start Time:	Initial Leak Check: cfm @ "Hg
Finish Time: 11:04	Final Leak Check: .003 cfm@ 10 "Hg	Finish Time:	Final Leak Check: cfm @ "Hg

Project No.: 21656

Operator :

Rev: April 28, 2005

ORTECH Environmental

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 M26A 2
Test Date	May 3
Test Location	APC Outlet No. 2
Operator Signature	

Project No.:	21656
Page	1 of 2
Probe No.:	6 Series
Meter Box No.:	Team 2
Impinger Box No.:	13

Pitot Factor	.841	
DGMCF	.980	
Barometric Pressure	29.62	"Hg
Static Pressure	-10.0	"H2O
Nozzle Size	.2553	inches
Stack Diameter	4.5	feet
Length	–	feet
Width	–	feet
Port length:		inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	157.2	g
WCBDA	12.8	g

Combustion Gas Concentration

Oxygen	8.77	%
Carbon Dioxide	10.76	%
Carbon Monoxide	17.0	ppm

Measuring Device	MII Numbers
Probe / Pitot 53	
Trendicator	COE 20092
Control Box	COE 20092
Incline Manometer	COE 20092
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Reading Interval	5
Number of Ports	~~2~~ 1
Number of Points/Port	~~12~~ 1

Nozzle Measurements

1 See
2 Test 1
3
4
Average:

Probe Liner Glass / Metal /Teflon / Other__________

Nozzle Glass / Metal / Other__________

Union None /Metal / Teflon / Other__________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 3	Plant: Covanta DYEC	Test No.: 2	~~Particulate/Metals~~ 26e	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 2 21656	

Point	M26A Clock Time *	Dry Gas Meter ft³ *	Pitot Δ P "H_2O *	Desired cfm	Stack Temp °F *	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F *	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F *	Meter Temp Inlet °F *	Meter Pressure Δ H "H_2O *	Pump Vacuum "Hg Gauge *
1	0	67.97	.73	.74	290	267	268	75	133	83	82	1.8	3
~~2~~	5	71.77	.75	.75	291	267	271	60	244	83	82	1.85	3
~~3~~	10	75.55	.73	.74	291	268	271	58	245	83	82	1.75	3
~~4~~	15	79.28	.75	.75	292	268	270	58	243	83	82	1.85	3
~~5~~	20	83.05	.75	.75	292	269	271	59	243	84	82	1.85	3
~~6~~	25	86.82	.75	.75	292	269	270	59	242	84	82	1.85	3
~~7~~	30	90.62	.75	.75	292	268	271	61	242	85	82	1.85	3
~~8~~	35	94.40	.75	.75	293	268	271	63	243	85	83	1.85	3
~~9~~	40	98.22	.79	.77	293	268	271	63	242	85	83	1.95	3.2
~~10~~	45	102.15	.81	.78	294	269	271	61	244	85	83	2.0	3.5
~~11~~	50	106.11	.80	.78	294	268	271	60	243	85	83	2.0	3.5
~~12~~	55	110.07	.78	.77	294	268	271	60	244	85	83	1.9	3.5
	60	113.99											

Traverse:			
Start Time: 11:18	Initial Leak Check: .002	cfm@ 14.5	"Hg
Finish Time: 12:18	Final Leak Check: .004	cfm@ 14	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Single point isokinetic sampling pt.5

Project No.: 21656

Operator :

ORTECH Environmental

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	M26A
Test Date	May 3 2016
Test Location	APC Outlet No. 2
Operator Signature	

Project No.:	21656
Page	1 of 2
Probe No.:	3@-Series
Meter Box No.:	Team 2
Impinger Box No.:	13

Pitot Factor	.841	
DGMCF	.980	
Barometric Pressure	29.59	"Hg
Static Pressure	-10	"H2O
Nozzle Size	.2553	inches
Stack Diameter	4.5	feet
Length	-	feet
Width	-	feet
Port length:		inches

Reading Interval	5
Number of Ports	~~2~~ 1
Number of Points/Port	~~12~~ 1

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	154.4	g
WCBDA	9.7	g

Combustion Gas Concentration

Oxygen	8.18	%
Carbon Dioxide	11.22	%
Carbon Monoxide	13.6	ppm

Measuring Device	MII Numbers
Probe / Pitot S5	
Trendicator	COE 20092
Control Box	COE 20092
Incline Manometer	COE 20092
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env Canada
Calipers	

Nozzle Measurements

1 ____
2 See
3 Test #
4 ____
Average:

Probe Liner Glass / Metal /Teflon / Other________

Nozzle Glass / Metal / Other________

Union None /Metal /Teflon / Other________

Pitot Leak Checked? Yes No

Site Diagram

Notes:

Rev. November 27, 2014

Field Data Sheet

Date: May 3 2016	Plant: Covanta DYEC	Test No.: 3	~~Particulate~~/~~Metals~~ M26a	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 2	21656

Point	M26A Clock Time	Dry Gas Meter ft^3	Pitot ΔP "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
	*	*	*		*				*	*	*	*	*
1	0	14.475	.68	.72	290	267	269	78	125	82	81	1.7	2.5
~~2~~	5	18.21	.67	.72	290	267	272	56	247	82	82	1.7	2.5
~~3~~	10	21.81	.67	.72	289	267	271	53	245	82	81	1.7	2.5
~~4~~	15	25.44	.66	.71	289	268	271	53	244	82	81	1.65	2.5
~~5~~	20	29.02	.68	.72	289	268	271	53	243	83	81	1.7	2.5
~~6~~	25	32.66	.69	.73	289	268	270	53	243	83	81	1.7	2.5
~~7~~	30	36.32	.69	.73	289	268	270	53	243	83	81	1.7	2.5
~~8~~	35	39.99	.71	.74	289	268	271	54	243	84	81	1.8	2.5
~~9~~	40	43.75	.66	.71	289	268	271	55	243	84	82	1.65	2.5
~~10~~	45	47.36	.63	.70	289	268	270	56	242	84	82	1.6	2.5
~~11~~	50	50.89	.66	.71	289	268	271	57	242	84	82	1.65	2.5
~~12~~	55	54.46	.67	.72	289	268	271	58	243	84	82	1.7	2.5
	60	58.10											

Traverse:				
Start Time: 13:02	Initial Leak Check:	.003	cfm@ 15	"Hg
Finish Time: 14:02	Final Leak Check:	.003	cfm@ 14.5	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 21656

Operator :

APPENDIX 7

VOST Field Data Sheets
(8 pages)

ORTECH Environmental

Vost Data Sheet

Plant: Covanta DYEC	Test Condition:	
Plant Locatior Courtice, ON	Test No: 1	Control Box ID: 4
Test location: APC Outlet No. 1	DGMCF: 0.988	Operator: DOU
Date: MAY 10, 2016	Barometric Pressure: 30.01 "Hg	Project No: 21656
~ 1 LPM for 20 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:

16-21656-VOST-

Tube Pair 1 Start Time: 854	Initial Leak Check NDL @ 19 "Hg	Sample ID: 1A, 1B
Tube Pair 1 End Time: 914	Final Leak Check NDL @ 15 "Hg	Lab ID: CHW108 1A, 1B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	26.22	130	146	19	26	1.1	5
5	31.5	135	147	10	29	1.1	5
10	36.9	134	147	10	29	1.1	6
15	41.5	135	143	8	28	1.1	7
20	46.72	133	144	8	28	1.1	7.5

Tube Pair 2 Start Time: 923	Initial Leak Check NDL @ 15 "Hg	Sample ID: 2A, 2B
Tube Pair 2 End Time: 943	Final Leak Check NDL @ 14 "Hg	Lab ID: CHW109 2A, 2B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	46.86	136	143	11	27	1.1	5
5	52.4	136	143	10	30	1.1	6
10	57.9	137	143	8	31	1.1	6
15	63.2	134	143	8	31	1.1	6.5
20	68.2	135	142	8	31	1.1	7

Tube Pair 3 Start Time: 951	Initial Leak Check NDL @ 14 "Hg	Sample ID: 3A, 3B
Tube Pair 3 End Time: 1011	Final Leak Check NDL @ 13 "Hg	Lab ID: 3A, 3B CHW110

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	68.32	133	141	10	29	1.1	4
5	73.5	133	142	9	31	1.1	5
10	78.8	134	142	8	32	1.1	5
15	84.1	132	141	8	32	1.1	5
20	89.27	133	141	8	32	1.1	5

Tube Pair 4 Start Time: 1019	Initial Leak Check NDL @ 13 "Hg	Sample ID: 12A, 12B
Tube Pair 4 End Time: 1039	Final Leak Check NDL @ 15 "Hg	Lab ID: CEJ038 12A, 12B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	89.4	134	139	10	29	1.1	5
5	94.4	134	139	9	30	1.1	5
10	99.6	134	140	8	33	1.1	5.5
15	104.2	133	142	8	33	1.1	6
20	109.64	133	141	8	33	1.1	6

Rev: May 10, 2016

ORTECH Environmental

Vost Data Sheet

Plant: Covanta DYEC	Test Condition:		
Plant Locatior Courtice, ON	Test No: 2	Control Box ID: 4	
Test location: APC Outlet No. 1	DGMCF: 0.998	Operator:	
Date: MAY 10, 2016	Barometric Pressure: 30.01 "Hg	Project No: 21656	
~ 1 LPM for 20 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:	

16-21656-VOST

Tube Pair 1 Start Time: 1049	Initial Leak Check NDL @ 15 "Hg	Sample ID: 4A, 4B
Tube Pair 1 End Time: 1109	Final Leak Check NDL @ 15 "Hg	Lab ID: CHW111 4A, 4B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	9.78	134	143	9	29	1.1	7
5	15.9	134	144	9	32	1.1	7.5
10	21.2	132	144	8	33	1.1	8
15	26.2	132	144	8	32	1.1	8
20	31.17	133	144	8	32	1.1	8

Tube Pair 2 Start Time: 1115	Initial Leak Check NDL @ 15 "Hg	Sample ID: 5A, 5B
Tube Pair 2 End Time: 1135	Final Leak Check NDL @ 18.5 "Hg	Lab ID: CHW112

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	31.25	134	142	13	30	1.1	8
5	36.55	135	142	13	32	1.0	8.6
10	41.32	136	142	14	34	1.0	9.5
15	46.46	134	142	12	33	1.0	9.3
20	51.45	134	142	12	32	1.0	9.3

Tube Pair 3 Start Time: 1145	Initial Leak Check NDL @ 18.5 "Hg	Sample ID: 6A, 6B
Tube Pair 3 End Time: 1205	Final Leak Check NDL @ 16 "Hg	Lab ID: CHW113 6A, 6B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	54.7	134	143	16	30	1.1	6.5
5	60.2	134	142	14	33	1.1	7
10	65.4	134	142	12	33	1.1	7.5
15	70.4	134	142	12	34	1.1	7.5
20	75.42	134	141	11	34	1.1	7.5

Tube Pair 4 Start Time: 1212	Initial Leak Check NDL @ 16 "Hg	Sample ID: 13A, 13B
Tube Pair 4 End Time: 1232	Final Leak Check @ "Hg	Lab ID: CEJ039 13A, 13B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	75.53	134	143	16	30	1.1	5
5	81.0	134	142	13	34	1.1	6
10	86.1	134	142	12	33	1.1	6.5
15	91.0	133	142	11	34	1.1	6.5
20	95.78	133	142	11	34	1.1	6.5

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ORTECH Environmental

Vost Data Sheet

TRIP BLANK 30A, 30B CEJ056

Plant: Covanta DYEC	Test Condition:	
Plant Locatior Courtice, ON	Test No: 3	Control Box ID: 4
Test location: APC Outlet No. 1	DGMCF: 0.988	Operator: [illegible]
Date: MAY 10, 2016	Barometric Pressure: 29.98 "Hg	Project No: 21656
~ 1 LPM for 20 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: CHW127 10A, 10B

16-21656-VOST-

Tube Pair 1 Start Time: 1244	Initial Leak Check NDL @ 15 "Hg	Sample ID: 7A, 7B
Tube Pair 1 End Time: 1304	Final Leak Check NDL @ 15 "Hg	Lab ID: CHW124 7A, 7B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	96.10	135	140	17	30	1.1	5.5
5	101.9	136	142	14	33	1.1	6.5
10	107.2	135	142	12	33	1.1	7.5
15	112.2	135	142	12	32	1.1	8
20	117.25	134	143	12	33	1.1	8

Tube Pair 2 Start Time: 1313	Initial Leak Check NDL @ 15 "Hg	Sample ID: 8A, 8B
Tube Pair 2 End Time: 1333	Final Leak Check NDL @ 17 "Hg	Lab ID: CHW125 8A, 8B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	17.4	135	143	18	30	1.1	5
5	22.8	133	144	12	34	1.1	6.5
10	28.3	133	143	13	34	1.1	7
15	33.4	134	143	12	34	1.1	7
20	38.41	133	144	12	34	1.1	7

Tube Pair 3 Start Time: 1344	Initial Leak Check NDL @ 17 "Hg	Sample ID: 9A, 9B
Tube Pair 3 End Time: 1404	Final Leak Check NDL @ 16 "Hg	Lab ID: CHW126 9A, 9B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	38.66	133	142	15	31	1.1	5
5	44.2	134	142	16	34	1.1	5.5
10	49.5	134	144	14	34	1.1	6.5
15	54.6	133	145	15	34	1.1	7
20	59.90	134	145	14	34	1.1	7

Tube Pair 4 Start Time: 1439	Initial Leak Check NDL @ 16 "Hg	Sample ID: 14A, 14B
Tube Pair 4 End Time: 1459	Final Leak Check NDL @ 22 "Hg	Lab ID: CEJ010 14A, 14B

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	60.13	135	146	20	30	1.1	4
5	65.7	135	145	15	34	1.1	4.5
10	71.0	134	144	14	34	1.1	4.5
15	76.1	134	144	13	34	1.1	5
20	81.17	133	144	12	34	1.1	5

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ORTECH Environmental

Vost Data Sheet

Plant:	Covanta DYEC	Test Condition:			
Plant Location:	Courtice, ON	Test No:	1	Control Box ID:	Vost 4
Test location:	APC Outlet No. 2	DGMCF:	0.988 ✓	Operator:	Dillo
Date:	MAY 4, 2016	Barometric:	29.47 Hg	Project No:	21656
~ 1 LPM for 20 minutes	NDL - No Dectectable Leak		Field Blank Pair ID:	21A, 21B	CEJ047 5MIN

CEJ042

Tube Pair 1 Start Time: 913	Initial Leak Check NDL @ 18 "Hg	Sample ID:	16A 16B
Tube Pair 1 End Time: 933	Final Leak Check NDL @ 12 "Hg	Lab ID:	16A 16B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	59.38	130	139	26	27	1.1	4.5
5	64.3	131	139	19	29	1.1	4.5
10	69.3	132	139	17	31	1.1	5
15	74.3	132	139	17	30	1.1	6
20	79.32	132	139	17	30	1.1	6

CEJ043

Tube Pair 2 Start Time: 941	Initial Leak Check NDL @ 12.5 "Hg	Sample ID:	17A, 17B
Tube Pair 2 End Time: 1001	Final Leak Check NDL @ 15 "Hg	Lab ID:	17A, 17B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	79.65	132	139	22	29	1.1	6.5
5	84.5	131	138	19	32	1.1	7.5
10	89.7	131	138	16	32	1.1	7.5
15	94.8	130	138	16	32	1.1	7.5
20	100.03	131	138	16	33	1.1	7.5

CEJ044

Tube Pair 3 Start Time: 1008	Initial Leak Check NDL @ 15 "Hg	Sample ID:	18A 18B
Tube Pair 3 End Time: 1028	Final Leak Check NDL @ 14 "Hg	Lab ID:	18A, 18B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	100.65	132	139	19	32	1.1	~~6.5~~ 5.5
5	105.9	131	138	17	34	1.1	6.0
10	110.7	131	138	16	34	1.1	7.0
15	116.5	139	138	16	35	1.1	7.0
20	122.05	139	138	16	34	1.1	7.0

CEJ045

Tube Pair 4 Start Time: 1039	Initial Leak Check NDL @ 15 "Hg	Sample ID:	19A 19B
Tube Pair 4 End Time: 1059	Final Leak Check @ "Hg	Lab ID:	19A 19B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	22.44	135	139	22	32	1.1	5.0
5	27.8	130	139	17	36	1.1	5.5
10	33.4	131	138	16	35	1.1	6.5
15	39.0	130	138	16	35	1.1	6.5
20	44.08	130	138	14	35	1.1	6.5

Rev: Oct 22, 2014

ORTECH Environmental

Vost Data Sheet

Plant:	Covanta DYEC	Test Condition:			
Plant Location:	Courtice, ON	Test No:	2	Control Box ID:	4
Test location:	APC Outlet No. 2	DGMCF:	0.988	Operator:	[illegible]
Date:	MAY 5 2016	Barometric:	29.57 "Hg	Project No:	21656
~ 1 LPM for 20 minutes		NDL - No Dectectable Leak		Field Blank Pair ID:	15A, 15B

Tube Pair 1 Start Time:	0920	Initial Leak Check NDL @ 21 "Hg		Sample ID:	22A, 22B
Tube Pair 1 End Time:	0940	Final Leak Check NDL @ 14.5 "Hg		Lab ID:	22A, 22B

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °F	Condensor °C	Meter Avg °C		
0	62.48	132	283	29	29	1.1	4
5	67.8	132	283	18	32	1.1	4.5
10	72.2	132	283	16	33	1.1	6
15	77.7	131	282	16	34	1.1	6.5
20	83.52	131	281	16	34	1.1	6.5

Tube Pair 2 Start Time:	0948	Initial Leak Check NDL @ 15 "Hg		Sample ID:	23A, 23B
Tube Pair 2 End Time:	1008	Final Leak Check NDL @ 14.5 "Hg		Lab ID:	23A 23B

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °F	Condensor °C	Meter Avg °C		
0	83.87	132	282	21	32	1.1	4
5	89.4	132	281	18	34	1.1	4.5
10	94.9	132	281	17	35	1.1	4.5
15	100.2	132	282	16	36	1.1	4.5
20	105.40	131	282	15	36	1.1	5

Tube Pair 3 Start Time:	1018	Initial Leak Check NDL @ 14.5 "Hg		Sample ID:	24A, 24B
Tube Pair 3 End Time:	10:38	Final Leak Check @ 16.5 "Hg		Lab ID:	24A, 24B

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °F	Condensor °C	Meter Avg °C		
0	5.63	132	283	21	32	1.1	4.5
5	10.6	132	283	16	34	1.1	5
10	16.2	131	284	16	36	1.1	5.5
15	21.6	132	284	16	36	1.1	5
20	27.30	133	284	16	36	1.1	6

Tube Pair 4 Start Time:	1045	Initial Leak Check NDL @ 19 "Hg		Sample ID:	25A, 25B
Tube Pair 4 End Time:	1105	Final Leak Check NDL @ 16 "Hg		Lab ID:	25A, 25B

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °F	Condensor °C	Meter Avg °C		
0	27.52	132	282	20	35	1.1	4
5	33.0	132	284	16	37	1.1	6
10	38.4	135	285	16	37	1.1	6
15	43.5	135	285	16	37	1.1	6
20	48.41	135	285	16	37	1.1	6

Rev: Oct 22, 2014

ORTECH Environmental
Vost Data Sheet

Plant: Covanta DYEC	Test Condition:		
Plant Location: Courtice, ON	Test No: 3	Control Box ID: 4	
Test location: APC Outlet No. 2	DGMCF: 0.9989	Operator: [illegible]	
Date: MAY 5, 2016	Barometric: 29.56	Project No: 21656	
~ 1 LPM for 20 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:	

Tube Pair 1 Start Time: 1306	Initial Leak Check NDL @ 14 "Hg	Sample ID: 26A, 26B
Tube Pair 1 End Time: 1326	Final Leak Check NDL @ 15 "Hg	Lab ID: 26A, 26B

Clock Time	Dry Gas Meter L	Probe °C	Stack °F	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	48.60	132	281	22	30	1.1	5
5	53.2	132	281	16	33	1.1	5.5
10	59.0	132	281	17	33	1.1	6
15	63.7	131	282	17	34	1.1	6
20	67.70	132	281	16	34	1.1	6.5

Tube Pair 2 Start Time: 1334	Initial Leak Check NDL @ 18 "Hg	Sample ID: 27A 27B
Tube Pair 2 End Time: 1354	Final Leak Check NDL @ 15 "Hg	Lab ID: 27A 27B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	68.04	131	283	22	32	1.1	6
5	73.0	131	283	18	33	1.1	6
10	79.0	131	282	16	35	1.1	7.5
15	83.8	132	283	16	35	1.1	8.5
20	88.51	132	282	15	35	1.1	8.5

CEJ 054

Tube Pair 3 Start Time: 1401	Initial Leak Check NDL @ 14.5 "Hg	Sample ID: 28A, 28B
Tube Pair 3 End Time: 1421	Final Leak Check @ 16.5 "Hg	Lab ID: 28A, 28B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	88.77	132	283	20	33	1.1	4
5	93.50	132	282	18	36	1.1	4.5
10	98.60	132	283	17	37	1.1	5.5
15	103.5	132	283	17	36	1.1	6
20	108.0	133	282	16	37	1.1	6.5

CEJ 055

Tube Pair 4 Start Time: 1427	Initial Leak Check NDL @ 21 "Hg	Sample ID: 29A, 29B
Tube Pair 4 End Time: 1447	Final Leak Check NDL @ 20 "Hg	Lab ID: 29A, 29B

Clock Time	Dry Gas Meter L	Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	8.33	132	284	20	35	1.1	5
5	13.3	132	283	~~21~~ 16	37	1.1	6.5
10	17.9	133	284	15	37	1.1	8
15	23.0	133	284	15	37	1.1	8
20	30.5	133	284	15	37	1.1	8

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Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organics Sampling Train
Sample Volume Corrections

Test No./ Pair No.	DGMCF	Initial DGM Reading (L)	Final DGM Reading (L)	Actual Vol. Sampled (L)	Barometric Pressure (in Hg)	Average DGM Pressure del H (in H2O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm3)*
1-1	0.988	26.22	46.72	20.50	30.01	1.10	28.0	20.17	0.0202
1-2	0.988	46.86	68.20	21.34	30.01	1.10	30.0	20.85	0.0209
1-3	0.988	68.32	89.27	20.95	30.01	1.10	31.2	20.39	0.0204
1-4	0.988	89.40	109.64	20.24	30.01	1.10	31.6	19.68	0.0197
2-1	0.988	9.78	31.17	21.39	30.01	1.10	31.6	20.79	0.0208
2-2	0.988	31.25	51.45	20.20	30.01	1.02	32.2	19.59	0.0196
2-3	0.988	54.70	75.42	20.72	30.01	1.10	32.8	20.06	0.0201
2-4	0.988	75.53	95.78	20.25	30.01	1.10	33.0	19.60	0.0196
3-1	0.988	96.10	117.25	21.15	29.98	1.10	32.2	20.50	0.0205
3-2	0.988	17.40	38.41	21.01	29.98	1.10	33.2	20.30	0.0203
3-3	0.988	38.66	59.90	21.24	29.98	1.10	33.4	20.51	0.0205
3-4	0.988	60.13	81.17	21.04	29.98	1.10	33.2	20.33	0.0203

* Dry at 25°C and 1 atmosphere

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organics Sampling Train
Sample Volume Corrections

Test No./ Pair No.	DGMCF	Initial DGM Reading (L)	Final DGM Reading (L)	Actual Vol. Sampled (L)	Barometric Pressure (in Hg)	Average DGM Pressure del H (in H2O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm3)*
1-1	0.988	59.38	79.32	19.94	29.47	1.10	29.4	19.17	0.0192
1-2	0.988	79.65	100.03	20.38	29.47	1.10	31.6	19.46	0.0195
1-3	0.988	100.65	122.05	21.40	29.47	1.10	33.8	20.28	0.0203
1-4	0.988	22.44	44.08	21.64	29.47	1.10	34.6	20.46	0.0205
2-1	0.988	62.48	83.52	21.04	29.57	1.10	32.4	20.10	0.0201
2-2	0.988	83.87	105.40	21.53	29.57	1.10	34.6	20.42	0.0204
2-3	0.988	5.63	27.30	21.67	29.57	1.10	34.8	20.54	0.0205
2-4	0.988	27.52	48.41	20.89	29.57	1.10	36.6	19.69	0.0197
3-1	0.988	48.60	67.70	19.10	29.56	1.10	32.8	18.22	0.0182
3-2	0.988	68.04	88.51	20.47	29.56	1.10	34.0	19.45	0.0194
3-3	0.988	88.77	108.00	19.23	29.56	1.10	35.8	18.16	0.0182
3-4	0.988	8.33	30.50	22.17	29.56	1.10	36.6	20.89	0.0209

* Dry at 25°C and 1 atmosphere

APPENDIX 8

Aldehydes Field Data Sheets
(8 pages)

ORTECH Environmental
CARB 430

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	1
Test location:	APC Outlet No. 1
Date:	MAY 9, 2016
Project No.:	21656

Measuring Device	MII Number
Control Module	Vost 4
NOVA	
Barometer	ENV-CAN

P_{Bar}	29.85

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temperature ~~Outlet~~ AVG °C	Meter Temperature Inlet °C	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
0	24.92	134	131	136	22	26		0.4	2
5	27.1	135	146	136	22	27		0.4	2
10	29.8	135	147	138	22	29		0.4	2
15	32.5	135	147	138	21	30		0.4	2
20	35.2	135	146	137	21	30		0.4	2
25	37.8	134	146	136	21	31		0.4	2
30	40.8	134	146	136	21	31		0.4	2
35	43.5	132	145	135	21	32		0.4	2
40	46.2	132	145	135	20	33		0.4	2
45	48.5	132	146	135	20	33		0.4	2
50	51.0	134	146	136	22	34		0.4	2
55	53.3	134	146	140	21	34		0.4	2
60	55.95								

Start Time:	1019			
Finish Time:	1114			
Initial Leak Check:	<.01	Lpm @	5	" Hg
Final Leak Check:	<.01	Lpm @	6	" Hg

DGMCF:	0.985 ✓
Sample Volume:	31.03
Average DGM Temp:	30.8
Average DGM Δ H:	0.4

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator :

ORTECH Environmental
CARB 430

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	2
Test location:	APC Outlet No. 1
Date:	MAY 9, 2016
Project No.:	21656

Measuring Device	MII Number
Control Module	VOST 4
NOVA	
Barometer	ENV. CAN

P_{Bar}	29.86

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temperature ~~Outlet~~ AVG °C	Meter Temperature Inlet °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	56.21	131	146	133	21	31		0.4	2
5	58.41	134	146	132	21	33		0.4	2
10	62.00	134	146	132	20	34		0.4	2
15	65.04	135	145	132	18	34		0.4	2
20	67.92	135	145	132	18	34		0.4	2
25	71.1	134	145	131	19	34		0.4	2
30	74.3	135	145	133	19	34		0.4	2
35	76.8	135	145	133	18	34		0.4	2
40	79.1	135	145	132	18	34		0.4	2
45	81.6	132	146	131	18	34		0.4	2
50	83.8	134	146	132	18	34		0.4	2
55	86.7	134	146	132	18	34		0.4	2
60	88.6	134	146	131	17	34		0.4	2

Start Time:	11:24
Finish Time:	12:24
Initial Leak Check:	0.01 Lpm @ 6 " Hg
Final Leak Check:	0.01 Lpm @ 6 " Hg

DGMCF:	0.985 ✓
Sample Volume:	32.39
Average DGM Temp:	33.7
Average DGM Δ H:	0.4

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator : [signature]

ORTECH Environmental
CARB 430

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	3
Test location:	APC Outlet No. 1
Date:	MAY 9, 2016
Project No.:	21656

Measuring Device	MII Number
Control Module	V037 4
NOVA	
Barometer	ENV. CAN

P_{Bar}	29.85

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temperature ~~Outlet~~ AVG °C	Meter Temperature Inlet °C	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
0	89.79	131	~~13~~ 145	147	21	30		0.4	2
5	91.2	133	145	143	20	33		0.4	2
10	93.5	134	145	145	20	33		0.4	2
15	95.92	134	144	143	20	33		0.4	2
20	98.35	134	144	143	18	33		0.4	2
25	100.82	134	143	143	17	33		0.4	2
30	103.22	135	143	142	17	33		0.4	2
35	106.00	135	142	141	11	33		0.4	2
40	108.6	135	142	141	11	33		0.4	2
45	111.2	135	142	141	12	33		0.4	2
50	113.8	135	142	141	12	33		0.4	2
55	116.4	135	142	141	12	33		0.4	2
60	119.00	134	141	142	13	33		0.4	2

Start Time:	12:33		
Finish Time:	13:33		
Initial Leak Check:	<.01	Lpm @ 6	" Hg
Final Leak Check:	<.01	Lpm @ 6	" Hg

DGMCF:	0.985 ✓
Sample Volume:	30.21
Average DGM Temp:	32.8
Average DGM Δ H:	0.4

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator : [signature]

Rev: May 13, 2005

ORTECH Environmental

ORTECH Environmental
CARB 430

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	L
Test location:	APC Outlet No. 2
Date:	MAY 5, 2010
Project No.:	21656

Measuring Device	MII Number
Control Module	U037 4
NOVA	
Barometer	ENL.CAN

P_{Bar}	29.62

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp ~~°C~~ F	Oven Temp °C	Impinger Outlet °C	Meter Temperature ~~Outlet~~ AVG °C	Meter Temperature Inlet °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	31.980	130	285	146	29	26		0.4	2
5	34.1	131	285	149	28	30		0.4	2
10	36.4	131	285	149	17	31		0.4	2
15	38.3	131	285	149	17	32		0.4	2
20	41.0	131	284	148	16	33		0.4	2
25	43.4	131	285	148	16	34		0.4	2
30	46.0	131	285	143	15	35		0.4	2
35	48.5	131	285	144	17	35		0.4	2
40	50.9	131	284	144	17	36		0.4	2
45	53.5	131	284	144	17	36		0.4	2
50	55.9	131	284	144	17	37		0.4	2
55	58.6	131	284	141	17	37		0.4	2
60	61.20								

Start Time:	912
Finish Time:	1012
Initial Leak Check:	<.01 Lpm @ 5 " Hg
Final Leak Check:	<.01 Lpm @ 6 " Hg

DGMCF:	0.985 ✓
Sample Volume:	29.32
Average DGM Temp:	33.5
Average DGM Δ H:	0.4

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator : [signature]

ORTECH Environmental
CARB 430

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	2
Test location:	APC Outlet No. 2
Date:	MAY 8 2016
Project No.:	21656

Measuring Device	MII Number
Control Module	Vo24 4
NOVA	
Barometer	ENV-CAN

P_{Bar}	29.62

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temperature ~~Outlet~~ AVG °C	Meter Temperature Inlet °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	62.0	125	285	143	27	36		0.4	2
5	63.5	129	285	143	20	36		0.4	2
10	66.8	131	285	143	19	36		0.4	2
15	69.8	131	285	143	18	37		0.4	2
20	72.4	131	285	143	17	37		0.4	2
25	75.0	131	285	143	17	37		0.4	2
30	77.7	131	284	143	17	37		0.4	2
35	80.2	131	285	143	17	37		0.4	2
40	82.8	134	284	141	16	38		0.4	2
45	85.3	134	285	141	16	38		0.4	2
50	88.1	126	285	143	16	38		0.4	2
55	90.9	126	284	142	16	38		0.4	2
60	93.61								

Start Time:	10 33		
Finish Time:	11 33		
Initial Leak Check:	<.01	Lpm @ 4	" Hg
Final Leak Check:	<.01	Lpm @ 4	" Hg

DGMCF:	0.985 ✓
Sample Volume:	31.61
Average DGM Temp:	37.1
Average DGM Δ H:	0.4

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator : [signature]

ORTECH Environmental
CARB 430

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	3
Test location:	APC Outlet No. 2
Date:	MAY 6, 2016
Project No.:	21656

Measuring Device	MII Number
Control Module	UOJT 4
NOVA	
Barometer	ENV. CAN

P_{Bar}	29.61

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temperature ~~Outlet~~ AVG °C	Meter Temperature Inlet °C	Meter Pressure ΔH "H_2O	Pump Vacuum "Hg Gauge
0	93.85	130	285	144	28	32		0.4	2
5	96.5	131	284	153	17	33		0.4	2
10	99.4	131	284	153	17	34		0.4	2
15	102.0	131	284	150	17	34		0.4	2
20	103.5	127	285	150	17	34		0.4	2
25	106.3	129	283	150	17	35		0.4	2
30	108.8	129	283	150	17	35		0.4	2
35	111.6	129	283	151	16	35		0.4	2
40	114.3	129	284	152	16	35		0.4	2
45	116.0	129	284	152	16	36		0.4	2
50	119.4	129	283	150	16	36		0.4	2
55	121.8	129	284	151	16	36		0.4	2
60	124.34								

Start Time:	1256
Finish Time:	1356
Initial Leak Check:	<.01 Lpm @ 4 " Hg
Final Leak Check:	<.01 Lpm @ 4 " Hg

DGMCF:	0.985 ✓
Sample Volume:	30.49
Average DGM Temp:	34.6
Average DGM Δ H:	0.4

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator : [signature]

Rev: May 13, 2005

Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Aldehydes
Sample Volume Corrections

Test No.	DGMCF	Initial DGM Reading (L)	Final DGM Reading (L)	Actual Vol. Sampled (L)	Barometric Pressure (in Hg)	Average DGM Pressure del H (in H_2O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm^3)*
1	0.985	24.92	55.95	31.03	29.85	0.40	30.8	29.94	0.0299
2	0.985	56.21	88.60	32.39	29.86	0.40	33.7	30.97	0.0310
3	0.985	88.79	119.00	30.21	29.85	0.40	32.8	28.96	0.0290

* Dry at 25°C and 1 atmosphere.

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Aldehydes
Sample Volume Corrections

Test No.	DGMCF	Initial DGM Reading (L)	Final DGM Reading (L)	Actual Vol. Sampled (L)	Barometric Pressure (in Hg)	Average DGM Pressure del H (in H_2O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm^3)*
1	0.985	31.88	61.20	29.32	29.62	0.40	33.5	27.83	0.0278
2	0.985	62.00	93.61	31.61	29.62	0.40	37.1	29.65	0.0297
3	0.985	93.85	124.34	30.49	29.61	0.40	34.6	28.82	0.0288

* Dry at 25°C and 1 atmosphere.

APPENDIX 9

ORTECH Sample Log/Chain of Custody Forms
(13 pages)

ORTECH Environmental Sample Log
Particulate and Metals Samples
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
QUOTE #: 1601007PO Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-PM-	Sample Date	Sample Description	Location	Sample Media	Sample Analysis
1	02-May-16	Test 1 Probe Rinse Acetone	#1 APC Outlet	Acetone	Particulate & Metals
2		Test 1 Probe Rinse Nitric		0.1N Nitric	Metals
3		Test 1 Filter		Particulate	Particulate & Metals
4		Test 1 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
5		Test 1 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
6		Test 1 Impinger 4, 5 Rinse		8N HCl	Mercury
7	02-May-16	Test 2 Probe Rinse Acetone	#1 APC Outlet	Acetone	Particulate & Metals
8		Test 2 Probe Rinse Nitric		0.1N Nitric	Metals
9		Test 2 Filter		Particulate	Particulate & Metals
10		Test 2 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
11		Test 2 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
12		Test 2 Impinger 4, 5 Rinse		8N HCl	Mercury

ORTECH Environmental Sample Log
Particulate and Metals Samples
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
QUOTE #: 1601007PO Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-PM-	Sample Date	Sample Description	Location	Sample Media	Sample Analysis
25	03-May-16	Test 1 Probe Rinse Acetone	#2 APC Outlet	Acetone	Particulate & Metals
26		Test 1 Probe Rinse Nitric		0.1N Nitric	Metals
27		Test 1 Filter		Particulate	Particulate & Metals
28		Test 1 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
29		Test 1 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
30		Test 1 Impinger 4, 5 Rinse		8N HCl	Mercury
31	03-May-16	Test 2 Probe Rinse Acetone	#2 APC Outlet	Acetone	Particulate & Metals
32		Test 2 Probe Rinse Nitric		0.1N Nitric	Metals
33		Test 2 Filter		Particulate	Particulate & Metals
34		Test 2 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
35		Test 2 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
36		Test 2 Impinger 4, 5 Rinse		8N HCl	Mercury
43	03-May-16	Blank # 2 Probe Rinse Acetone	#2 APC Outlet	Acetone	Particulate & Metals
44		Blank # 2 Probe Rinse Nitric		0.1N Nitric	Metals
45		Blank # 2 Filter		Particulate	Particulate & Metals
46		Blank # 2 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
47		Blank # 2 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
48		Blank # 2 Impinger 4, 5 Rinse		8N HCl	Mercury

Relinquished By: [signature] Date: MAY 4, 16

Relinquished To: JOSEPH UMAY Date: 2016/05/04 12:03

✓

ORTECH Environmental Sample Log B6 9060 / B689319
Particulate and Metals Samples
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
QUOTE #: 1601007PO Ortech PO# : 21656 - 12227

ORTECH Sample ID 16-21656-PM-	Sample Date	Sample Description	Location	Sample Media	Sample Analysis
13		Test 3 Probe Rinse Acetone	#1 APC Outlet	Acetone	Particulate & Metals
14		Test 3 Probe Rinse Nitric		0.1N Nitric	Metals
15		Test 3 Filter		Particulate	Particulate & Metals
16		Test 3 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
17		Test 3 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
18		Test 3 Impinger 4, 5 Rinse		8N HCl	Mercury
19		Blank Probe Rinse Acetone	Blank	Acetone	Particulate & Metals
20		Blank Probe Rinse Nitric		0.1N Nitric	Metals
21		Blank Filter		Particulate	Particulate & Metals
22		Blank Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
23		Blank Impinger 4, 5 Solution		Acid. KMnO4	Mercury
24		Blank Impinger 4, 5 Rinse		8N HCl	Mercury
37		Test 3 Probe Rinse Acetone	#2 APC Outlet	Acetone	Particulate & Metals
38		Test 3 Probe Rinse Nitric		0.1N Nitric	Metals
39		Test 3 Filter		Particulate	Particulate & Metals
40		Test 3 Impinger 1,2,3 Solution		Nitric/Peroxide	Metals
41		Test 3 Impinger 4, 5 Solution		Acid. KMnO4	Mercury
42		Test 3 Impinger 4, 5 Rinse		8N HCl	Mercury

Relinquished By: [signature] Date: May 5, 16

Relinquished To: Date:

9/12/17
Lo1605105 3:18 8/9,9

ORTECH

ORTECH Environmental Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
Quote/ PO: 1601007PO   Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-M201A-	Date	Location	Sample Description	Sample Media	Sample Analysis
1	03-May-16	# 1 APC Outlet	Test 1 Nozzle & PM10 cyclone rinse	Acetone	Particulate
2			Test 1 PM 2.5 cyclone Rinse	Acetone	Particulate
3			Test 1 PM 2.5 exit & connectors	Acetone	Particulate
4			Test 1 Back up filter	filter	Particulate
5			Test 1 Impinger Soln & rinse	water	Particulate
6			Test 1 Secondary Filter	filter	Particulate
7			Test 1 Impinger Rinse	Acetone	Particulate
8	03-May-16	# 1 APC Outlet	Test 2 Nozzle & PM10 cyclone rinse	Acetone	Particulate
9			Test 2 PM 2.5 cyclone Rinse	Acetone	Particulate
10			Test 2 PM 2.5 exit & connectors	Acetone	Particulate
11			Test 2 Back up filter	filter	Particulate
12			Test 2 Impinger Soln & rinse	water	Particulate
13			Test 2 Secondary Filter	filter	Particulate
14			Test 2 Impinger Rinse	Acetone	Particulate

ORTECH Environmental Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
Quote/ PO: 1601007PO Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-M201A-	Date	Location	Sample Description	Sample Media	Sample Analysis
22	02-May-16	# 2 APC Outlet	Test 1 Nozzle & PM10 cyclone rinse	Acetone	Particulate
23			Test 1 PM 2.5 cyclone Rinse	Acetone	Particulate
24			Test 1 PM 2.5 exit & connectors	Acetone	Particulate
25			Test 1 Back up filter	filter	Particulate
26			Test 1 Impinger Soln & rinse	water	Particulate
27			Test 1 Secondary Filter	filter	Particulate
28			Test 1 Impinger Rinse	Acetone	Particulate
29	02-May-16	# 2 APC Outlet	Test 2 Nozzle & PM10 cyclone rinse	Acetone	Particulate
30			Test 2 PM 2.5 cyclone Rinse	Acetone	Particulate
31			Test 2 PM 2.5 exit & connectors	Acetone	Particulate
32			Test 2 Back up filter	filter	Particulate
33			Test 2 Impinger Soln & rinse	water	Particulate
34			Test 2 Secondary Filter	filter	Particulate
35			Test 2 Impinger Rinse	Acetone	Particulate
36	02-May-16	#2 APC Outlet	Test 3 Nozzle & PM10 cyclone rinse	Acetone	Particulate
37			Test 3 PM 2.5 cyclone Rinse	Acetone	Particulate
38			Test 3 PM 2.5 exit & connectors	Acetone	Particulate
39			Test 3 Back up filter	filter	Particulate
40			Test 3 Impinger Soln & rinse	water	Particulate
41			Test 3 Secondary Filter	filter	Particulate
42			Test 3 Impinger Rinse	Acetone	Particulate

ORTECH Environmental Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
Quote/ PO: 1601007PO Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-M201A-	Date	Location	Sample Description	Sample Media	Sample Analysis
50	03-May-16	APC # 1	Blank # 1 Nozzle & PM10 cyclone rinse	Acetone	Particulate
51			Blank # 1 PM 2.5 cyclone Rinse	Acetone	Particulate
52			Blank # 1 PM 2.5 exit & connectors	Acetone	Particulate
53			Blank # 1 Back up filter	filter	Particulate
54			Blank # 1 Impinger Soln & rinse	water	Particulate
55			Blank # 1 Secondary Filter	filter	Particulate
56			Blank # 1 Impinger Rinse	Acetone	Particulate
43	02-May-16	APC # 2	Blank # 2 Nozzle & PM10 cyclone rinse	Acetone	Particulate
44			Blank # 2 PM 2.5 cyclone Rinse	Acetone	Particulate
45			Blank # 2 PM 2.5 exit & connectors	Acetone	Particulate
46			Blank # 2 Back up filter	filter	Particulate
47			Blank # 2 Impinger Soln & rinse	water	Particulate
48			Blank # 2 Secondary Filter	filter	Particulate
49			Blank # 2 Impinger Rinse	Acetone	Particulate

ORTECH has all filters & will determine weights for those.

Relinquished By: [signature] Date: May 4, 16

Relinquished To: JOSEPH OMAN Date: 2016/05/04

12:03

✓

ORTECH Environmental Sample Log

Method 201A & Method 202

Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train recovery
Job Assigned To: Maxxam
Quote/ PO: [illegible] Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-M201A-	Date	Location	Sample Description	Sample Media	Sample Analysis
15	04-May-16	# 1 APC Outlet	Test 3 Nozzle & PM10 cyclone rinse	Acetone	Particulate
16			Test 3 PM 2.5 cyclone Rinse	Acetone	Particulate
17			Test 3 PM 2.5 exit & connectors	Acetone	Particulate
19			Test 3 Impinger Soln & rinse	water	Particulate
1			Test 3 Impinger Rinse	Acetone	Particulate
6		# 1 APC Outlet	Test 1 Secondary Filter	filter	Particulate
13			Test 2 Secondary Filter	filter	Particulate
20			Test 3 Secondary Filter	filter	Particulate
55			Blank 1 Secondary Filter	filter	Particulate
27		# 2 APC Outlet	Test 1 Secondary Filter	filter	Particulate
34			Test 2 Secondary Filter	filter	Particulate
41			Test 3 Secondary Filter	filter	Particulate
48			Blank 2 Secondary Filter	filter	Particulate

ORTECH has all filters & has determined weights for these.

Relinquished By: ______________ Date: May 5, 16

Relinquished To: ______________ Date:

18/12/19

ORTECH Environmental Sample Log
Semi-Volatile Organics Samples
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Angela Nolan
How Received: Train Recovery
Job Assigned To: Maxxam
Quote / PO: 1601007PO   Ortech PO# : 21656 - J2227

ORTECH Sample ID 16 - 21656 -SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
1	9-May-16	Test 1 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	SVOC
2	9-May-16	Test 1 Filter		Particulate	SVOC
3	9-May-16	Test 1 XAD-II Trap		N.A.	SVOC
4	9-May-16	Test 1 Impinger Solution		Ethylene Glycol	SVOC
5	9-May-16	Test 1 Impinger Rinse		Hexane/Acetone	SVOC
6	10-May-16	Test 2 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	SVOC
7	10-May-16	Test 2 Filter		Particulate	SVOC
8	10-May-16	Test 2 XAD-II Trap		N.A.	SVOC
9	10-May-16	Test 2 Impinger Solution		Ethylene Glycol	SVOC
10	10-May-16	Test 2 Impinger Rinse		Hexane/Acetone	SVOC
11	11-May-16	Test 3 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	SVOC
12	11-May-16	Test 3 Filter		Particulate	SVOC
13	11-May-16	Test 3 XAD-II Trap		N.A.	SVOC
14	11-May-16	Test 3 Impinger Solution		Ethylene Glycol	SVOC
15	11-May-16	Test 3 Impinger Rinse		Hexane/Acetone	SVOC
16	11-May-16	Blank Probe Rinse	Blank	Hexane/Acetone	SVOC
17	11-May-16	Blank Filter		Particulate	SVOC
18	11-May-16	Blank XAD-II Trap		N.A.	SVOC
19	11-May-16	Blank Impinger Solution		Ethylene Glycol	SVOC
20	11-May-16	Blank Impinger Rinse		Hexane/Acetone	SVOC

✓

16/10/9   3/2/7   5/6/7   Julian Toth
11/9/18   6/5/5   2016/05/12
24/16/18   12:30

ORTECH Environmental Sample Log
Semi-Volatile Organics Samples
Covanta

Client: **Covanta**
Job/Report Number: **21656**
Received By: **Angela Nolan**
How Received: **Train Recovery**
Job Assigned To: **Maxxam**
Quote / PO: 1601007PO   Ortech PO# : 21656 - J2227

ORTECH Sample ID 16 - 21656 -SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
21	5-May-16	Test 1 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	SVOC
22	5-May-16	Test 1 Filter		Particulate	SVOC
23	5-May-16	Test 1 XAD-II Trap		N.A.	SVOC
24	5-May-16	Test 1 Impinger Solution		Ethylene Glycol	SVOC
25	5-May-16	Test 1 Impinger Rinse		Hexane/Acetone	SVOC
26	9-May-16	Test 2 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	SVOC
27	9-May-16	Test 2 Filter		Particulate	SVOC
28	9-May-16	Test 2 XAD-II Trap		N.A.	SVOC
29	9-May-16	Test 2 Impinger Solution		Ethylene Glycol	SVOC
30	9-May-16	Test 2 Impinger Rinse		Hexane/Acetone	SVOC
31	10-May-16	Test 3 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	SVOC
32	10-May-16	Test 3 Filter		Particulate	SVOC
33	10-May-16	Test 3 XAD-II Trap		N.A.	SVOC
34	10-May-16	Test 3 Impinger Solution		Ethylene Glycol	SVOC
35	10-May-16	Test 3 Impinger Rinse		Hexane/Acetone	SVOC
36	6-May-16	Blank 2 Probe Rinse	Blank	Hexane/Acetone	SVOC
37	6-May-16	Blank 2 Filter		Particulate	SVOC
38	6-May-16	Blank 2 XAD-II Trap		N.A.	SVOC
39	6-May-16	Blank 2 Impinger Solution		Ethylene Glycol	SVOC
40	6-May-16	Blank 2 Impinger Rinse		Hexane/Acetone	SVOC

Refer to request letter dated April 13, 2016 for lists of analytes.

Relinquished To: ______________________   Date: __________

Relinquished By: Angela Nolan   Date: 05/12/16

Jason Tam

2016/05/12
12:30

ORTECH Environmental Sample Log

AMESA Dioxin & Furan Samples

Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Angela Nolan
How Received: Train Recovery
Job Assigned To: Maxxam
Quote / PO: 1601007PO   Ortech PO# : 21656 - J2227

Sample ID	Date	Sample Description	Location	Sample Media	Sample Analysis
AMESA-PR-U1-160509-T1	9-May-16	Test 1 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
Unit 1 160509-18	9-May-16	Test 1 XAD-II Trap		N.A	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-U1-160510-T2	10-May-16	Test 2 Probe Rinse		Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
Unit 1 160510-19	10-May-16	Test 2 XAD-II Trap		N.A.	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-U1-160511-T3	11-May-16	Test 3 Probe Rinse		Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
Unit 1 160511-20	11-May-16	Test 3 XAD-II Trap		N.A	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-U2-160505-T1	5-May-16	Test 1 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
Unit 2 160505-17	5-May-16	Test 1 XAD-II Trap		N.A.	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-U2-160509-T2	9-May-16	Test 2 Probe Rinse		Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
Unit 2 160509-19	9-May-16	Test 2 XAD-II Trap		N.A.	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-U2-160510-T3	10-May-16	Test 3 Probe Rinse		Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
Unit 2 160510-20	10-May-16	Test 3 XAD-II Trap		N.A.	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-PRETEST-U1-160503	3-May-16	Pre-Test Probe Rinse	# 1 APC Outlet	Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs
AMESA-PR-PRETEST-U2-160503	3-May-16	Pre-Test Probe Rinse	# 2 APC Outlet	Hexane/Acetone	Dioxins/Furans & 12 Dioxin-Like PCBs

Please analyze and report AMESA XAD-II Traps and AMESA Probe Rinses seperately.

Relinquished To: ____________________ Date: ____________________

Relinquished By: Angela Nolan Date: 05/12/16

✓

[illegible] Town

2016/05/12 12:30

ORTECH Environmental Sample Log
Acid Gases
Covanta

Client: Covanta
Job/Report Number: 21656
Received By: Dan Turton
How Received: Train Recovery
Job Assigned To: Maxxam
Quote / PO #: 1601007PO Ortech PO# : 21656 - J2227

ORTECH Sample ID 16-21656-M26A-	Sample Date	Location	Sample Description	Media	Initial Volume(ml)	Final Volume(ml)	Sample Analysis
1	02-May-16	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	404.6	HCl, HF & Ammonia
2	02-May-16	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	391.6	HCl, HF & Ammonia
3	02-May-16	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	396	HCl, HF & Ammonia
4	03-May-16	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	3878	HCl, HF & Ammonia
5	03-May-16	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	399.3	HCl, HF & Ammonia
6	03-May-16	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	407.9	HCl, HF & Ammonia
BLANK #1	02-May-16	APC # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	250.7	HCl, HF & Ammonia
BLANK #2	03-May-16	APC # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	253.9	HCl, HF & Ammonia

Analyze for HCl, HF and Ammonia

Relinquished By: [signature] Date: May 4, 16

Relinquished To: ~~[illegible]~~ JOSEA UMALI Date: 2016 / 05 / 04
12:03

ORTECH Sample Log
VOCs

Client: Covanta
Project Number: 21656
Received By: David Utley
Job Assigned To: Maxxam
Quote / PO : 1601007PO ORTECH P.O. : 21656 - J2227

Test Location	Test Number	Pair Number	ORTECH Sample ID 16-21656-VOST-	Sample Date	Sample Description	Sample Analysis	Maxxam Sample Number
# 1 APC Outlet	1	1	1A,1B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW108
		2	2A,2B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW109
		3	3A,3B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW110
		4	12A,12B	May 10, 2016	Archived @ ORTECH		CEJ038
		Field Blank	10A,10B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW127
	2	1	4A,4B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW111
		2	5A,5B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW112
		3	6A,6B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW113
		4	13A,13B	May 10, 2016	Archived @ ORTECH		CEJ039
	3	1	7A,7B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW124
		2	8A,8B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW125
		3	9A,9B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CHW126
		4	14A,14B	May 10, 2016	Archived @ ORTECH		CEJ040
		Trip Blank	30A,30B	May 10, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ056
	Combined Condesate			May 10, 2016	Archived @ ORTECH		
# 2 APC Outlet	1	1	16A,16B	May 4, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ042
		2	17A,17B	May 4, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ043
		3	18A,18B	May 4, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ044
		4	19A,19B	May 4, 2016	Archived @ ORTECH		CEJ045
		Field Blank	21A,21B	May 4, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ047
	2	1	22A,22B	May 5, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ048
		2	23A,23B	May 5, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ049
		3	24A,24B	May 5, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ050
		4	25A,25B	May 5, 2016	Archived @ ORTECH	VOCs	CEJ051
	3	1	26A,26B	May 5, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ052
		2	27A,27B	May 5, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ053
		3	28A,28B	May 5, 2016	Tenax and Tenax/Charcoal	VOCs	CEJ054
		4	29A,29B	May 5, 2016	Archived @ ORTECH	VOCs	CEJ055
		Field Blank	15A,15B	May 5, 2016	Tenax and Tenax/Charcoal		CEJ041
	Combined Condesate			May 5, 2016	Archived @ ORTECH		

Refer to request letter dated April 13, 2016 for lists of analytes. ✓

Custody Relinquished by: Angela Mela Date: 05/12/16

Custody Received by: [signature] Jason Tony Date: 2016/05/12 R:

10/10/19 3/27 5/67
11/9/18 7.4/16/18 6/5/75

ORTECH Sample Log
Method 430 Samples
Covanta

Client: Covanta
Project Number: 21656
Received By: David Utley
How Received: Train recovery
Job Assigned To: Maxxam
QUOTE/P.O.: 1601007PO   Ortech P.O. : 21656 - J2227

Test Location	Test Number	ORTECH Sample ID 16-21656-M430-	Sample Date	Sample Media
#1 APC Outlet	1	1	May 9, 2016	DNPH & Hexane
	2	2	May 9, 2016	DNPH & Hexane
	3	3	May 9, 2016	DNPH & Hexane
	Blank	Blank	May 9, 2016	DNPH & Hexane
#2 APC Outlet	1	4	May 6, 2016	DNPH & Hexane
	2	5	May 6, 2016	DNPH & Hexane
	3	6	May 6, 2016	DNPH & Hexane
	Blank	7	May 6, 2016	DNPH & Hexane
	Trip Spike	8	NA	

Analyse for: Formaldehyde
Acetaldehyde
Acrolein ✓

Relinquished To: ______________________ Date: ______________

Relinquished By: Angela Nolan Date: 05/12/16

Simon Tom 2016/05/12 12:30

APPENDIX 10

Particulate and Metals Train Recovery Data Sheets
(8 pages)

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: 2 May 16
Test No.: 1
Test Location: APC #1

Nozzle, Probe Liner, Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	279.1
After Act. Rinse:	388.3
Total TS1:	109.2

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	280.0
After 0.1N HNO_3 Rinse:	391.5
Total TS2:	111.5

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: 15-2-50

CONTAINER TS3

Initial Wt:	0.8103
Final Wt:	
Gain:	
Colour:	white

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

COVANTA-QF-2

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	669.9
Final Wt:	968.8
1 Gain:	298.9
Colour:	clear

Impinger #2 Empty (Knock-out)	
Empty Wt:	609.6
Final Wt:	725.8
2 Gain:	116.2
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	673.1
Initial Wt:	787.5
Final Wt:	828.8
3 Gain:	41.3
Colour:	clear

Impinger #4 HNO_3/H_2O_2	
Empty Wt:	568.6
Initial Wt:	667.9
Final Wt:	676.3
4 Gain:	8.4
Colour:	clear

Impinger #5 Empty	
Empty Wt:	488.9
Final Wt:	490.3
5 Gain:	1.4
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	420.6
w/ Imp. 1-5 Soln:	1097.8
Imp. 1 to 5 Volume:	~~1095.6~~ 677.2
After HNO_3 Rinse:	1095.4
Total TS4:	774.8

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

Impinger #6 $KMnO_4/H_2SO_4$	
Empty Wt:	678.1
Initial Wt:	799.9
Final Wt:	~~968.8~~ 799.3
6 Gain:	-0.6
Colour:	purple

Impinger # 7 $KMnO_4/H_2SO_4$	
Empty Wt:	668.7
Initial Wt:	777.4
Final Wt:	777.5
7 Gain:	0.1
Colour:	purple

CWTR = 1 to 7: 465.7

WCBDA= 8: 20.1

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	418.9
With Imp. 6&7 Soln:	416.6
Imp. 6&7 Volume:	227.7
After $KMnO_4$ Rinse:	755.9
After100g H_2O Rinse:	850.6
Total TS5-A:	431.7

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	419.4
With 150 mL DI H_2O:	574.2
After HCl Rinse:	594.7
After DI H_2O Rinse:	680.6
Total TS5-B:	261.2

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

Impinger #8 Silica Gel	
Initial Wt:	980.1
Final Wt:	1000.2
8 Gain:	20.1

SAMPLE IDENTIFICATION	16-21656-PM
TS1 (Probe Rinse-Acetone)	1
TS2 (Probe Rinse-0.1N HNO_3)	2
TS3 (Filter)	3
TS4 (Impinger 1-5 Sol'n-HNO_3)	4
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	5
TS5-B (Impinger 6, 7 Rinse-HCl)	6

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

Box 7

Train Loaded By: AN
Train Recovered By: TS
Recovery Witnessed By: —
Date: 2 May 16

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: May 2/16
Test No.: 2
Test Location: Unit 1 Outlet

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	285.8
After Act. Rinse:	411.4
Total TS1:	125.6

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	281.9
After 0.1N HNO_3 Rinse:	502.0
Total TS2:	220.1

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: ~~16G08~~ COVANTA-QF-1

CONTAINER TS3

Initial Wt:	~~07027~~
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	658.2
	Final Wt:	944.5
1	Gain:	286.3
	Colour:	CLEAR

	Impinger #2 Empty (Knock-out)	
	Empty Wt:	624.3
	Final Wt:	702.9
2	Gain:	78.6
	Colour:	CLEAR

	Impinger #3 HNO_3/H_2O_2	
	Empty Wt:	658.2
	Initial Wt:	770.3
	Final Wt:	835.6
3	Gain:	65.3
	Colour:	CLEAR

	Impinger #4 HNO_3/H_2O_2	
	Empty Wt:	658.2
	Initial Wt:	757.0
	Final Wt:	768.9
4	Gain:	11.9
	Colour:	CLEAR

	Impinger #5 Empty	
	Empty Wt:	619.6
	Final Wt:	620.71
5	Gain:	1.1
	Colour:	CLEAR

CONTAINER TS4 WEIGHTS	
Empty Wt:	419.7
w/ Imp. 1-5 Soln:	1072.3
Imp. 1 to 5 Volume:	652.6
After HNO_3 Rinse:	1195.6
Total TS4:	775.9

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

	Impinger #6 $KMnO_4/H_2SO_4$	
	Empty Wt:	663.1
	Initial Wt:	787.7
	Final Wt:	788.8
6	Gain:	1.1
	Colour:	PURPLE

	Impinger # 7 $KMnO_4/H_2SO_4$	
	Empty Wt:	522.0
	Initial Wt:	626.8
	Final Wt:	628.5
7	Gain:	1.7
	Colour:	PURPLE

CWTR = 1 to 7:	446.0
WCBDA= 8:	19.5

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	419.1
With Imp. 6&7 Soln:	~~421.97~~ 651.3
Imp. 6&7 Volume:	232.2
After $KMnO_4$ Rinse:	758.0
After100g H_2O Rinse:	858.1
Total TS5-A:	439.0

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	281.8
With 150 mL DI H_2O:	443.0
After HCl Rinse:	469.2
After DI H_2O Rinse:	562.4
Total TS5-B:	280.6

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

	Impinger #8 Silica Gel	
	Initial Wt:	939.4
	Final Wt:	958.9
8	Gain:	19.5

SAMPLE IDENTIFICATION	16-21656-PM-
TS1 (Probe Rinse-Acetone)	7
TS2 (Probe Rinse-0.1N HNO_3)	8
TS3 (Filter)	9
TS4 (Impinger 1-5 Sol'n-HNO_3)	10
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	11
TS5-B (Impinger 6, 7 Rinse-HCl)	12

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

Box 5

Train Loaded By: AN
Train Recovered By: TS/AN
Recovery Witnessed By:
Date: May 2, 2016

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Date:	May 4/16
Test No.:	3
Test Location:	Unit 1 Outlet

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	279.3
After Act. Rinse:	387.1
Total TS1:	107.8

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	278.0
After 0.1N HNO_3 Rinse:	402.7
Total TS2:	124.7

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: COVANTA - 2F - 7

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	658.6
	Final Wt:	837.7
1	Gain:	179.1
	Colour:	CLEAR

	Impinger #2 Empty (Knock-out)	
	Empty Wt:	624.5
	Final Wt:	763.2
2	Gain:	138.7
	Colour:	CLEAR

	Impinger #3 HNO_3/H_2O_2	
	Empty Wt:	659.4
	Initial Wt:	766.9
	Final Wt:	860.5
3	Gain:	93.6
	Colour:	CLEAR

	Impinger #4 HNO_3/H_2O_2	
	Empty Wt:	658.0
	Initial Wt:	761.5
	Final Wt:	776.7
4	Gain:	15.2
	Colour:	CLEAR

	Impinger #5 Empty	
	Empty Wt:	619.1
	Final Wt:	621.6
5	Gain:	2.5
	Colour:	CLEAR

CONTAINER TS4 WEIGHTS	
Empty Wt:	410.5
w/ Imp. 1-5 Soln:	1048.1
Imp. 1 to 5 Volume:	637.6
After HNO_3 Rinse:	1303.3
Total TS4:	892.8

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

	Impinger #6 $KMnO_4/H_2SO_4$	
	Empty Wt:	663.9
	Initial Wt:	782.9
	Final Wt:	784.6
6	Gain:	~~1.3~~ 1.7
	Colour:	PURPLE

	Impinger # 7 $KMnO_4/H_2SO_4$	
	Empty Wt:	523.4
	Initial Wt:	639.5
	Final Wt:	641.3
7	Gain:	1.8
	Colour:	PURPLE

CWTR = 1 to 7:	~~429.7~~ 432.6
WCBDA= 8:	19.4

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	410.6
With Imp. 6&7 Soln:	646.9
Imp. 6&7 Volume:	236.3
After $KMnO_4$ Rinse:	763.6
After100g H_2O Rinse:	864.6
Total TS5-A:	454.0

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	410.0
With 150 mL DI H_2O:	561.2
After HCl Rinse:	618.5
After DI H_2O Rinse:	783.5
Total TS5-B:	373.5

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

	Impinger #8 Silica Gel	
	Initial Wt:	956.9
	Final Wt:	976.3
8	Gain:	19.4

SAMPLE IDENTIFICATION	16-21656-PM-
TS1 (Probe Rinse-Acetone)	13
TS2 (Probe Rinse-0.1N HNO_3)	14
TS3 (Filter)	15
TS4 (Impinger 1-5 Sol'n-HNO_3)	16
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	17
TS5-B (Impinger 6, 7 Rinse-HCl)	18

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

Train Loaded By: AN
Train Recovered By: AN/CB/TT
Recovery Witnessed By:
Date: May 4/16

Box 5

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: MAY 4 2016
Test No.: BLANK
Test Location: APC#1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	410.9
After Act. Rinse:	610.1
Total TS1:	199.2

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	410.5
After 0.1N HNO_3 Rinse:	690.5
Total TS2:	280.0

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: ~~16-4~~ QF8B

CONTAINER TS3

Initial Wt:	~~0726~~
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

14-Q49

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	602.4
Final Wt:	602.4
1 Gain:	—
Colour:	—

Impinger #2 Empty (Knock-out)	
Empty Wt:	656.6
Final Wt:	656.6
2 Gain:	—
Colour:	—

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	673.8
Initial Wt:	787.1
Final Wt:	787.1
3 Gain:	—
Colour:	CLEAR

Impinger #4 HNO_3/H_2O_2	
Empty Wt:	673.2
Initial Wt:	772.3
Final Wt:	772.3
4 Gain:	—
Colour:	CLEAR

Impinger #5 Empty	
Empty Wt:	665.1
Final Wt:	665.1
5 Gain:	—
Colour:	—

CONTAINER TS4 WEIGHTS	
Empty Wt:	410.9
w/ Imp. 1-5 Soln:	624.5
Imp. 1 to 5 Volume:	213.6
After HNO_3 Rinse:	185.5
Total TS4:	374.6

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

Impinger #6 $KMnO_4/H_2SO_4$	
Empty Wt:	675.5
Initial Wt:	791.5
Final Wt:	791.5
6 Gain:	—
Colour:	PURPLE

Impinger # 7 $KMnO_4/H_2SO_4$	
Empty Wt:	663.5
Initial Wt:	772.7
Final Wt:	772.7
7 Gain:	—
Colour:	PURPLE

CWTR = 1 to 7:	—
WCBDA= 8:	—

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	410.4
With Imp. 6&7 Soln:	636.9
Imp. 6&7 Volume:	226.5
After $KMnO_4$ Rinse:	735.0
After100g H_2O Rinse:	849.9
Total TS5-A:	439.5

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	410.1
With 150 mL DI H_2O:	560.1
After HCl Rinse:	595.3
After DI H_2O Rinse:	682.6
Total TS5-B:	272.5

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

Impinger #8 Silica Gel	
Initial Wt:	962.2
Final Wt:	962.2
8 Gain:	—

SAMPLE IDENTIFICATION	16-21656-PM
TS1 (Probe Rinse-Acetone)	19
TS2 (Probe Rinse-0.1N HNO_3)	20
TS3 (Filter)	21
TS4 (Impinger 1-5 Sol'n-HNO_3)	22
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	23
TS5-B (Impinger 6, 7 Rinse-HCl)	24

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

Box 16

Train Loaded By: DW
Train Recovered By: DW
Recovery Witnessed By: —
Date: MAY 4, 2016

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: 3 May 16
Test No.: 1
Test Location: APC#2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	282.0
After Act. Rinse:	392.6
Total TS1:	110.6

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	280.9
After 0.1N HNO_3 Rinse:	414.6
Total TS2:	133.7

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: Covanta QF3

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	white

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	669.6
	Final Wt:	956.2
1	Gain:	~~TS5.4~~ 286.6
	Colour:	clear

	Impinger #2 Empty (Knock-out)	
	Empty Wt:	609.6
	Final Wt:	755.1
2	Gain:	145.5
	Colour:	clear

	Impinger #3 HNO_3/H_2O_2	
	Empty Wt:	672.9
	Initial Wt:	774.7
	Final Wt:	818.7
3	Gain:	44.0
	Colour:	clear

	Impinger #4 HNO_3/H_2O_2	
	Empty Wt:	567.9
	Initial Wt:	~~777.9~~ 677.1
	Final Wt:	683.1
4	Gain:	6.0
	Colour:	clear

	Impinger #5 Empty	
	Empty Wt:	489.0
	Final Wt:	489.9
5	Gain:	0.9
	Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	414.9
w/ Imp. 1-5 Soln:	1109.2
Imp. 1 to 5 Volume:	694.3
After HNO_3 Rinse:	1214.6
Total TS4:	799.7

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

	Impinger #6 $KMnO_4/H_2SO_4$	
	Empty Wt:	678.5
	Initial Wt:	784.3
	Final Wt:	782.6
6	Gain:	-1.7
	Colour:	purple

	Impinger # 7 $KMnO_4/H_2SO_4$	
	Empty Wt:	671.0
	Initial Wt:	788.7
	Final Wt:	790.1
7	Gain:	1.4
	Colour:	purple

CWTR = 1 to 7: 482.7

WCBDA= 8: 19.2

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	419.7
With Imp. 6&7 Soln:	1640.6
Imp. 6&7 Volume:	220.9
After $KMnO_4$ Rinse:	757.3
After100g H_2O Rinse:	857.3
Total TS5-A:	437.6

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	280.3
With 150 mL DI H_2O:	432.5
After HCl Rinse:	463.3
After DI H_2O Rinse:	556.3
Total TS5-B:	276.0

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

	Impinger #8 Silica Gel	
	Initial Wt:	1000.1
	Final Wt:	1019.3
8	Gain:	19.2

SAMPLE IDENTIFICATION	16-21656-PM
TS1 (Probe Rinse-Acetone)	25
TS2 (Probe Rinse-0.1N HNO_3)	26
TS3 (Filter)	27
TS4 (Impinger 1-5 Sol'n-HNO_3)	28
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	29
TS5-B (Impinger 6, 7 Rinse-HCl)	30

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

Box 7

Train Loaded By: TS
Train Recovered By: TS
Recovery Witnessed By: —
Date: 3 May 16

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: 3 May 16
Test No.: 2
Test Location: APC #2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	276.5
After Act. Rinse:	415.4
Total TS1:	138.9

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	278.6
After 0.1N HNO_3 Rinse:	559.9
Total TS2:	281.3

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: COVANTA-RF-4

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	657.6
	Final Wt:	978.0
1	Gain:	320.4
	Colour:	clear

	Impinger #2 Empty (Knock-out)	
	Empty Wt:	624.6
	Final Wt:	688.1
2	Gain:	63.5
	Colour:	clear

	Impinger #3 HNO_3/H_2O_2	
	Empty Wt:	658.2
	Initial Wt:	759.6
	Final Wt:	811.3
3	Gain:	51.7
	Colour:	clear

	Impinger #4 HNO_3/H_2O_2	
	Empty Wt:	657.8
	Initial Wt:	765.1
	Final Wt:	776.8
4	Gain:	11.7
	Colour:	clear

	Impinger #5 Empty	
	Empty Wt:	618.9
	Final Wt:	619.4
5	Gain:	0.5
	Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.6
w/ Imp. 1-5 Soln:	1062.9
Imp. 1 to 5 Volume:	653.3
After HNO_3 Rinse:	1178.1
Total TS4:	768.5

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

	Impinger #6 $KMnO_4/H_2SO_4$	
	Empty Wt:	664.7
	Initial Wt:	766.6
	Final Wt:	765.2
6	Gain:	-1.4
	Colour:	purple

	Impinger # 7 $KMnO_4/H_2SO_4$	
	Empty Wt:	523.8
	Initial Wt:	640.2
	Final Wt:	642.2
7	Gain:	2.0
	Colour:	purple

CWTR = 1 to 7: 448.4

WCBDA= 8: 20.4

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	409.2
With Imp. 6&7 Soln:	627.5
Imp. 6&7 Volume:	218.3
After $KMnO_4$ Rinse:	738.2
After100g H_2O Rinse:	834.3
Total TS5-A:	425.1

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	277.6
With 150 mL DI H_2O:	427.4
After HCl Rinse:	457.4
After DI H_2O Rinse:	543.5
Total TS5-B:	265.9

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

	Impinger #8 Silica Gel	
	Initial Wt:	950.4
	Final Wt:	970.8
8	Gain:	20.4

SAMPLE IDENTIFICATION	16-21656-PM
TS1 (Probe Rinse-Acetone)	31
TS2 (Probe Rinse-0.1N HNO_3)	32
TS3 (Filter)	33
TS4 (Impinger 1-5 Sol'n-HNO_3)	34
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	35
TS5-B (Impinger 6, 7 Rinse-HCl)	36

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

BOX 5

Train Loaded By: AN/TS
Train Recovered By: AN/TS
Recovery Witnessed By: —
Date: 3 May 16

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: May 4/16
Test No.: 3
Test Location: Unit 2 Outlet

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	283.6
After Act. Rinse:	362.2
Total TS1:	78.6

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	408.8
After 0.1N HNO_3 Rinse:	507.4
Total TS2:	

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: QF-6

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	670.1
	Final Wt:	963.9
1	Gain:	293.8
	Colour:	CLEAR

	Impinger #2 Empty (Knock-out)	
	Empty Wt:	610.2
	Final Wt:	710.3
2	Gain:	100.1
	Colour:	CLEAR

	Impinger #3 HNO_3/H_2O_2	
	Empty Wt:	674.1
	Initial Wt:	785.1
	Final Wt:	836.2
3	Gain:	51.1
	Colour:	CLEAR

	Impinger #4 HNO_3/H_2O_2	
	Empty Wt:	568.1
	Initial Wt:	671.4
	Final Wt:	680.4
4	Gain:	9.0
	Colour:	CLEAR

	Impinger #5 Empty	
	Empty Wt:	489.4
	Final Wt:	490.3
5	Gain:	0.9
	Colour:	CLEAR

CONTAINER TS4 WEIGHTS	
Empty Wt:	416.3
w/ Imp. 1-5 Soln:	1085.3
Imp. 1 to 5 Volume:	669.0
After HNO_3 Rinse:	1336.5
Total TS4:	920.2

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

	Impinger #6 $KMnO_4/H_2SO_4$	
	Empty Wt:	678.3
	Initial Wt:	778.7
	Final Wt:	775.0
6	Gain:	-3.7
	Colour:	PURPLE

	Impinger # 7 $KMnO_4/H_2SO_4$	
	Empty Wt:	667.9
	Initial Wt:	790.1
	Final Wt:	793.3
7	Gain:	3.2
	Colour:	PURPLE

CWTR = 1 to 7: 484.4

WCBDA= 8: 20.8

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	409.4
With Imp. 6&7 Soln:	628.5
Imp. 6&7 Volume:	219.1
After $KMnO_4$ Rinse:	742.8
After100g H_2O Rinse:	843.7
Total TS5-A:	434.3

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	416.8
With 150 mL DI H_2O:	568.0
After HCl Rinse:	631.4
After DI H_2O Rinse:	749.3
Total TS5-B:	332.5

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

	Impinger #8 Silica Gel	
	Initial Wt:	957.1
	Final Wt:	977.9
8	Gain:	20.8

SAMPLE IDENTIFICATION	16-21656-PM-
TS1 (Probe Rinse-Acetone)	37
TS2 (Probe Rinse-0.1N HNO_3)	38
TS3 (Filter)	39
TS4 (Impinger 1-5 Sol'n-HNO_3)	40
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	41
TS5-B (Impinger 6, 7 Rinse-HCl)	42

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

Train Loaded By: DU
Train Recovered By: AN/CB/TT
Recovery Witnessed By:
Date: May 4/16

Box 7

ORTECH Enivronmental

Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 21656
Date: 3 May 16
Test No.: Blank #2
Test Location: APC #2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	278.4
After Act. Rinse:	381.3
Total TS1:	102.9

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	278.3
After 0.1N HNO_3 Rinse:	407.5
Total TS2:	129.2

MARK FLUID LEVEL

SEAL AND LABEL TS2

Filter

Filter ID: Covanta-QF-5

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	

Seal and label container TS3

Impingers 1, 2, 3, 4 and 5

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	667.4
	Final Wt:	667.4
1	Gain:	—
	Colour:	—

	Impinger #2 Empty (Knock-out)	
	Empty Wt:	602.5
	Final Wt:	602.5
2	Gain:	—
	Colour:	—

	Impinger #3 HNO_3/H_2O_2	
	Empty Wt:	656.7
	Initial Wt:	760.7
	Final Wt:	760.7
3	Gain:	—
	Colour:	clear

	Impinger #4 HNO_3/H_2O_2	
	Empty Wt:	673.8
	Initial Wt:	779.5
	Final Wt:	779.5
4	Gain:	—
	Colour:	clear

	Impinger #5 Empty	
	Empty Wt:	673.3
	Final Wt:	673.3
5	Gain:	—
	Colour:	—

CONTAINER TS4 WEIGHTS	
Empty Wt:	421.1
w/ Imp. 1-5 Soln:	630.8
Imp. 1 to 5 Volume:	209.7
After HNO_3 Rinse:	742.2
Total TS4:	321.1

MARK FLUID LEVEL

SEAL AND LABEL TS4

Impinger 6 & 7

	Impinger #6 $KMnO_4/H_2SO_4$	
	Empty Wt:	665.2
	Initial Wt:	775.2
	Final Wt:	775.2
6	Gain:	—
	Colour:	purple

	Impinger # 7 $KMnO_4/H_2SO_4$	
	Empty Wt:	675.6
	Initial Wt:	791.5
	Final Wt:	791.5
7	Gain:	—
	Colour:	purple

CWTR = 1 to 7: —

WCBDA= 8: —

Impinger 6 & 7

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	420.1
With Imp. 6&7 Soln:	646.0
Imp. 6&7 Volume:	225.9
After $KMnO_4$ Rinse:	761.2
After100g H_2O Rinse:	858.7
Total TS5-A:	438.6

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	285.9
With 150 mL DI H_2O:	437.2
After HCl Rinse:	459.5
After DI H_2O Rinse:	558.3
Total TS5-B:	272.4

MARK FLUID LEVEL

SEAL & LABEL TS5-B

Impinger 8

	Impinger #8 Silica Gel	
	Initial Wt:	962.3
	Final Wt:	962.3
8	Gain:	—

SAMPLE IDENTIFICATION	16-21656- PM
TS1 (Probe Rinse-Acetone)	43
TS2 (Probe Rinse-0.1N HNO_3)	44
TS3 (Filter)	45
TS4 (Impinger 1-5 Sol'n-HNO_3)	46
TS5-A (Impinger 6, 7 Sol'n-$KMnO_4$)	47
TS5-B (Impinger 6, 7 Rinse-HCl)	48

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 4 L Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

B3x16

Train Loaded By: TS
Train Recovered By: TS
Recovery Witnessed By: —
Date: 3 May 16

ORTECH Enivronmental

APPENDIX 11

Inorganics Analytical Reports
(26 pages)

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 21656-J2227
Your Project #: 21656
Site Location: COVANTA

Attention:Chris Belore

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/05/13
Report #: R3991755
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B689319
Received: 2016/05/04, 12:03

Sample Matrix: Stack Sampling Train
Samples Received: 24

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Mercury 3C in HCl Rinse	8	2016/05/09	2016/05/10	BRL SOP-00104	EPA M29/M0060 m
Mercury 2B in HNO3/H2O2 Imp.	8	2016/05/06	2016/05/08	BRL SOP-00104	EPA M29/M0060 m
Mercury 3B in KMnO4/H2SO4 Imp.	8	2016/05/06	2016/05/08	BRL SOP-00104	EPA M29/M0060 m
Mercury 1B in Filter + Rinse (M29)	8	2016/05/10	2016/05/10	BRL SOP-00104	EPA 29 m
Hydrogen Halides in H2SO4 Imp.	8	2016/05/09	2016/05/09	BRL SOP-00108	EPA 26A m
Metals B.H. in H2O2/HNO3 Imp.(6020A)	8	2016/05/09	2016/05/09	BRL SOP-00103 / BRL SOP-00102	EPA M29/CARB 436 m
Metals F.H. in Filter + Rinses (6020A)	8	2016/05/10	2016/05/10	BRL SOP-00103/ BRL SOP-00102	EPA M29/CARB 436 m
Ammonium in H2SO4 Impingers (CTM-027)	8	2016/05/10	2016/05/10	BRL SOP-00107	EPA CTM-027 m
>10um Particulates in Rinse	8	2016/05/07	2016/05/09	BRL SOP-00109	EPA M201A/OTM-027 m
2.5-10um Particulates in Rinse	8	2016/05/07	2016/05/09	BRL SOP-00109	EPA M201A/OTM-027 m
<2.5um Particulates in Rinse	8	2016/05/07	2016/05/09	BRL SOP-00109	EPA M201A/OTM-027 m
Particulates/Acetone Rinse (M5/315/M201)	8	2016/05/06	2016/05/09	BRL SOP-00109	EPA 5/315 m
Particulates/Filter (M5/315/NJATM1/M201)	8	N/A	2016/05/07	BRL SOP-00109	EPA 5/315/NJATM1 m
Final Volume of Acetone Probe Rinse	16	N/A	2016/05/07	BRL SOP-00109	
Volume of Sulfuric Acid Impinger	8	N/A	2016/05/09		

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
13 May 2016 13:42:50 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==
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.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B689319
Report Date: 2016/05/13

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPA M201A - PARTICULATES (STACK SAMPLING TRAIN)

Maxxam ID		CHP111	CHP118	CHP119			
Sampling Date		2016/05/03	2016/05/02	2016/05/03			
	UNITS	16-21656-M201A 50-52	16-21656-M201A 43-45	16-21656-M201A 1-3	RDL	MDL	QC Batch
> 10 Particulate Weight in Acetone Rinse	mg	<0.5	<0.5	<0.5	0.5	0.1	4489369
< 2.5 Particulate Weight in Acetone Rinse	mg	<0.5	<0.5	<0.5	0.5	0.5	4489367
2.5 - 10 Particulate Weight in Acetone Rinse	mg	<0.5	<0.5	0.5	0.5	0.5	4489368
Acetone Rinse Volume (10)	ml	65	65	36	1	N/A	4489370
Acetone Rinse Volume (2.5 - 10)	ml	65	67	42	1	N/A	4489370
Acetone Rinse Volume (2.5)	ml	27	27	16	1	N/A	4489370

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

Maxxam ID		CHP120	CHP121	CHP122			
Sampling Date		2016/05/03	2016/05/04	2016/05/02			
	UNITS	16-21656-M201A 8-10	16-21656-M201A 15-17	16-21656-M201A 22-24	RDL	MDL	QC Batch
> 10 Particulate Weight in Acetone Rinse	mg	0.6	<0.5	<0.5	0.5	0.1	4489369
< 2.5 Particulate Weight in Acetone Rinse	mg	<0.5	<0.5	<0.5	0.5	0.5	4489367
2.5 - 10 Particulate Weight in Acetone Rinse	mg	<0.5	0.8	7.1	0.5	0.5	4489368
Acetone Rinse Volume (10)	ml	51	56	30	1	N/A	4489370
Acetone Rinse Volume (2.5 - 10)	ml	28	64	79	1	N/A	4489370
Acetone Rinse Volume (2.5)	ml	13	23	27	1	N/A	4489370

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

Maxxam ID		CHP123	CHP124			
Sampling Date		2016/05/02	2016/05/02			
	UNITS	16-21656-M201A 29-31	16-21656-M201A 36-38	RDL	MDL	QC Batch
> 10 Particulate Weight in Acetone Rinse	mg	0.9	0.8	0.5	0.1	4489369
< 2.5 Particulate Weight in Acetone Rinse	mg	0.6	<0.5	0.5	0.5	4489367
2.5 - 10 Particulate Weight in Acetone Rinse	mg	1.2	3.4	0.5	0.5	4489368
Acetone Rinse Volume (10)	ml	110	58	1	N/A	4489370
Acetone Rinse Volume (2.5 - 10)	ml	95	61	1	N/A	4489370
Acetone Rinse Volume (2.5)	ml	23	14	1	N/A	4489370

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

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

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B689319
Report Date: 2016/05/13

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPA M26A HYDROGEN HALIDES AND HALOGENS (STACK SAMPLING TRAIN)

Maxxam ID		CHK596	CHK610	CHK611			
Sampling Date		2016/05/03	2016/05/03	2016/05/02			
	UNITS	16-21656-M26A BLANK#1	16-21656-M26A BLANK#2	16-21656-M26A 1	RDL	MDL	QC Batch
Sulfuric Acid Volume	ml	251	254	405	1	1	4490734
Hydrochloric Acid	ug	<200	<200	4400	200	60	4490738
Hydrofluoric Acid	ug	<200	<200	<200	200	110	4490738

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CHK611	CHK612	CHK613	CHK614			
Sampling Date		2016/05/02	2016/05/02	2016/05/02	2016/05/03			
	UNITS	16-21656-M26A 1 Lab-Dup	16-21656-M26A 2	16-21656-M26A 3	16-21656-M26A 4	RDL	MDL	QC Batch
Sulfuric Acid Volume	ml	N/A	392	396	388	1	1	4490734
Hydrochloric Acid	ug	4400	7500	6800	6300	200	60	4490738
Hydrofluoric Acid	ug	<200	<200	<200	<200	200	110	4490738

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Maxxam ID		CHK615	CHK616			
Sampling Date		2016/05/03	2016/05/03			
	UNITS	16-21656-M26A 5	16-21656-M26A 6	RDL	MDL	QC Batch
Sulfuric Acid Volume	ml	399	408	1	1	4490734
Hydrochloric Acid	ug	6500	5500	200	60	4490738
Hydrofluoric Acid	ug	<200	<200	200	110	4490738

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B689319
Report Date: 2016/05/13

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPA CTM 027 AMMONIA (STACK SAMPLING TRAIN)

Maxxam ID		CHK596	CHK610	CHK611			
Sampling Date		2016/05/03	2016/05/03	2016/05/02			
	UNITS	16-21656-M26A BLANK#1	16-21656-M26A BLANK#2	16-21656-M26A 1	RDL	MDL	QC Batch
Ammonium (NH4)	ug	<25	<25	240	25	4.8	4491405

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CHK611	CHK612	CHK613			CHK614			
Sampling Date		2016/05/02	2016/05/02	2016/05/02			2016/05/03			
	UNITS	16-21656-M26A 1 Lab-Dup	16-21656-M26A 2	16-21656-M26A 3	RDL	MDL	16-21656-M26A 4	RDL	MDL	QC Batch
Ammonium (NH4)	ug	250	560	730	25	4.8	3600	50	9.6	4491405

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		CHK615	CHK616			
Sampling Date		2016/05/03	2016/05/03			
	UNITS	16-21656-M26A 5	16-21656-M26A 6	RDL	MDL	QC Batch
Ammonium (NH4)	ug	4000	3100	50	9.6	4491405

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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EPA M29 METALS (FRONT & BACK SEPARATE)

Maxxam ID		CHK450	CHK589	CHK589	CHK590			
Sampling Date		2016/05/03	2016/05/02	2016/05/02	2016/05/02			
	UNITS	16-21656-PM 43-48	16-21656-PM 1-6	16-21656-PM 1-6 Lab-Dup	16-21656-PM 7-12	RDL	MDL	QC Batch
Front Half Antimony (Sb)	ug	<0.80	<0.80	<0.80	<0.80	0.80	0.16	4492000
Front Half Arsenic (As)	ug	<0.80	<0.80	<0.80	<0.80	0.80	0.16	4492000
Front Half Barium (Ba)	ug	8.5	6.4	6.2	<6.0	6.0	1.6	4492000
Front Half Beryllium (Be)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.080	4492000
Front Half Cadmium (Cd)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.080	4492000
Front Half Chromium (Cr)	ug	5.83	30.6	32.0	2.32	0.60	0.20	4492000
Front Half Cobalt (Co)	ug	<0.20	<0.20	0.21	<0.20	0.20	0.040	4492000
Front Half Copper (Cu)	ug	<4.0	<4.0	<4.0	<4.0	4.0	0.40	4492000
Front Half Lead (Pb)	ug	<0.40	0.88	0.92	0.48	0.40	0.080	4492000
Front Half Manganese (Mn)	ug	1.8	3.1	3.2	1.5	1.5	0.20	4492000
Front Half Molybdenum (Mo)	ug	48.1	44.4	45.7	20.3	1.0	0.20	4492000
Front Half Nickel (Ni)	ug	18.2	25.8	26.5	1.4	1.0	0.40	4492000
Front Half Selenium (Se)	ug	<2.0	<2.0	<2.0	<2.0	2.0	1.0	4492000
Front Half Silver (Ag)	ug	<0.40	<0.40	<0.40	<0.40	0.40	0.080	4492000
Front Half Thallium (Tl)	ug	<1.0	<1.0	<1.0	<1.0	1.0	0.20	4492000
Front Half Vanadium (V)	ug	<0.60	<0.60	<0.60	<0.60	0.60	0.16	4492000
Front Half Zinc (Zn)	ug	<10	12	12	<10	10	2.0	4492000
Back Half Antimony (Sb)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.040	4490445
Back Half Arsenic (As)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.040	4490445
Back Half Barium (Ba)	ug	2.5	3.2	3.0	3.5	1.5	0.040	4490445
Back Half Beryllium (Be)	ug	<0.050	<0.050	<0.050	<0.050	0.050	0.050	4490445
Back Half Cadmium (Cd)	ug	<0.050	<0.050	<0.050	<0.050	0.050	0.030	4490445
Back Half Chromium (Cr)	ug	0.65	1.36	1.26	2.31	0.15	0.070	4490445
Back Half Cobalt (Co)	ug	<0.050	<0.050	<0.050	<0.050	0.050	0.010	4490445
Back Half Copper (Cu)	ug	3.0	6.3	6.1	8.0	2.0	1.6	4490445
Back Half Lead (Pb)	ug	0.41	0.65	0.63	0.58	0.10	0.040	4490445
Back Half Manganese (Mn)	ug	2.31	3.79	N/A	3.39	0.25	0.060	4490445
Back Half Molybdenum (Mo)	ug	<0.25	<0.25	<0.25	<0.25	0.25	0.050	4490445
Back Half Nickel (Ni)	ug	0.34	1.25	1.19	1.31	0.25	0.060	4490445
Back Half Selenium (Se)	ug	<0.50	<0.50	<0.50	1.15	0.50	0.20	4490445
Back Half Silver (Ag)	ug	<0.10	<0.10	<0.10	<0.10	0.10	0.020	4490445
Back Half Thallium (Tl)	ug	<0.25	<0.25	<0.25	<0.25	0.25	0.050	4490445
Back Half Vanadium (V)	ug	<0.15	<0.15	<0.15	<0.15	0.15	0.030	4490445
Back Half Zinc (Zn)	ug	<2.5	5.6	5.4	4.0	2.5	0.60	4490445

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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ORTECH Environmental
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Your P.O. #: 21656-J2227

EPA M29 METALS (FRONT & BACK SEPARATE)

Maxxam ID		CHK591	CHK592	CHP049	CHP053			
Sampling Date		2016/05/03	2016/05/03	2016/05/03	2016/05/02			
	UNITS	16-21656-PM 25-30	16-21656-PM 31-36	16-21656-PM 19-24	16-21656-PM 13-18	RDL	MDL	QC Batch
Front Half Antimony (Sb)	ug	<0.80	<0.80	<0.80	<0.80	0.80	0.16	4492000
Front Half Arsenic (As)	ug	<0.80	<0.80	<0.80	<0.80	0.80	0.16	4492000
Front Half Barium (Ba)	ug	<6.0	6.1	17.9	7.1	6.0	1.6	4492000
Front Half Beryllium (Be)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.080	4492000
Front Half Cadmium (Cd)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.080	4492000
Front Half Chromium (Cr)	ug	8.00	7.79	2.06	7.15	0.60	0.20	4492000
Front Half Cobalt (Co)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.040	4492000
Front Half Copper (Cu)	ug	<4.0	<4.0	<4.0	<4.0	4.0	0.40	4492000
Front Half Lead (Pb)	ug	0.56	0.56	<0.40	0.66	0.40	0.080	4492000
Front Half Manganese (Mn)	ug	2.3	2.6	<1.5	2.3	1.5	0.20	4492000
Front Half Molybdenum (Mo)	ug	45.1	45.8	32.6	44.1	1.0	0.20	4492000
Front Half Nickel (Ni)	ug	18.0	17.5	<1.0	17.2	1.0	0.40	4492000
Front Half Selenium (Se)	ug	<2.0	2.2	<2.0	<2.0	2.0	1.0	4492000
Front Half Silver (Ag)	ug	<0.40	<0.40	<0.40	<0.40	0.40	0.080	4492000
Front Half Thallium (Tl)	ug	<1.0	<1.0	<1.0	<1.0	1.0	0.20	4492000
Front Half Vanadium (V)	ug	<0.60	<0.60	<0.60	<0.60	0.60	0.16	4492000
Front Half Zinc (Zn)	ug	<10	<10	<10	<10	10	2.0	4492000
Back Half Antimony (Sb)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.040	4490445
Back Half Arsenic (As)	ug	<0.20	<0.20	<0.20	<0.20	0.20	0.040	4490445
Back Half Barium (Ba)	ug	2.4	3.0	2.0	2.4	1.5	0.040	4490445
Back Half Beryllium (Be)	ug	<0.050	<0.050	<0.050	<0.050	0.050	0.050	4490445
Back Half Cadmium (Cd)	ug	<0.050	<0.050	<0.050	<0.050	0.050	0.030	4490445
Back Half Chromium (Cr)	ug	0.81	1.03	0.81	1.46	0.15	0.070	4490445
Back Half Cobalt (Co)	ug	<0.050	<0.050	<0.050	<0.050	0.050	0.010	4490445
Back Half Copper (Cu)	ug	5.5	6.1	3.7	7.6	2.0	1.6	4490445
Back Half Lead (Pb)	ug	0.48	0.49	0.31	0.46	0.10	0.040	4490445
Back Half Manganese (Mn)	ug	2.68	3.06	1.94	2.86	0.25	0.060	4490445
Back Half Molybdenum (Mo)	ug	<0.25	<0.25	<0.25	<0.25	0.25	0.050	4490445
Back Half Nickel (Ni)	ug	1.52	0.63	1.55	1.13	0.25	0.060	4490445
Back Half Selenium (Se)	ug	<0.50	0.72	<0.50	1.08	0.50	0.20	4490445
Back Half Silver (Ag)	ug	<0.10	<0.10	<0.10	<0.10	0.10	0.020	4490445
Back Half Thallium (Tl)	ug	<0.25	<0.25	<0.25	<0.25	0.25	0.050	4490445
Back Half Vanadium (V)	ug	<0.15	<0.15	<0.15	<0.15	0.15	0.030	4490445
Back Half Zinc (Zn)	ug	2.9	3.7	<2.5	6.0	2.5	0.60	4490445

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ORTECH Environmental
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EPA M29 METALS (FRONT & BACK SEPARATE)

Maxxam ID		CHP054			
Sampling Date		2016/05/02			
	UNITS	16-21656-PM 37-42	RDL	MDL	QC Batch
Front Half Antimony (Sb)	ug	<0.80	0.80	0.16	4492000
Front Half Arsenic (As)	ug	<0.80	0.80	0.16	4492000
Front Half Barium (Ba)	ug	6.6	6.0	1.6	4492000
Front Half Beryllium (Be)	ug	<0.20	0.20	0.080	4492000
Front Half Cadmium (Cd)	ug	<0.20	0.20	0.080	4492000
Front Half Chromium (Cr)	ug	7.00	0.60	0.20	4492000
Front Half Cobalt (Co)	ug	<0.20	0.20	0.040	4492000
Front Half Copper (Cu)	ug	6.7	4.0	0.40	4492000
Front Half Lead (Pb)	ug	0.58	0.40	0.080	4492000
Front Half Manganese (Mn)	ug	2.4	1.5	0.20	4492000
Front Half Molybdenum (Mo)	ug	46.7	1.0	0.20	4492000
Front Half Nickel (Ni)	ug	18.4	1.0	0.40	4492000
Front Half Selenium (Se)	ug	<2.0	2.0	1.0	4492000
Front Half Silver (Ag)	ug	<0.40	0.40	0.080	4492000
Front Half Thallium (Tl)	ug	<1.0	1.0	0.20	4492000
Front Half Vanadium (V)	ug	<0.60	0.60	0.16	4492000
Front Half Zinc (Zn)	ug	<10	10	2.0	4492000
Back Half Antimony (Sb)	ug	<0.20	0.20	0.040	4490445
Back Half Arsenic (As)	ug	<0.20	0.20	0.040	4490445
Back Half Barium (Ba)	ug	1.9	1.5	0.040	4490445
Back Half Beryllium (Be)	ug	<0.050	0.050	0.050	4490445
Back Half Cadmium (Cd)	ug	<0.050	0.050	0.030	4490445
Back Half Chromium (Cr)	ug	1.70	0.15	0.070	4490445
Back Half Cobalt (Co)	ug	<0.050	0.050	0.010	4490445
Back Half Copper (Cu)	ug	4.3	2.0	1.6	4490445
Back Half Lead (Pb)	ug	0.37	0.10	0.040	4490445
Back Half Manganese (Mn)	ug	2.40	0.25	0.060	4490445
Back Half Molybdenum (Mo)	ug	<0.25	0.25	0.050	4490445
Back Half Nickel (Ni)	ug	1.74	0.25	0.060	4490445
Back Half Selenium (Se)	ug	<0.50	0.50	0.20	4490445
Back Half Silver (Ag)	ug	<0.10	0.10	0.020	4490445
Back Half Thallium (Tl)	ug	<0.25	0.25	0.050	4490445
Back Half Vanadium (V)	ug	<0.15	0.15	0.030	4490445
Back Half Zinc (Zn)	ug	3.7	2.5	0.60	4490445

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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EPA M29 MERCURY (STACK SAMPLING TRAIN)

Maxxam ID		CHK450			CHK589	CHK590			
Sampling Date		2016/05/03			2016/05/02	2016/05/02			
	UNITS	16-21656-PM 43-48	RDL	MDL	16-21656-PM 1-6	16-21656-PM 7-12	RDL	MDL	QC Batch
1B Mercury (Hg)	ug	<0.015	0.015	0.015	0.018	<0.015	0.015	0.015	4492010
2B Mercury (Hg)	ug	<0.15	0.15	0.03	2.49	1.80	0.39	0.078	4487644
3B Mercury (Hg)	ug	<0.05	0.05	0.01	0.13	0.15	0.05	0.01	4487639
3C Mercury (Hg)	ug	<0.018	0.018	0.0036	0.292	0.178	0.018	0.0036	4490131

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CHK590			CHK591			
Sampling Date		2016/05/02			2016/05/03			
	UNITS	16-21656-PM 7-12 Lab-Dup	RDL	MDL	16-21656-PM 25-30	RDL	MDL	QC Batch
1B Mercury (Hg)	ug	N/A	0.015	0.015	<0.015	0.015	0.015	4492010
2B Mercury (Hg)	ug	N/A	0.39	0.078	1.3	0.4	0.08	4487644
3B Mercury (Hg)	ug	N/A	0.05	0.01	<0.05	0.05	0.01	4487639
3C Mercury (Hg)	ug	0.178	0.018	0.0036	0.225	0.018	0.0036	4490131

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Maxxam ID		CHK592			CHP049			
Sampling Date		2016/05/03			2016/05/03			
	UNITS	16-21656-PM 31-36	RDL	MDL	16-21656-PM 19-24	RDL	MDL	QC Batch
1B Mercury (Hg)	ug	0.016	0.015	0.015	<0.015	0.015	0.015	4492010
2B Mercury (Hg)	ug	0.77	0.38	0.076	<0.15	0.15	0.03	4487644
3B Mercury (Hg)	ug	0.13	0.05	0.01	0.07	0.05	0.01	4487639
3C Mercury (Hg)	ug	0.151	0.018	0.0036	0.645	0.018	0.0036	4490131

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

EPA M29 MERCURY (STACK SAMPLING TRAIN)

Maxxam ID		CHP053	CHP053			CHP054			
Sampling Date		2016/05/02	2016/05/02			2016/05/02			
	UNITS	16-21656-PM 13-18	16-21656-PM 13-18 Lab-Dup	RDL	MDL	16-21656-PM 37-42	RDL	MDL	QC Batch
1B Mercury (Hg)	ug	<0.015	<0.015	0.015	0.015	<0.015	0.015	0.015	4492010
2B Mercury (Hg)	ug	0.93	0.96	0.45	0.09	0.79	0.46	0.092	4487644
3B Mercury (Hg)	ug	0.10	N/A	0.05	0.01	0.20	0.05	0.01	4487639
3C Mercury (Hg)	ug	0.104	N/A	0.023	0.0046	0.17	0.02	0.004	4490131

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Maxxam ID		CHP054			
Sampling Date		2016/05/02			
	UNITS	16-21656-PM 37-42 Lab-Dup	RDL	MDL	QC Batch
3B Mercury (Hg)	ug	0.20	0.05	0.01	4487639

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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EPA M5 PARTICULATE MATTER (PM)

Maxxam ID		CHK450	CHK589	CHK590			
Sampling Date		2016/05/03	2016/05/02	2016/05/02			
	UNITS	16-21656-PM 43-48	16-21656-PM 1-6	16-21656-PM 7-12	RDL	MDL	QC Batch
Acetone Rinse Particulate Weight in Acetone Rinse	mg	0.5	3.1	1.9	0.5	0.1	4488042
Front Half Particulate Weight on Filter	mg	1.50	1.30	1.20	0.30	0.060	4488041
Acetone Rinse Volume	ml	130	140	160	1	1	4488043

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CHK591	CHK592	CHP049			
Sampling Date		2016/05/03	2016/05/03	2016/05/03			
	UNITS	16-21656-PM 25-30	16-21656-PM 31-36	16-21656-PM 19-24	RDL	MDL	QC Batch
Acetone Rinse Particulate Weight in Acetone Rinse	mg	1.8	2.1	0.7	0.5	0.1	4488042
Front Half Particulate Weight on Filter	mg	<0.30	<0.30	1.80	0.30	0.060	4488041
Acetone Rinse Volume	ml	140	170	250	1	1	4488043

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CHP053	CHP054			
Sampling Date		2016/05/02	2016/05/02			
	UNITS	16-21656-PM 13-18	16-21656-PM 37-42	RDL	MDL	QC Batch
Acetone Rinse Particulate Weight in Acetone Rinse	mg	0.9	1.8	0.5	0.1	4488042
Front Half Particulate Weight on Filter	mg	<0.30	<0.30	0.30	0.060	4488041
Acetone Rinse Volume	ml	140	120	1	1	4488043

RDL = Reportable Detection Limit
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TEST SUMMARY

Maxxam ID: CHK450
Sample ID: 16-21656-PM 43-48
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHK589
Sample ID: 16-21656-PM 1-6
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHK589 Dup
Sample ID: 16-21656-PM 1-6
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha

Maxxam ID: CHK590
Sample ID: 16-21656-PM 7-12
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHK590
Sample ID: 16-21656-PM 7-12
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHK590 Dup
Sample ID: 16-21656-PM 7-12
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison

Maxxam ID: CHK591
Sample ID: 16-21656-PM 25-30
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHK592
Sample ID: 16-21656-PM 31-36
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHK596 **Collected:** 2016/05/03
Sample ID: 16-21656-M26A BLANK#1 **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK610 **Collected:** 2016/05/03
Sample ID: 16-21656-M26A BLANK#2 **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK611 **Collected:** 2016/05/02
Sample ID: 16-21656-M26A 1 **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK611 Dup **Collected:** 2016/05/02
Sample ID: 16-21656-M26A 1 **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera

Maxxam ID: CHK612 **Collected:** 2016/05/02
Sample ID: 16-21656-M26A 2 **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK613 **Collected:** 2016/05/02
Sample ID: 16-21656-M26A 3 **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern

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ORTECH Environmental
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Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHK613
Sample ID: 16-21656-M26A 3
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK614
Sample ID: 16-21656-M26A 4
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK615
Sample ID: 16-21656-M26A 5
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHK616
Sample ID: 16-21656-M26A 6
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hydrogen Halides in H2SO4 Imp.	IC/SPEC	4490738	2016/05/09	2016/05/09	Ann-Marie Stern
Ammonium in H2SO4 Impingers (CTM-027)	IC/SPEC	4491405	2016/05/10	2016/05/10	Manoj Gera
Volume of Sulfuric Acid Impinger		4490734	N/A	2016/05/09	Frank Mo

Maxxam ID: CHP049
Sample ID: 16-21656-PM 19-24
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHP053
Sample ID: 16-21656-PM 13-18
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP053 Dup
Sample ID: 16-21656-PM 13-18
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison

Maxxam ID: CHP054
Sample ID: 16-21656-PM 37-42
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	4490131	2016/05/09	2016/05/10	Ron Morrison
Mercury 2B in HNO3/H2O2 Imp.	CV/AA	4487644	2016/05/06	2016/05/08	Ron Morrison
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison
Mercury 1B in Filter + Rinse (M29)	CV/AA	4492010	2016/05/10	2016/05/10	Ron Morrison
Metals B.H. in H2O2/HNO3 Imp.(6020A)	ICP1/MS	4490445	2016/05/09	2016/05/09	Nan Raykha
Metals F.H. in Filter + Rinses (6020A)	ICP1/MS	4492000	2016/05/10	2016/05/10	Nan Raykha
Particulates/Acetone Rinse (M5/315/M201)	BAL	4488042	2016/05/06	2016/05/09	Brenda Moore
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4488041	N/A	2016/05/07	Brenda Moore
Final Volume of Acetone Probe Rinse		4488043	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP054 Dup
Sample ID: 16-21656-PM 37-42
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3B in KMnO4/H2SO4 Imp.	CV/AA	4487639	2016/05/06	2016/05/08	Ron Morrison

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Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHP111
Sample ID: 16-21656-M201A 50-52
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP118
Sample ID: 16-21656-M201A 43-45
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP119
Sample ID: 16-21656-M201A 1-3
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP120
Sample ID: 16-21656-M201A 8-10
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP121
Sample ID: 16-21656-M201A 15-17
Matrix: Stack Sampling Train

Collected: 2016/05/04
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

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Site Location: COVANTA
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TEST SUMMARY

Maxxam ID: CHP122
Sample ID: 16-21656-M201A 22-24
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP123
Sample ID: 16-21656-M201A 29-31
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

Maxxam ID: CHP124
Sample ID: 16-21656-M201A 36-38
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
>10um Particulates in Rinse	BAL	4489369	2016/05/07	2016/05/09	Brenda Moore
2.5-10um Particulates in Rinse	BAL	4489368	2016/05/07	2016/05/09	Brenda Moore
<2.5um Particulates in Rinse	BAL	4489367	2016/05/07	2016/05/09	Brenda Moore
Final Volume of Acetone Probe Rinse		4489370	N/A	2016/05/07	Brenda Moore

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GENERAL COMMENTS

Sample CHP054-01 : Digestion repeated for Ni only for this sample on 2016-05-11

EPA M29 METALS (FRONT & BACK SEPARATE)

Metals F.H. in Filter + Rinses (6020A): Post digestion duplicate and spike were done on sample CHK589.
Some Ba (6.9 ug) was observed in the Processed Blank.
Metals B.H. in H2O2/HNO3 Imp.(6020A): Post digestion duplicate and spike were done on sample CHK589.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4487639	RON	Reagent Blank	3B Mercury (Hg)	2016/05/08	<0.013		ug	
4487639	RON	Matrix Spike(CHP054)	3B Mercury (Hg)	2016/05/08		95	%	85 - 115
4487639	RON	Matrix Spike DUP(CHP054)	3B Mercury (Hg)	2016/05/08		100	%	85 - 115
4487639	RON	MS/MSD RPD	3B Mercury (Hg)	2016/05/08	4.9		%	20
4487639	RON	Spiked Blank	3B Mercury (Hg)	2016/05/08		100	%	90 - 110
4487639	RON	Spiked Blank DUP	3B Mercury (Hg)	2016/05/08		98	%	90 - 110
4487639	RON	RPD	3B Mercury (Hg)	2016/05/08	2.2		%	20
4487639	RON	Method Blank	3B Mercury (Hg)	2016/05/08	<0.05		ug	
4487639	RON	RPD - Sample/Sample Dup	3B Mercury (Hg)	2016/05/08	NC		%	20
4487644	RON	Matrix Spike(CHP053)	2B Mercury (Hg)	2016/05/08		103	%	85 - 115
4487644	RON	Matrix Spike DUP(CHP053)	2B Mercury (Hg)	2016/05/08		104	%	85 - 115
4487644	RON	MS/MSD RPD	2B Mercury (Hg)	2016/05/08	0.77		%	20
4487644	RON	Spiked Blank	2B Mercury (Hg)	2016/05/08		104	%	90 - 110
4487644	RON	Spiked Blank DUP	2B Mercury (Hg)	2016/05/08		105	%	90 - 110
4487644	RON	RPD	2B Mercury (Hg)	2016/05/08	0.58		%	20
4487644	RON	Method Blank	2B Mercury (Hg)	2016/05/08	<0.015		ug	
4487644	RON	RPD - Sample/Sample Dup	2B Mercury (Hg)	2016/05/08	NC		%	20
4488042	BLM	Method Blank	Acetone Rinse Particulate Weight in Acetone Rinse	2016/05/09	0.5, RDL=0.5		mg	
4489367	BLM	Method Blank	< 2.5 Particulate Weight in Acetone Rinse	2016/05/09	<0.5		mg	
4489368	BLM	Method Blank	2.5 - 10 Particulate Weight in Acetone Rinse	2016/05/09	<0.5		mg	
4489369	BLM	Method Blank	> 10 Particulate Weight in Acetone Rinse	2016/05/09	<0.5		mg	
4490131	RON	Reagent Blank	3C Mercury (Hg)	2016/05/10	<0.013		ug	
4490131	RON	Matrix Spike(CHK590)	3C Mercury (Hg)	2016/05/10		94	%	85 - 115
4490131	RON	Matrix Spike DUP(CHK590)	3C Mercury (Hg)	2016/05/10		94	%	85 - 115
4490131	RON	MS/MSD RPD	3C Mercury (Hg)	2016/05/10	0.21		%	20
4490131	RON	Spiked Blank	3C Mercury (Hg)	2016/05/10		100	%	90 - 110
4490131	RON	Spiked Blank DUP	3C Mercury (Hg)	2016/05/10		99	%	90 - 110
4490131	RON	RPD	3C Mercury (Hg)	2016/05/10	1.5		%	20
4490131	RON	Method Blank	3C Mercury (Hg)	2016/05/10	<0.013		ug	
4490131	RON	RPD - Sample/Sample Dup	3C Mercury (Hg)	2016/05/10	0.22		%	20
4490445	N_R	Matrix Spike(CHK589)	Back Half Antimony (Sb)	2016/05/09		94	%	70 - 130
			Back Half Arsenic (As)	2016/05/09		95	%	70 - 130
			Back Half Barium (Ba)	2016/05/09		97	%	70 - 130
			Back Half Beryllium (Be)	2016/05/09		91	%	70 - 130
			Back Half Cadmium (Cd)	2016/05/09		91	%	70 - 130
			Back Half Chromium (Cr)	2016/05/09		97	%	70 - 130
			Back Half Cobalt (Co)	2016/05/09		96	%	70 - 130
			Back Half Copper (Cu)	2016/05/09		99	%	70 - 130
			Back Half Lead (Pb)	2016/05/09		96	%	70 - 130
			Back Half Manganese (Mn)	2016/05/09		96	%	70 - 130
			Back Half Molybdenum (Mo)	2016/05/09		97	%	70 - 130
			Back Half Nickel (Ni)	2016/05/09		95	%	70 - 130
			Back Half Selenium (Se)	2016/05/09		89	%	70 - 130
			Back Half Silver (Ag)	2016/05/09		100	%	70 - 130
			Back Half Thallium (Tl)	2016/05/09		99	%	70 - 130
			Back Half Vanadium (V)	2016/05/09		95	%	70 - 130
			Back Half Zinc (Zn)	2016/05/09		90	%	70 - 130
4490445	N_R	Matrix Spike DUP(CHK589)	Back Half Antimony (Sb)	2016/05/09		95	%	70 - 130
			Back Half Arsenic (As)	2016/05/09		94	%	70 - 130
			Back Half Barium (Ba)	2016/05/09		97	%	70 - 130
			Back Half Beryllium (Be)	2016/05/09		92	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Back Half Cadmium (Cd)	2016/05/09		93	%	70 - 130
			Back Half Chromium (Cr)	2016/05/09		95	%	70 - 130
			Back Half Cobalt (Co)	2016/05/09		97	%	70 - 130
			Back Half Copper (Cu)	2016/05/09		96	%	70 - 130
			Back Half Lead (Pb)	2016/05/09		97	%	70 - 130
			Back Half Manganese (Mn)	2016/05/09		94	%	70 - 130
			Back Half Molybdenum (Mo)	2016/05/09		97	%	70 - 130
			Back Half Nickel (Ni)	2016/05/09		97	%	70 - 130
			Back Half Selenium (Se)	2016/05/09		86	%	70 - 130
			Back Half Silver (Ag)	2016/05/09		100	%	70 - 130
			Back Half Thallium (Tl)	2016/05/09		100	%	70 - 130
			Back Half Vanadium (V)	2016/05/09		95	%	70 - 130
			Back Half Zinc (Zn)	2016/05/09		88	%	70 - 130
4490445	N_R	MS/MSD RPD	Back Half Antimony (Sb)	2016/05/09	1.1		%	20
			Back Half Arsenic (As)	2016/05/09	1.1		%	20
			Back Half Barium (Ba)	2016/05/09	0		%	20
			Back Half Beryllium (Be)	2016/05/09	1.1		%	20
			Back Half Cadmium (Cd)	2016/05/09	2.2		%	20
			Back Half Chromium (Cr)	2016/05/09	2.1		%	20
			Back Half Cobalt (Co)	2016/05/09	1.0		%	20
			Back Half Copper (Cu)	2016/05/09	3.1		%	20
			Back Half Lead (Pb)	2016/05/09	1.0		%	20
			Back Half Manganese (Mn)	2016/05/09	2.1		%	20
			Back Half Molybdenum (Mo)	2016/05/09	0		%	20
			Back Half Nickel (Ni)	2016/05/09	2.1		%	20
			Back Half Selenium (Se)	2016/05/09	3.4		%	20
			Back Half Silver (Ag)	2016/05/09	0		%	20
			Back Half Thallium (Tl)	2016/05/09	1.0		%	20
			Back Half Vanadium (V)	2016/05/09	0		%	20
			Back Half Zinc (Zn)	2016/05/09	2.2		%	20
4490445	N_R	Spiked Blank	Back Half Antimony (Sb)	2016/05/09		105	%	85 - 115
			Back Half Arsenic (As)	2016/05/09		101	%	85 - 115
			Back Half Barium (Ba)	2016/05/09		103	%	85 - 115
			Back Half Beryllium (Be)	2016/05/09		99	%	85 - 115
			Back Half Cadmium (Cd)	2016/05/09		104	%	85 - 115
			Back Half Chromium (Cr)	2016/05/09		106	%	85 - 115
			Back Half Cobalt (Co)	2016/05/09		103	%	85 - 115
			Back Half Copper (Cu)	2016/05/09		104	%	85 - 115
			Back Half Lead (Pb)	2016/05/09		103	%	85 - 115
			Back Half Manganese (Mn)	2016/05/09		104	%	85 - 115
			Back Half Molybdenum (Mo)	2016/05/09		104	%	85 - 115
			Back Half Nickel (Ni)	2016/05/09		106	%	85 - 115
			Back Half Selenium (Se)	2016/05/09		97	%	85 - 115
			Back Half Silver (Ag)	2016/05/09		112	%	85 - 115
			Back Half Thallium (Tl)	2016/05/09		104	%	85 - 115
			Back Half Vanadium (V)	2016/05/09		104	%	85 - 115
			Back Half Zinc (Zn)	2016/05/09		95	%	85 - 115
4490445	N_R	Spiked Blank DUP	Back Half Antimony (Sb)	2016/05/09		98	%	85 - 115
			Back Half Arsenic (As)	2016/05/09		100	%	85 - 115
			Back Half Barium (Ba)	2016/05/09		99	%	85 - 115
			Back Half Beryllium (Be)	2016/05/09		98	%	85 - 115
			Back Half Cadmium (Cd)	2016/05/09		97	%	85 - 115

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Back Half Chromium (Cr)	2016/05/09		98	%	85 - 115
			Back Half Cobalt (Co)	2016/05/09		97	%	85 - 115
			Back Half Copper (Cu)	2016/05/09		100	%	85 - 115
			Back Half Lead (Pb)	2016/05/09		100	%	85 - 115
			Back Half Manganese (Mn)	2016/05/09		100	%	85 - 115
			Back Half Molybdenum (Mo)	2016/05/09		100	%	85 - 115
			Back Half Nickel (Ni)	2016/05/09		100	%	85 - 115
			Back Half Selenium (Se)	2016/05/09		94	%	85 - 115
			Back Half Silver (Ag)	2016/05/09		111	%	85 - 115
			Back Half Thallium (Tl)	2016/05/09		102	%	85 - 115
			Back Half Vanadium (V)	2016/05/09		99	%	85 - 115
			Back Half Zinc (Zn)	2016/05/09		93	%	85 - 115
4490445	N_R	RPD	Back Half Antimony (Sb)	2016/05/09	7.6		%	20
			Back Half Arsenic (As)	2016/05/09	1.1		%	20
			Back Half Barium (Ba)	2016/05/09	3.5		%	20
			Back Half Beryllium (Be)	2016/05/09	1.1		%	20
			Back Half Cadmium (Cd)	2016/05/09	6.4		%	20
			Back Half Chromium (Cr)	2016/05/09	7.4		%	20
			Back Half Cobalt (Co)	2016/05/09	6.0		%	20
			Back Half Copper (Cu)	2016/05/09	4.4		%	20
			Back Half Lead (Pb)	2016/05/09	2.7		%	20
			Back Half Manganese (Mn)	2016/05/09	3.5		%	20
			Back Half Molybdenum (Mo)	2016/05/09	4.0		%	20
			Back Half Nickel (Ni)	2016/05/09	5.9		%	20
			Back Half Selenium (Se)	2016/05/09	3.1		%	20
			Back Half Silver (Ag)	2016/05/09	1.4		%	20
			Back Half Thallium (Tl)	2016/05/09	2.2		%	20
			Back Half Vanadium (V)	2016/05/09	4.2		%	20
			Back Half Zinc (Zn)	2016/05/09	2.3		%	20
4490445	N_R	Method Blank	Back Half Antimony (Sb)	2016/05/09	<0.20		ug	
			Back Half Arsenic (As)	2016/05/09	<0.20		ug	
			Back Half Barium (Ba)	2016/05/09	<1.5		ug	
			Back Half Beryllium (Be)	2016/05/09	<0.050		ug	
			Back Half Cadmium (Cd)	2016/05/09	<0.050		ug	
			Back Half Chromium (Cr)	2016/05/09	<0.15		ug	
			Back Half Cobalt (Co)	2016/05/09	<0.050		ug	
			Back Half Copper (Cu)	2016/05/09	<2.0		ug	
			Back Half Lead (Pb)	2016/05/09	<0.10		ug	
			Back Half Manganese (Mn)	2016/05/09	<0.25		ug	
			Back Half Molybdenum (Mo)	2016/05/09	<0.25		ug	
			Back Half Nickel (Ni)	2016/05/09	<0.25		ug	
			Back Half Selenium (Se)	2016/05/09	<0.50		ug	
			Back Half Silver (Ag)	2016/05/09	<0.10		ug	
			Back Half Thallium (Tl)	2016/05/09	<0.25		ug	
			Back Half Vanadium (V)	2016/05/09	<0.15		ug	
			Back Half Zinc (Zn)	2016/05/09	<2.5		ug	
4490445	N_R	RPD - Sample/Sample Dup	Back Half Antimony (Sb)	2016/05/09	NC		%	20
			Back Half Arsenic (As)	2016/05/09	NC		%	20
			Back Half Barium (Ba)	2016/05/09	NC		%	20
			Back Half Beryllium (Be)	2016/05/09	NC		%	20
			Back Half Cadmium (Cd)	2016/05/09	NC		%	20
			Back Half Chromium (Cr)	2016/05/09	7.7		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Back Half Cobalt (Co)	2016/05/09	NC		%	20
			Back Half Copper (Cu)	2016/05/09	NC		%	20
			Back Half Lead (Pb)	2016/05/09	3.8		%	20
			Back Half Molybdenum (Mo)	2016/05/09	NC		%	20
			Back Half Nickel (Ni)	2016/05/09	NC		%	20
			Back Half Selenium (Se)	2016/05/09	NC		%	20
			Back Half Silver (Ag)	2016/05/09	NC		%	20
			Back Half Thallium (Tl)	2016/05/09	NC		%	20
			Back Half Vanadium (V)	2016/05/09	NC		%	20
			Back Half Zinc (Zn)	2016/05/09	NC		%	20
4490738	A_S	Matrix Spike(CHK611)	Hydrochloric Acid	2016/05/09		97	%	80 - 120
			Hydrofluoric Acid	2016/05/09		91	%	80 - 120
4490738	A_S	Spiked Blank	Hydrochloric Acid	2016/05/09		102	%	90 - 110
			Hydrofluoric Acid	2016/05/09		96	%	90 - 110
4490738	A_S	Method Blank	Hydrochloric Acid	2016/05/09	<200		ug	
			Hydrofluoric Acid	2016/05/09	<200		ug	
4490738	A_S	RPD - Sample/Sample Dup	Hydrochloric Acid	2016/05/09	0.12		%	20
			Hydrofluoric Acid	2016/05/09	NC		%	20
4491405	MGE	Matrix Spike(CHK611)	Ammonium (NH4)	2016/05/10		102	%	75 - 125
4491405	MGE	Spiked Blank	Ammonium (NH4)	2016/05/10		102	%	90 - 110
4491405	MGE	Method Blank	Ammonium (NH4)	2016/05/10	<25		ug	
4491405	MGE	RPD - Sample/Sample Dup	Ammonium (NH4)	2016/05/10	3.6		%	20
4492000	N_R	Matrix Spike(CHK589)	Front Half Antimony (Sb)	2016/05/10		96	%	70 - 130
			Front Half Arsenic (As)	2016/05/10		92	%	70 - 130
			Front Half Barium (Ba)	2016/05/10		92	%	70 - 130
			Front Half Beryllium (Be)	2016/05/10		91	%	70 - 130
			Front Half Cadmium (Cd)	2016/05/10		94	%	70 - 130
			Front Half Chromium (Cr)	2016/05/10		97	%	70 - 130
			Front Half Cobalt (Co)	2016/05/10		93	%	70 - 130
			Front Half Copper (Cu)	2016/05/10		92	%	70 - 130
			Front Half Lead (Pb)	2016/05/10		98	%	70 - 130
			Front Half Manganese (Mn)	2016/05/10		96	%	70 - 130
			Front Half Molybdenum (Mo)	2016/05/10		95	%	70 - 130
			Front Half Nickel (Ni)	2016/05/10		93	%	70 - 130
			Front Half Selenium (Se)	2016/05/10		95	%	70 - 130
			Front Half Silver (Ag)	2016/05/10		95	%	70 - 130
			Front Half Thallium (Tl)	2016/05/10		97	%	70 - 130
			Front Half Vanadium (V)	2016/05/10		97	%	70 - 130
			Front Half Zinc (Zn)	2016/05/10		94	%	70 - 130
4492000	N_R	Matrix Spike DUP(CHK589)	Front Half Antimony (Sb)	2016/05/10		98	%	70 - 130
			Front Half Arsenic (As)	2016/05/10		95	%	70 - 130
			Front Half Barium (Ba)	2016/05/10		96	%	70 - 130
			Front Half Beryllium (Be)	2016/05/10		92	%	70 - 130
			Front Half Cadmium (Cd)	2016/05/10		98	%	70 - 130
			Front Half Chromium (Cr)	2016/05/10		102	%	70 - 130
			Front Half Cobalt (Co)	2016/05/10		98	%	70 - 130
			Front Half Copper (Cu)	2016/05/10		96	%	70 - 130
			Front Half Lead (Pb)	2016/05/10		99	%	70 - 130
			Front Half Manganese (Mn)	2016/05/10		104	%	70 - 130
			Front Half Molybdenum (Mo)	2016/05/10		99	%	70 - 130
			Front Half Nickel (Ni)	2016/05/10		98	%	70 - 130
			Front Half Selenium (Se)	2016/05/10		97	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Front Half Silver (Ag)	2016/05/10		99	%	70 - 130
			Front Half Thallium (Tl)	2016/05/10		98	%	70 - 130
			Front Half Vanadium (V)	2016/05/10		104	%	70 - 130
			Front Half Zinc (Zn)	2016/05/10		97	%	70 - 130
4492000	N_R	MS/MSD RPD	Front Half Antimony (Sb)	2016/05/10	2.1		%	20
			Front Half Arsenic (As)	2016/05/10	3.2		%	20
			Front Half Barium (Ba)	2016/05/10	4.3		%	20
			Front Half Beryllium (Be)	2016/05/10	1.1		%	20
			Front Half Cadmium (Cd)	2016/05/10	4.2		%	20
			Front Half Chromium (Cr)	2016/05/10	5.0		%	20
			Front Half Cobalt (Co)	2016/05/10	5.2		%	20
			Front Half Copper (Cu)	2016/05/10	4.3		%	20
			Front Half Lead (Pb)	2016/05/10	1.0		%	20
			Front Half Manganese (Mn)	2016/05/10	8.0		%	20
			Front Half Molybdenum (Mo)	2016/05/10	4.1		%	20
			Front Half Nickel (Ni)	2016/05/10	5.2		%	20
			Front Half Selenium (Se)	2016/05/10	2.1		%	20
			Front Half Silver (Ag)	2016/05/10	4.1		%	20
			Front Half Thallium (Tl)	2016/05/10	1.0		%	20
			Front Half Vanadium (V)	2016/05/10	7.0		%	20
			Front Half Zinc (Zn)	2016/05/10	3.1		%	20
4492000	N_R	Spiked Blank	Front Half Antimony (Sb)	2016/05/10		99	%	85 - 115
			Front Half Arsenic (As)	2016/05/10		100	%	85 - 115
			Front Half Barium (Ba)	2016/05/10		99	%	85 - 115
			Front Half Beryllium (Be)	2016/05/10		98	%	85 - 115
			Front Half Cadmium (Cd)	2016/05/10		97	%	85 - 115
			Front Half Chromium (Cr)	2016/05/10		96	%	85 - 115
			Front Half Cobalt (Co)	2016/05/10		94	%	85 - 115
			Front Half Copper (Cu)	2016/05/10		100	%	85 - 115
			Front Half Lead (Pb)	2016/05/10		99	%	85 - 115
			Front Half Manganese (Mn)	2016/05/10		97	%	85 - 115
			Front Half Molybdenum (Mo)	2016/05/10		97	%	85 - 115
			Front Half Nickel (Ni)	2016/05/10		97	%	85 - 115
			Front Half Selenium (Se)	2016/05/10		100	%	85 - 115
			Front Half Silver (Ag)	2016/05/10		103	%	85 - 115
			Front Half Thallium (Tl)	2016/05/10		97	%	85 - 115
			Front Half Vanadium (V)	2016/05/10		97	%	85 - 115
			Front Half Zinc (Zn)	2016/05/10		96	%	85 - 115
4492000	N_R	Spiked Blank DUP	Front Half Antimony (Sb)	2016/05/10		96	%	85 - 115
			Front Half Arsenic (As)	2016/05/10		99	%	85 - 115
			Front Half Barium (Ba)	2016/05/10		99	%	85 - 115
			Front Half Beryllium (Be)	2016/05/10		97	%	85 - 115
			Front Half Cadmium (Cd)	2016/05/10		96	%	85 - 115
			Front Half Chromium (Cr)	2016/05/10		94	%	85 - 115
			Front Half Cobalt (Co)	2016/05/10		93	%	85 - 115
			Front Half Copper (Cu)	2016/05/10		96	%	85 - 115
			Front Half Lead (Pb)	2016/05/10		99	%	85 - 115
			Front Half Manganese (Mn)	2016/05/10		94	%	85 - 115
			Front Half Molybdenum (Mo)	2016/05/10		97	%	85 - 115
			Front Half Nickel (Ni)	2016/05/10		96	%	85 - 115
			Front Half Selenium (Se)	2016/05/10		99	%	85 - 115
			Front Half Silver (Ag)	2016/05/10		100	%	85 - 115

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Maxxam Job #: B689319
Report Date: 2016/05/13

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Front Half Thallium (Tl)	2016/05/10		96	%	85 - 115
			Front Half Vanadium (V)	2016/05/10		94	%	85 - 115
			Front Half Zinc (Zn)	2016/05/10		96	%	85 - 115
4492000	N_R	RPD	Front Half Antimony (Sb)	2016/05/10	3.0		%	20
			Front Half Arsenic (As)	2016/05/10	0.28		%	20
			Front Half Barium (Ba)	2016/05/10	0.11		%	20
			Front Half Beryllium (Be)	2016/05/10	1.4		%	20
			Front Half Cadmium (Cd)	2016/05/10	1.1		%	20
			Front Half Chromium (Cr)	2016/05/10	1.7		%	20
			Front Half Cobalt (Co)	2016/05/10	0.97		%	20
			Front Half Copper (Cu)	2016/05/10	3.5		%	20
			Front Half Lead (Pb)	2016/05/10	0.41		%	20
			Front Half Manganese (Mn)	2016/05/10	3.4		%	20
			Front Half Molybdenum (Mo)	2016/05/10	0.050		%	20
			Front Half Nickel (Ni)	2016/05/10	0.62		%	20
			Front Half Selenium (Se)	2016/05/10	0.95		%	20
			Front Half Silver (Ag)	2016/05/10	2.7		%	20
			Front Half Thallium (Tl)	2016/05/10	0.85		%	20
			Front Half Vanadium (V)	2016/05/10	2.5		%	20
			Front Half Zinc (Zn)	2016/05/10	0.96		%	20
4492000	N_R	Method Blank	Front Half Antimony (Sb)	2016/05/10	<0.80		ug	
			Front Half Arsenic (As)	2016/05/10	<0.80		ug	
			Front Half Barium (Ba)	2016/05/10	6.9, RDL=6.0		ug	
			Front Half Beryllium (Be)	2016/05/10	<0.20		ug	
			Front Half Cadmium (Cd)	2016/05/10	<0.20		ug	
			Front Half Chromium (Cr)	2016/05/10	<0.60		ug	
			Front Half Cobalt (Co)	2016/05/10	<0.20		ug	
			Front Half Copper (Cu)	2016/05/10	<4.0		ug	
			Front Half Lead (Pb)	2016/05/10	<0.40		ug	
			Front Half Manganese (Mn)	2016/05/10	<1.5		ug	
			Front Half Molybdenum (Mo)	2016/05/10	<1.0		ug	
			Front Half Nickel (Ni)	2016/05/10	<1.0		ug	
			Front Half Selenium (Se)	2016/05/10	<2.0		ug	
			Front Half Silver (Ag)	2016/05/10	<0.40		ug	
			Front Half Thallium (Tl)	2016/05/10	<1.0		ug	
			Front Half Vanadium (V)	2016/05/10	<0.60		ug	
			Front Half Zinc (Zn)	2016/05/10	<10		ug	
4492000	N_R	RPD - Sample/Sample Dup	Front Half Antimony (Sb)	2016/05/10	NC		%	20
			Front Half Arsenic (As)	2016/05/10	NC		%	20
			Front Half Barium (Ba)	2016/05/10	NC		%	20
			Front Half Beryllium (Be)	2016/05/10	NC		%	20
			Front Half Cadmium (Cd)	2016/05/10	NC		%	20
			Front Half Chromium (Cr)	2016/05/10	4.5		%	20
			Front Half Cobalt (Co)	2016/05/10	NC		%	20
			Front Half Copper (Cu)	2016/05/10	NC		%	20
			Front Half Lead (Pb)	2016/05/10	NC		%	20
			Front Half Manganese (Mn)	2016/05/10	NC		%	20
			Front Half Molybdenum (Mo)	2016/05/10	2.8		%	20
			Front Half Nickel (Ni)	2016/05/10	2.5		%	20
			Front Half Selenium (Se)	2016/05/10	NC		%	20
			Front Half Silver (Ag)	2016/05/10	NC		%	20

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Maxxam Job #: B689319
Report Date: 2016/05/13

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Front Half Thallium (Tl)	2016/05/10	NC		%	20
			Front Half Vanadium (V)	2016/05/10	NC		%	20
			Front Half Zinc (Zn)	2016/05/10	NC		%	20
4492010	RON	Reagent Blank	1B Mercury (Hg)	2016/05/10	<0.015		ug	
4492010	RON	Matrix Spike(CHP053)	1B Mercury (Hg)	2016/05/10		101	%	85 - 115
4492010	RON	Matrix Spike DUP(CHP053)	1B Mercury (Hg)	2016/05/10		103	%	85 - 115
4492010	RON	MS/MSD RPD	1B Mercury (Hg)	2016/05/10	1.4		%	20
4492010	RON	Spiked Blank	1B Mercury (Hg)	2016/05/10		102	%	90 - 110
4492010	RON	Spiked Blank DUP	1B Mercury (Hg)	2016/05/10		103	%	90 - 110
4492010	RON	RPD	1B Mercury (Hg)	2016/05/10	0.58		%	20
4492010	RON	Method Blank	1B Mercury (Hg)	2016/05/10	<0.015		ug	
4492010	RON	RPD - Sample/Sample Dup	1B Mercury (Hg)	2016/05/10	NC		%	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 sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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VALIDATION SIGNATURE PAGE

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

Ralph Siebert, Operations Manager - Inorganic Analyses

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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APPENDIX 12

Particle Size Distribution Train Recovery Data Sheets
(8 pages)

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: 3 may 16

Test No.: 1
Test Location: APC#1

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	282.8
After Act. Rinse:	311.5
Total TS1:	28.7 ✓

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282.8
After Act. Rinse:	316.6
Total TS2:	33.8 ✓

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	275.4
After Act. Rinse:	288.9
Total TS3:	13.5 ✓

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: 16-47mm-21

CONTAINER TS4

Initial Wt:	~~[illegible]~~ 0.1237
Final Wt:	0.1248
Gain:	1.1
Colour:	Beige spot

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	491.2
Final Wt:	663.7
1 Gain:	172.5 ✓
Colour:	Clear

Impinger #2 Empty	
Empty Wt:	672.4
Final Wt:	670.4
2 Gain:	-2.0 ✓
Colour:	—

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	659.5
Initial Wt:	764.5
Final Wt:	761.0
3 Gain:	-3.5 ✓
Colour:	Clear

Impinger #4 Silica Gel	
Initial Wt:	973.9
Final Wt:	989.7
4 Gain:	15.8 ✓
% Spent:	

CWTR=1+2+3:	167.0 ✓
WCBDA=4:	15.8 ✓

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	10:28
Purge Off:	13:28

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5	
Empty Wt:	280.2
With Imp 2:	448.3
After H_2O Rinse:	485.1
Total Volume TS5:	204.9 ✓

CONTAINER TS6
Secondary Filter

Filter ID:	16-83mm-1
Initial Wt:	0.4204
Final Wt:	0.4208
TS6 Gain:	0.4
Colour:	white.

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	280.4
After Acetone Rinse:	310.1
After Hexane Rinse:	340.8

Mark Fluid Level and Seal and Label Container

Box 9

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	1
TS2 (Part. > 2.5)	2
TS3 (Part. < 2.5)	3
TS4 (Back Up Filter, <2.5)	4
TS5 (Imp 2 H_2O and rinse)	5
TS6 (Secondary Filter)	6
TS7 (Acetone / Hexane rinse)	7

Train Loaded By: TO
Train Recovered By: DWO
Recovery Witnessed By:
Date: 3 may 16

PM_{10}, $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: 3 MAY 16

Test No.: 2
Test Location: APC #1

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	280.1
After Act. Rinse:	316.0
Total TS1:	35.9

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	280.2
After Act. Rinse:	302.6
Total TS2:	22.4

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	279.7
After Act. Rinse:	289.2
Total TS3:	9.5

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: 16-47M-23

CONTAINER TS4

Initial Wt:	0.1231
Final Wt:	0.1228
Gain:	-0.3
Colour:	white

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	476.3
Final Wt:	646.0
1 Gain:	169.7
Colour:	clear

Impinger #2 Empty	
Empty Wt:	564.1
Final Wt:	561.5
2 Gain:	-2.6
Colour:	clear

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	680.7
Initial Wt:	782.0
Final Wt:	770.0
3 Gain:	-12.0
Colour:	clear

Impinger #4 Silica Gel	
Initial Wt:	907.1
Final Wt:	921.3
4 Gain:	14.2
% Spent:	—

CWTR=1+2+3:	155.1
WCBDA=4:	14.2

✓

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	16:40
Purge Off:	17:40

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5	
Empty Wt:	284.4
With Imp 2:	~~[illegible]~~ 448.1
After H_2O Rinse:	494.2
Total Volume TS5:	209.8

CONTAINER TS6 Secondary Filter	
Filter ID:	~~16-83MM-27~~ 16-83MM-15
Initial Wt:	~~0.3857~~ 0.4127
Final Wt:	0.4114
TS6 Gain:	-1.3
Colour:	white

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	285.1
After Acetone Rinse:	305.8
After Hexane Rinse:	349.[illegible]

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	8
TS2 (Part. > 2.5)	9
TS3 (Part. < 2.5)	10
TS4 (Back Up Filter, <2.5)	11
TS5 (Imp 2 H_2O and rinse)	12
TS6 (Secondary Filter)	13
TS7 (Acetone / Hexane rinse)	14

Train Loaded By: TS
Train Recovered By: DJ / TS
Recovery Witnessed By:
Date: 3 May 16

Box 14

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: MAY 3, 2016

Test No.: 3
Test Location: UNIT #1

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	282.8
After Act. Rinse:	3256.0
Total TS1:	45.2

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	2778.0
After Act. Rinse:	329.4
Total TS2:	51.4

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	281.7
After Act. Rinse:	296.1
Total TS3:	14.4

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: 16-M201A-18

CONTAINER TS4

Initial Wt:	0.1233
Final Wt:	0.1245
Gain:	1.2
Colour:	BEIGE/WHITE

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	491.3
	Final Wt:	655.8
1	Gain:	164.5
	Colour:	CLEAR

	Impinger #2 Empty	
	Empty Wt:	671.2
	Final Wt:	670.6
2	Gain:	-0.6
	Colour:	CLEAR

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	659.5
	Initial Wt:	759.1
	Final Wt:	758.6
3	Gain:	-0.5
	Colour:	CLEAR

	Impinger #4 Silica Gel	
	Initial Wt:	994.8
	Final Wt:	1005.7
4	Gain:	10.9
	% Spent:	30

CWTR=1+2+3:	163.4
WCBDA=4:	10.9

✓

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	0725 pm
Purge Off:	0825 pm

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5

Empty Wt:	410.9
With Imp 2:	567.3
After H_2O Rinse:	673.9
Total Volume TS5:	106.6

CONTAINER TS6
Secondary Filter

Filter ID:	16-83MM-2
Initial Wt:	0.3813
Final Wt:	0.3817
TS6 Gain:	0.4
Colour:	WHITE

Box 9.

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	410.0
After Acetone Rinse:	468.7
After Hexane Rinse:	526

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	15
TS2 (Part. > 2.5)	16
TS3 (Part. < 2.5)	17
TS4 (Back Up Filter, <2.5)	18
TS5 (Imp 2 H_2O and rinse)	19
TS6 (Secondary Filter)	20
TS7 (Acetone / Hexane rinse)	21

Train Loaded By: TS
Train Recovered By: KG/DW
Recovery Witnessed By:
Date: MAY 3, 2016

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: 3 May 16

Test No.: Blank
Test Location: APC #1

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	281.9
After Act. Rinse:	333.4
Total TS1:	51.5

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	279.5
After Act. Rinse:	331.4
Total TS2:	51.9

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	285.2
After Act. Rinse:	306.6
Total TS3:	21.4

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: 16-47mm-15

CONTAINER TS4

Initial Wt:	0.1230
Final Wt:	0.1230
Gain:	Ø
Colour:	white

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	491.2
	Final Wt:	491.2
1	Gain:	—
	Colour:	—

	Impinger #2 Empty	
	Empty Wt:	661.2
	Final Wt:	661.2
2	Gain:	—
	Colour:	—

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	670.5
	Initial Wt:	795.3
	Final Wt:	795.3
3	Gain:	—
	Colour:	clear

	Impinger #4 Silica Gel	
	Initial Wt:	847.0
	Final Wt:	847.0
4	Gain:	—
	% Spent:	—

CWTR=1+2+3:	—
WCBDA=4:	—

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	
Purge Off:	

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5	
Empty Wt:	277.3
With Imp 2:	277.3
After H_2O Rinse:	323.0
Total Volume TS5:	45.7

CONTAINER TS6
Secondary Filter

Filter ID:	16-83mm-29
Initial Wt:	0.3859
Final Wt:	0.3857
TS6 Gain:	-0.2
Colour:	white

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	281.5
After Acetone Rinse:	308.[illegible]
After Hexane Rinse:	355.[illegible]

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	50
TS2 (Part. > 2.5)	51
TS3 (Part. < 2.5)	52
TS4 (Back Up Filter, <2.5)	53
TS5 (Imp 2 H_2O and rinse)	54
TS6 (Secondary Filter)	55
TS7 (Acetone / Hexane rinse)	56

Train Loaded By: TS
Train Recovered By: TS
Recovery Witnessed By: —
Date: 3 May 16

PM_{10}, $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: 2 May 16

Test No.: 1
Test Location: ~~APC~~ APC #2

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	278.9
After Act. Rinse:	308.6
Total TS1:	29.7

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	278.8
After Act. Rinse:	344.0
Total TS2:	65.2

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	278.9
After Act. Rinse:	300.8
Total TS3:	21.9

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: ~~16-83mm-13~~

CONTAINER TS4

Initial Wt:	~~.4278~~ 0.1235
Final Wt:	0.1242
Gain:	0.7
Colour:	white

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	475.2
Final Wt:	629.6
1 Gain:	154.4
Colour:	clear

Impinger #2 Empty	
Empty Wt:	561.6
Final Wt:	561.6
2 Gain:	∅
Colour:	clear

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	680.7
Initial Wt:	780.5
Final Wt:	778.6
3 Gain:	-1.9
Colour:	clear

Impinger #4 Silica Gel	
Initial Wt:	986.3
Final Wt:	997.2
4 Gain:	10.9
% Spent:	—

CWTR=1+2+3:	152.5 ✓
WCBDA=4:	10.9

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
* *if there is no gain purge is not required.*

Purge On:	13:37
Purge Off:	14:37

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5	
Empty Wt:	285.1
With Imp 2:	432.0
After H_2O Rinse:	465.4
Total Volume TS5:	180.3

CONTAINER TS6
Secondary Filter

Filter ID:	16-83mm-13
Initial Wt:	0.4218
Final Wt:	0.4218
TS6 Gain:	∅
Colour:	white

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	281.3
After Acetone Rinse:	313.8
After Hexane Rinse:	354.5

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	22
TS2 (Part. > 2.5)	23
TS3 (Part. < 2.5)	24
TS4 (Back Up Filter, <2.5)	25
TS5 (Imp 2 H_2O and rinse)	26
TS6 (Secondary Filter)	27
TS7 (Acetone / Hexane rinse)	28

Train Loaded By: DT
Train Recovered By: TD / NU
Recovery Witnessed By:
Date: 2 May 16

Box 14

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: 2 May 16

Test No.: 2
Test Location: APC #2.

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	285.0
After Act. Rinse:	375.1
Total TS1:	90.1

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	285.7
After Act. Rinse:	361.4
Total TS2:	75.7

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	284.2
After Act. Rinse:	302.6
Total TS3:	18.4

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: ~~07-83mm-?~~ 16-47mm-2

CONTAINER TS4

Initial Wt:	~~.3600~~ 0.1239
Final Wt:	0.1730
Gain:	50.9
Colour:	white

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	492.7
	Final Wt:	~~539.5~~
1	Gain:	148.8
	Colour:	CLEAR

639.5

	Impinger #2 Empty	
	Empty Wt:	670.5
	Final Wt:	670.2
2	Gain:	-0.3
	Colour:	CLEAR.

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	659.5
	Initial Wt:	760.8
	Final Wt:	758.6
3	Gain:	-2.2
	Colour:	CLEAR

	Impinger #4 Silica Gel	
	Initial Wt:	946.0
	Final Wt:	957.6
4	Gain:	11.6
	% Spent:	25

CWTR=1+2+3:	146.3
WCBDA=4:	11.6

✓

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	1638
Purge Off:	1738

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5

Empty Wt:	282.5
With Imp 2:	423.6
After H_2O Rinse:	474.0
Total Volume TS5:	191.5

CONTAINER TS6
Secondary Filter

Filter ID:	07-83mm-18
Initial Wt:	0.3600
Final Wt:	0.3601
TS6 Gain:	0.1
Colour:	white

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	279.0
After Acetone Rinse:	302.5
After Hexane Rinse:	337.3

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	29
TS2 (Part. > 2.5)	30
TS3 (Part. < 2.5)	31
TS4 (Back Up Filter, <2.5)	32
TS5 (Imp 2 H_2O and rinse)	33
TS6 (Secondary Filter)	34
TS7 (Acetone / Hexane rinse)	35

Train Loaded By: DT
Train Recovered By: JG/DU
Recovery Witnessed By:
Date: 2 May 16

Box 9

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: May 2, 2016

Test No.: 3
Test Location: UNIT #2

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	279.0
After Act. Rinse:	330.6
Total TS1:	51.6

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	278.8
After Act. Rinse:	327.6
Total TS2:	48.8

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	278.4
After Act. Rinse:	289.8
Total TS3:	11.4

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: 16-47mm-1

CONTAINER TS4

Initial Wt:	0.1227
Final Wt:	0.1235
Gain:	0.8
Colour:	White

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

Impinger #1	Knock Out
Empty Wt:	475.4
Final Wt:	620.5
1 Gain:	145.1
Colour:	CLEAR

Impinger #2	Empty
Empty Wt:	563.2
Final Wt:	561.5
2 Gain:	-1.7
Colour:	CLEAR

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	680.7
Initial Wt:	776.3
Final Wt:	775.3
3 Gain:	-1.0
Colour:	CLEAR

Impinger #4	Silica Gel
Initial Wt:	1003.6
Final Wt:	1015.5
4 Gain:	11.9
% Spent:	25

CWTR=1+2+3:	142.4
WCBDA=4:	11.9

✓ Box 14

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	2020.
Purge Off:	2120

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5	
Empty Wt:	280.1
With Imp 2:	419.2
After H_2O Rinse:	452.0
Total Volume TS5:	171.9

CONTAINER TS6
Secondary Filter

Filter ID:	16-83mm-21
Initial Wt:	0.4140
Final Wt:	0.4118
TS6 Gain:	-2.2
Colour:	White

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	278.4
After Acetone Rinse:	296.[illegible]
After Hexane Rinse:	338.1

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	36
TS2 (Part. > 2.5)	37
TS3 (Part. < 2.5)	38
TS4 (Back Up Filter, <2.5)	39
TS5 (Imp 2 H_2O and rinse)	40
TS6 (Secondary Filter)	41
TS7 (Acetone / Hexane rinse)	42

Train Loaded By: TS
Train Recovered By: DW / JG
Recovery Witnessed By:
Date: 2 May 16

PM_{10}, $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta
Project No.: 21656
Date: 2 May 16

Test No.: Blank #2
Test Location: APC #2

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	280.4
After Act. Rinse:	332.8
Total TS1:	52.4

Seal and label container TS1

CONTAINER TS1

Beaker Initial Wt:	
Final Wt:	
Gain:	

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	280.2
After Act. Rinse:	333.7
Total TS2:	53.5

Seal and label container TS2

CONTAINER TS2

Beaker Initial Wt:	
Final Wt:	
Gain:	

Exit Stem, and Connecting Tubing to Filter, and Filter Top

CONTAINER TS3

Container TS3 Weights	
Empty Wt:	279.2
After Act. Rinse:	301.1
Total TS3:	21.9

Seal and label container TS3

CONTAINER TS3

Beaker Initial Wt:	
Final Wt:	
Gain:	

Back-Up Filter

Filter ID: 16-47mm-17

CONTAINER TS4

Initial Wt:	0.1241
Final Wt:	0.1240
Gain:	-0.1
Colour:	white

Seal and label container TS4

CONTAINER TS4

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	491.2
Final Wt:	491.2
1 Gain:	—
Colour:	—

Impinger #2 Empty	
Empty Wt:	661.2
Final Wt:	661.2
2 Gain:	—
Colour:	—

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	670.5
Initial Wt:	795.5
Final Wt:	795.4
3 Gain:	-0.1
Colour:	clear

Impinger #4 Silica Gel	
Initial Wt:	847.0
Final Wt:	847.1
4 Gain:	0.1
% Spent:	

CWTR=1+2+3:	-0.1
WCBDA=4:	0.1

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	—
Purge Off:	—

Rinse all glassware from filter to 2nd u-tube with di H2O into TS3

CONTAINER TS5	
Empty Wt:	280.9
With Imp 2:	280.9
After H_2O Rinse:	322.0
Total Volume TS5:	41.1

CONTAINER TS6
Secondary Filter

Filter ID:	16-83mm-6
Initial Wt:	0.3841
Final Wt:	0.3838
TS6 Gain:	-0.3
Colour:	white

CONTAINER TS7

Rinse all glassware from filter to 2nd u-tube with Acetone & Hexane into TS7

Acetone/Hexane Rinse	
Empty Wt:	281.3
After Acetone Rinse:	305.1
After Hexane Rinse:	351.1

Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	16-21656-M201A-
TS1 (Part. > 10)	43
TS2 (Part. > 2.5)	44
TS3 (Part. < 2.5)	45
TS4 (Back Up Filter, <2.5)	46
TS5 (Imp 2 H_2O and rinse)	47
TS6 (Secondary Filter)	48
TS7 (Acetone / Hexane rinse)	49

Train Loaded By: TS
Train Recovered By: TS
Recovery Witnessed By: —
Date: 2 May 16

APPENDIX 13

Condensable Particulate Analytical Report
(7 pages)

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 21656-J2227
Your Project #: 21656
Site Location: COVANTA

Attention:Chris Belore

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/05/12
Report #: R3990285
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B690460
Received: 2016/05/04, 12:03

Sample Matrix: Stack Sampling Train
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Extractable Condensables (M202)	8	2016/05/06	2016/05/09	BRL SOP-00118	EPA 202 m
Non Extractable Condensibles (M202)	8	2016/05/06	2016/05/12	BRL SOP-00118 / BRL SOP-00109	EPA 202 m
Weight of Solvent from Impingers	8	N/A	2016/05/09		
Weight of Water from Impingers	8	N/A	2016/05/09		

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
13 May 2016 13:43:31 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==
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.

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

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B690460
Report Date: 2016/05/12

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPA M202 CONDENSIBLE PM (STACK SAMPLING TRAIN)

		U1 B	U2 B.	U1T1			
Maxxam ID		CHP297	CHP343	CHP344			
Sampling Date		2016/05/03	2016/05/02	2016/05/03			
	UNITS	16-21656-M201A 54-56	16-21656-M201A 47-49	16-21656-M201A 5-7	RDL	MDL	QC Batch
Weight	g	45	40	200	0.1	0.1	4487517
Weight of Solvent	g	73	69	59	0.1	N/A	4487513
Inorganic Condensibles	mg	6.5	7.5	15	0.5	0.1	4487515
Organic Condensibles	mg	<1.0	<1.0	1.2	1.0	0.20	4487512

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

		U1T2	U1T3	U2T1			
Maxxam ID		CHP345	CHP346	CHP347			
Sampling Date		2016/05/03	2016/05/04	2016/05/02			
	UNITS	16-21656-M201A 12-14	16-21656-M201A 19,1,20	16-21656-M201A 26-28	RDL	MDL	QC Batch
Weight	g	210	260	180	0.1	0.1	4487517
Weight of Solvent	g	61	110	72	0.1	N/A	4487513
Inorganic Condensibles	mg	16	12	19	0.5	0.1	4487515
Organic Condensibles	mg	<1.0	1.5	2.1	1.0	0.20	4487512

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

		U2 T2	U2 T3			
Maxxam ID		CHP348	CHP349			
Sampling Date		2016/05/02	2016/05/02			
	UNITS	16-21656-M201A 33-35	16-21656-M201A 40-42	RDL	MDL	QC Batch
Weight	g	190	170	0.1	0.1	4487517
Weight of Solvent	g	58	58	0.1	N/A	4487513
Inorganic Condensibles	mg	6.8	16	0.5	0.1	4487515
Organic Condensibles	mg	1.4	1.2	1.0	0.20	4487512

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

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Maxxam Job #: B690460
Report Date: 2016/05/12

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHP297
Sample ID: 16-21656-M201A 54-56
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

Maxxam ID: CHP343
Sample ID: 16-21656-M201A 47-49
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

Maxxam ID: CHP344
Sample ID: 16-21656-M201A 5-7
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

Maxxam ID: CHP345
Sample ID: 16-21656-M201A 12-14
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

Maxxam ID: CHP346
Sample ID: 16-21656-M201A 19,1,20
Matrix: Stack Sampling Train

Collected: 2016/05/04
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B690460
Report Date: 2016/05/12

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CHP347
Sample ID: 16-21656-M201A 26-28
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

Maxxam ID: CHP348
Sample ID: 16-21656-M201A 33-35
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

Maxxam ID: CHP349
Sample ID: 16-21656-M201A 40-42
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Extractable Condensables (M202)	BAL	4487512	2016/05/06	2016/05/09	Farag Farag
Non Extractable Condensibles (M202)	BAL	4487515	2016/05/06	2016/05/12	Farag Farag
Weight of Solvent from Impingers		4487513	N/A	2016/05/09	Farag Farag
Weight of Water from Impingers		4487517	N/A	2016/05/09	Farag Farag

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GENERAL COMMENTS

Untatred filters were received

Sample CHP297-01 : ORGANIC EXTRACTION : Whitish residue found in vial.
INORGANIC EXTRACTION : Whitish residue found in Teflon dish.

Sample CHP343-01 : ORGANIC EXTRACTION : Whitish residue found in vial.
INORGANIC EXTRACTION : Whitish residue found in Teflon dish.

Sample CHP344-01 : ORGANIC EXTRACTION : Whitish residue found in vial.
INORGANIC EXTRACTION : Yellowish residue found in Teflon dish

Sample CHP345-01 : ORGANIC EXTRACTION : Whitish residue found in vial.
INORGANIC EXTRACTION : Yellowish residue found in Teflon dish

Sample CHP346-01 : ORGANIC EXTRACTION : Oily material found in vial.
INORGANIC EXTRACTION : Yellowish residue found in Teflon dish

Sample CHP347-01 : Filter received torn

ORGANIC EXTRACTION : Oily material found in vial.
INORGANIC EXTRACTION : Whitish residue found in Teflon dish.

Sample CHP348-01 : ORGANIC EXTRACTION : Oily material found in vial.
INORGANIC EXTRACTION : Yellowish residue found in Teflon dish

Sample CHP349-01 : Filter received torn

ORGANIC EXTRACTION : Whitish residue found in vial.
INORGANIC EXTRACTION : Whitish residue found in Teflon dish.

Results relate only to the items tested.

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

Maxxam Job #: B690460
Report Date: 2016/05/12

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4487512	FF	Spiked Blank	Organic Condensibles	2016/05/09		91	%	70 - 130
4487512	FF	Method Blank	Organic Condensibles	2016/05/09	<1.0		mg	
4487515	FF	Method Blank	Inorganic Condensibles	2016/05/12	<0.5		mg	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B690460
Report Date: 2016/05/12

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VALIDATION SIGNATURE PAGE

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

Brenda Moore

Brenda Moore, Team Lead

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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APPENDIX 14

SVOC Train Recovery Data Sheets
(8 pages)

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: 1
Test Date: MAY 9/16
Test Location: UNIT 1

Sample ID 1 — Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser

CONTAINER TS1

Empty Wt:	415.4
After Acetone/ Hexane Rinse:	666.9
Total TS1:	251.5

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 2 — Filter

CONTAINER TS2

Colour: WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 3 — XAD-II Trap

CONTAINER TS3

Initial Wt:	394.3
Final Wt:	400.8
1 Gain:	6.5
Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 4 — Impingers 1, 2 & 3

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	708.5
Final Wt:	1568.5
2 Gain:	860.0
Colour:	CLEAR

Impinger #2 Ethylene Glycol	
Empty Wt:	662.9
Initial Wt:	769.0
Final Wt:	807.6
3 Gain:	38.6
Colour:	CLEAR

Impinger #3 Empty	
Empty Wt:	673.1
Final Wt:	673.3
4 Gain:	0.2
Colour:	CLEAR

Container TS4 Weights	
Empty Wt:	1353.7
With Imp Soln:	2345.9
Imp Volume:	992.2
After ~100g H_2O Rinse:	1557.4
Total TS4:	1203.7

Sample ID 5 — Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers

CONTAINER TS5

Empty Wt:	413.0
After Acetone Rinse:	563.7
Acetone Rinse Gain:	150.7
After Hexane Rinse:	698.7
Hexane Rinse Gain:	135.0
Total TS5:	285.7

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

Impinger Box ID: 4

Impinger 4 Silica Gel

CONTAINER TS6 (Impinger)

Initial Wt:	805.4
Final Wt:	824.5
5 Gain:	19.1
% Spent:	20

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	Y
Trap ID:	5
HPLC Batch No.:	CDA274-01
Ethylene Gylcol Batch No.:	153713
Hexane Batch No.:	92567
Acetone Batch No.:	81613

Train Loaded By: JG
Train Recovered By: AN
Recovery Witnessed By: —
Date: MAY 9/16

CWTR = 1 + 2 + 3 + 4: 905.3

WCBDA=5: 19.1

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: 2
Test Date: MAY 10/16
Test Location: UNIT 1 OUTLET

Sample ID 6

Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	
CONTAINER TS1	
Empty Wt:	416.2
After Acetone/ Hexane Rinse:	723.4
Total TS1:	307.2 ✓

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 7

Filter	
CONTAINER TS2	
Colour:	WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 8

XAD-II Trap	
CONTAINER TS3	
Initial Wt:	354.4
Final Wt:	360.0
1 Gain:	5.6 ✓
Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 9

Impingers 1, 2 & 3

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	700.5
Final Wt:	1562.3
2 Gain:	861.8 ✓
Colour:	CLEAR

Impinger #2 Ethylene Glycol	
Empty Wt:	659.2
Initial Wt:	760.5
Final Wt:	805.6
3 Gain:	45.1 ✓
Colour:	CLEAR

Impinger #3 Empty	
Empty Wt:	658.9
Final Wt:	658.7
4 Gain:	-0.2 ✓
Colour:	CLEAR

Container TS4 Weights	
Empty Wt:	1342.5
With Imp Soln:	2339.5
Imp Volume:	997.0 ✓
After ~100g H_2O Rinse:	2618.6
Total TS4:	1276.1 ✓

CWTR = 1 + 2 + 3 + 4: 912.3 ✓

WCBDA=5: 23.6 ✓

Sample ID 10

Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	
CONTAINER TS5	
Empty Wt:	415.9
After Acetone Rinse:	609.1
Acetone Rinse Gain:	193.2 ✓
After Hexane Rinse:	770.4
Hexane Rinse Gain:	161.3 ✓
Total TS5:	354.5 ✓

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

Impinger Box ID: 2

Q

Impinger 4 Silica Gel	
CONTAINER TS6 (Impinger)	
Initial Wt:	807.4
Final Wt:	831.0
5 Gain:	23.6 ✓
% Spent:	80

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	9
Trap ID:	8
HPLC Batch No.:	CDA274-01
Ethylene Gylcol Batch No.:	153713
Hexane Batch No.:	92567
Acetone Batch No.:	81613

Train Loaded By: TT
Train Recovered By: AN
Recovery Witnessed By:
Date: MAY 10/1

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: 3
Test Date: May 11/16
Test Location: Unit 1 Outlet

Sample ID 11

Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser

CONTAINER TS1

Empty Wt:	412.8
After Acetone/ Hexane Rinse:	693.8
Total TS1:	281.0

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 12

Filter

CONTAINER TS2

Colour: WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 13

XAD-II Trap

CONTAINER TS3

Initial Wt:	391.2
Final Wt:	396.0
1 Gain:	4.8
Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 14

Impingers 1, 2 & 3

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	707.5
Final Wt:	1632.8
2 Gain:	925.3
Colour:	CLEAR

Impinger #2 Ethylene Glycol	
Empty Wt:	664.5
Initial Wt:	769.5
Final Wt:	812.8
3 Gain:	43.3
Colour:	CLEAR

Impinger #3 Empty	
Empty Wt:	648.3
Final Wt:	648.1
4 Gain:	-0.2
Colour:	CLEAR

Container TS4 Weights	
Empty Wt:	1364.5
With Imp Soln:	2431.6
Imp Volume:	1067.1
After ~100g H_2O Rinse:	2654.0
Total TS4:	1289.5

CWTR = 1 + 2 + 3 + 4: 973.2

WCBDA=5: 20.0

Sample ID 15

Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers

CONTAINER TS5

Empty Wt:	414.8
After Acetone Rinse:	559.7
Acetone Rinse Gain:	144.9
After Hexane Rinse:	664.2
Hexane Rinse Gain:	104.5
Total TS5:	249.4

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

Impinger Box ID: 4

Impinger 4 Silica Gel

CONTAINER TS6 (Impinger)

Initial Wt:	962.3
Final Wt:	982.3
5 Gain:	20.0
% Spent:	70

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	4
Trap ID:	4
HPLC Batch No.:	CDA774-01
Ethylene Gylcol Batch No.:	153713
Hexane Batch No.:	92567
Acetone Batch No.:	81613

Train Loaded By: AN
Train Recovered By: AN
Recovery Witnessed By:
Date: May 11, 2016

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: BLANK #2
Test Date: MAY 11/16
Test Location:

Sample ID 16 — Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser — CONTAINER TS1

Empty Wt:	416.7
After Acetone/ Hexane Rinse:	747.7
Total TS1:	331.0 ✓

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 17 — Filter — CONTAINER TS2

Colour: WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 18 — XAD-II Trap — CONTAINER TS3

Initial Wt:	~~310.2~~ 352.9
Final Wt:	352.9
1 Gain:	—
Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 19 — Impingers 1, 2 & 3 — CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	310.2
Final Wt:	310.2
2 Gain:	—
Colour:	—

Impinger #2 Ethylene Glycol	
Empty Wt:	663.0
Initial Wt:	761.6
Final Wt:	761.6
3 Gain:	—
Colour:	CLEAR

Impinger #3 Empty	
Empty Wt:	655.4
Final Wt:	655.4
4 Gain:	—
Colour:	—

Container TS4 Weights	
Empty Wt:	411.8
With Imp Soln:	504.4
Imp Volume:	92.6 ✓
After ~100g H_2O Rinse:	746.1
Total TS4:	334.3 ✓

Sample ID 20 — Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers — CONTAINER TS5

Empty Wt:	417.7
After Acetone Rinse:	554.4
Acetone Rinse Gain:	136.7 ✓
After Hexane Rinse:	667.8
Hexane Rinse Gain:	113.4 ✓
Total TS5:	250.1 ✓

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

Impinger Box ID: 12

Impinger 4 Silica Gel — CONTAINER TS6 (Impinger)

Initial Wt:	788.5
Final Wt:	788.5
5 Gain:	—
% Spent:	Ø

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	N
Trap ID:	6
HPLC Batch No.:	CDA274-01
Ethylene Gylcol Batch No.:	153713
Hexane Batch No.:	92367
Acetone Batch No.:	81613

CWTR = 1 + 2 + 3 + 4: Ø

WCBDA=5: Ø

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Train Loaded By: AN
Train Recovered By: AN
Recovery Witnessed By:
Date: MAY 11/16

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: 1 - UNIT 2
Test Date: MAY 5 2016
Test Location: UNIT 2

Sample ID 21 — Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser — CONTAINER TS1

Empty Wt:	415.5
After Acetone/ Hexane Rinse:	706.7
Total TS1:	291.2

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 22 — Filter — CONTAINER TS2

Colour: WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 23 — XAD-II Trap — CONTAINER TS3

Initial Wt:	324.9
Final Wt:	331.0
1 Gain:	6.1
Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 24 — Impingers 1, 2 & 3 — CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	713.8
Final Wt:	1665.0
2 Gain:	951.2 ~~451.2~~
Colour:	CLEAR

Impinger #2 Ethylene Glycol	
Empty Wt:	657.5
Initial Wt:	746.2
Final Wt:	795.7
3 Gain:	49.5
Colour:	CLEAR

Impinger #3 Empty	
Empty Wt:	656.5
Final Wt:	657.5
4 Gain:	1.0
Colour:	CLEAR

Container TS4 Weights	
Empty Wt:	~~412.7~~
With Imp Soln:	~~990.0~~
Imp Volume:	1079.2
After ~100g H_2O Rinse:	2626.5
Total TS4:	1213.9

1352.6
2431.8

Sample ID 25 — Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers — CONTAINER TS5

Empty Wt:	410.8
After Acetone Rinse:	551.7
Acetone Rinse Gain:	140.9
After Hexane Rinse:	668.7
Hexane Rinse Gain:	~~257.9~~ 111.0
Total TS5:	257.9

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

Impinger Box ID: 4

Impinger 4 Silica Gel — CONTAINER TS6 (Impinger)

Initial Wt:	778.9
Final Wt:	803.4
5 Gain:	24.5
% Spent:	50

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	V
Trap ID:	2
HPLC Batch No.:	CDA274-01
Ethylene Gylcol Batch No.:	153713
Hexane Batch No.:	157979
Acetone Batch No.:	157063

CWTR = 1 + 2 + 3 + 4: 1007.8 ✓

WCBDA=5: 24.5

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Train Loaded By: [signature]
Train Recovered By: [signature]
Recovery Witnessed By:
Date: MAY 5, 2016

Semi-Volatile Organics Train Recovery Data Sheet

Client :	Covanta DYEC
Project No.:	21656
Sample Batch No.:	16-21656-SVOC-

Test No.:	2
Test Date:	MAY 9/16
Test Location:	UNIT 2

Sample ID 26

Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser

CONTAINER TS1

Empty Wt:	414.8
After Acetone/ Hexane Rinse:	757.4
Total TS1:	342.6 ✓

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 27

Filter

CONTAINER TS2

Colour:	WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 28

XAD-II Trap

CONTAINER TS3

	Initial Wt:	367.9
	Final Wt:	373.2
1	Gain:	5.3 ✓
	Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 29

Impingers 1, 2 & 3

CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	699.1
	Final Wt:	1615.5
2	Gain:	916.4 ✓
	Colour:	clear

	Impinger #2 Ethylene Glycol	
	Empty Wt:	653.5
	Initial Wt:	754.0
	Final Wt:	794.2
3	Gain:	40.2 ✓
	Colour:	clear

	Impinger #3 Empty	
	Empty Wt:	652.7
	Final Wt:	657.0
4	Gain:	5 ✓
	Colour:	empty

Container TS4 Weights	
Empty Wt:	1361.6
With Imp Soln:	2408.7
Imp Volume:	~~1047.7~~ 1047.1
After ~100g H_2O Rinse:	2652.7
Total TS4:	1291.1 ✓

CWTR = 1 + 2 + 3 + 4:	961.9 ✓

WCBDA=5:	21.5 ✓

Sample ID 30

Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers

CONTAINER TS5

Empty Wt:	417.5
After Acetone Rinse:	607.6
Acetone Rinse Gain:	190.1
After Hexane Rinse:	764.6
Hexane Rinse Gain:	~~47.0~~ 157.0
Total TS5:	347.1

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

Impinger Box ID: 10

Impinger 4 Silica Gel

CONTAINER TS6 (Impinger)

	Initial Wt:	768.4
	Final Wt:	789.9
5	Gain:	21.5 ✓
	% Spent:	

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	5
Trap ID:	~~#6~~
HPLC Batch No.:	153713
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By:	DT
Train Recovered By:	AN / CB.
Recovery Witnessed By:	
Date:	MAY 9/16

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Revision: June 19, 2014

ORTECH Environmental

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: 3
Test Date: MAY 10, 2016
Test Location: UNIT 2 OUTLET

Sample ID -31	Sample ID -32	Sample ID -33	Sample ID -34	Sample ID -35	
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	Filter	XAD-II Trap	Impingers 1, 2 & 3	Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)

TS1

Empty Wt:	415.6
After Acetone/ Hexane Rinse:	720.5
Total TS1:	304.9

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

TS2

Colour:	WHITE

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

TS3

Initial Wt:	394.4
Final Wt:	400.1
1 Gain:	5.7
Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

TS4

Impinger #1 Empty	
Empty Wt:	722.6
Final Wt:	1619.5
2 Gain:	896.9
Colour:	clear

Impinger #2 Ethylene Glycol	
Empty Wt:	652.7
Initial Wt:	768.6
Final Wt:	810.8
3 Gain:	42.2
Colour:	clear

Impinger #3 Empty	
Empty Wt:	661.6
Final Wt:	661.6
4 Gain:	0
Colour:	clear

Container TS4 Weights	
Empty Wt:	1356.3
With Imp Soln:	2400.8
Imp Volume:	1044.5
After ~100g H_2O Rinse:	2636.1
Total TS4:	1279.8

TS5

Empty Wt:	411.8
After Acetone Rinse:	575.7
Acetone Rinse Gain:	163.9
After Hexane Rinse:	684.8
Hexane Rinse Gain:	109.1
Total TS5:	273.0

Use 100 - 150g acetone total & 100- 150g of hexane total for rinses

TS6

Initial Wt:	747.4
Final Wt:	768.1
5 Gain:	20.7
% Spent:	30 %

Impinger Box ID: 1

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	P
Trap ID:	3
HPLC Batch No.:	GOA224-01
Ethylene Gylcol Batch No.:	153713
Hexane Batch No.:	92567
Acetone Batch No.:	81613

CWTR = 1 + 2 + 3 + 4: 944.8

WCBDA=5: 20.7

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Train Loaded By: DT
Train Recovered By: C. BELORE
Recovery Witnessed By:
Date: MAY 10, 2016

Revision: June 19, 2014

ORTECH Environmental

Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 21656
Sample Batch No.: 16-21656-SVOC-

Test No.: BLANK
Test Date: MAY 6, 2016.
Test Location:

Sample ID 36.
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser
CONTAINER TS1

Empty Wt:	416.0
After Acetone/ Hexane Rinse:	605.2
Total TS1:	189.2

MARK FLUID LEVEL

SEAL AND LABEL CONTAINER TS1

Sample ID 37
Filter
CONTAINER TS2

Colour:

FOLD IN FOIL

SEAL AND LABEL CONTAINER TS2

Sample ID 38
XAD-II Trap
CONTAINER TS3

	Initial Wt:	393.8
	Final Wt:	393.8
1	Gain:	0
	Colour:	WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 39
Impingers 1, 2 & 3
CONTAINER TS4

	Impinger #1 Empty	
	Empty Wt:	673.3
	Final Wt:	672.9
2	Gain:	-0.4
	Colour:	CLEAR

	Impinger #2 Ethylene Glycol	
	Empty Wt:	653.4
	Initial Wt:	759.4
	Final Wt:	759.4
3	Gain:	0
	Colour:	CLEAR

	Impinger #3 Empty	
	Empty Wt:	627.4
	Final Wt:	627.0
4	Gain:	-0.4
	Colour:	CLEAR

Container TS4 Weights	
Empty Wt:	416.3
With Imp Soln:	514.1
Imp Volume:	97.8
After ~100g H_2O Rinse:	666.0
Total TS4:	249.7.

CWTR = 1 + 2 + 3 + 4: -0.8

WCBDA=5: 0.1

Sample ID 40
Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers
CONTAINER TS5

Empty Wt:	415.3
After Acetone Rinse:	499.4
Acetone Rinse Gain:	84.1
After Hexane Rinse:	626.6
Hexane Rinse Gain:	127.2
Total TS5:	211.3

Use 100 - 150g acetone tatal & 100- 150g of hexane tatal for rinses

Impinger Box ID: 3

Impinger 4 Silica Gel
CONTAINER TS6 (Impinger)

	Initial Wt:	805.3
	Final Wt:	805.4
5	Gain:	0.1
	% Spent:	

Train & Proofing Identification	
Glassware Train Proofing Provided By:	Maxxam
Glassware Train ID:	X
Trap ID:	12
HPLC Batch No.:	CDA274-01
Ethylene Gylcol Batch No.:	153 713
Hexane Batch No.:	157979
Acetone Batch No.:	157063

Train Loaded By: DT
Train Recovered By: JG
Recovery Witnessed By:
Date: MAY 6, 2016

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

APPENDIX 15

SVOC Analytical Report
(48 pages)

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 21656-J2227
Your Project #: 21656
Site Location: COVANTA

Attention:CHRIS BELORE

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/05/26
Report #: R4004506
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B695926
Received: 2016/05/12, 12:30

Sample Matrix: Stack Sampling Train
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Chlorobenzenes in MM5 Trains (EPA M0010)	8	2016/05/12	2016/05/17	BRL SOP-00202	In house (M0010)
Chlorophenols in MM5 Trains (EPA M0010)	8	2016/05/12	2016/05/17	BRL SOP-00204	In house (M0010)
2,3,7,8-TCDF Confirmation (M23)	6	N/A	2016/05/17	BRL SOP-00404	EPA M23/23A m
Dioxins/Furans in Air (Method 23)	8	2016/05/13	2016/05/16	BRL SOP-00404	EPA M23/23A m
PAH's in MM5 SamplingTrains (CARB429mod)	6	2016/05/12	2016/05/14	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in MM5 SamplingTrains (CARB429mod)	1	2016/05/12	2016/05/15	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in MM5 SamplingTrains (CARB429mod)	1	2016/05/12	2016/05/16	BRL SOP-00201	CARB429(ARBM1,M2)mod
PCBs in a Sampling Train (1668Amod)	8	2016/05/12	2016/05/16	BRL SOP-00408	EPA 1668A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
26 May 2016 17:05:26 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==

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.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

U1 Blank

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP574							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 16-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<5.7	5.7	60	12	1.00	5.70	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	<8.7	8.7	60	12	1.00	8.70	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	<6.0	6.0	60	12	0.100	0.600	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	<6.0	6.0	60	12	0.100	0.600	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	<5.4	5.4	60	12	0.100	0.540	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	10.6	5.7	60	18	0.0100	0.106	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	28.2	6.1	600	18	0.000300	0.00846	N/A	4499555
Total Tetra CDD *	pg	<7.0 (1)	7.0	60	N/A	N/A	N/A	0	4499555
Total Penta CDD *	pg	<8.7	8.7	60	N/A	N/A	N/A	0	4499555
Total Hexa CDD *	pg	<11 (1)	11	60	N/A	N/A	N/A	0	4499555
Total Hepta CDD *	pg	10.6	5.7	60	N/A	N/A	N/A	1	4499555
2,3,7,8-Tetra CDF **	pg	<3.8	3.8	60	12	0.100	0.380	N/A	4499555
1,2,3,7,8-Penta CDF **	pg	<8.0	8.0	60	12	0.0300	0.240	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	<8.0	8.0	60	12	0.300	2.40	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	<6.0	6.0	60	12	0.100	0.600	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	<5.5	5.5	60	12	0.100	0.550	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	<6.0	6.0	60	12	0.100	0.600	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<6.6	6.6	60	12	0.100	0.660	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	<4.4	4.4	60	18	0.0100	0.0440	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	<5.3	5.3	60	12	0.0100	0.0530	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<6.3	6.3	600	30	0.000300	0.00189	N/A	4499555
Total Tetra CDF **	pg	<6.2 (1)	6.2	60	N/A	N/A	N/A	0	4499555
Total Penta CDF **	pg	<8.0	8.0	60	N/A	N/A	N/A	0	4499555
Total Hexa CDF **	pg	<6.0	6.0	60	N/A	N/A	N/A	0	4499555
Total Hepta CDF **	pg	<4.8	4.8	60	N/A	N/A	N/A	0	4499555
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	21.8	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP574							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 16-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-1234678 HeptaCDF **	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	63	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

U2 Blank

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP575							
Sampling Date		2016/05/06				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 36-40	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<5.4	5.4	60	12	1.00	5.40	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	<6.9	6.9	60	12	1.00	6.90	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	<6.1	6.1	60	12	0.100	0.610	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	<6.1	6.1	60	12	0.100	0.610	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	<5.4	5.4	60	12	0.100	0.540	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	7.1 (1)	4.1	60	18	0.0100	0.0710	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	29.4	5.8	600	18	0.000300	0.00882	N/A	4499555
Total Tetra CDD *	pg	<8.4 (2)	8.4	60	N/A	N/A	N/A	0	4499555
Total Penta CDD *	pg	<6.9	6.9	60	N/A	N/A	N/A	0	4499555
Total Hexa CDD *	pg	<12 (2)	12	60	N/A	N/A	N/A	0	4499555
Total Hepta CDD *	pg	14.6	4.1	60	N/A	N/A	N/A	2	4499555
2,3,7,8-Tetra CDF **	pg	<6.8	6.8	60	12	0.100	0.680	N/A	4499555
1,2,3,7,8-Penta CDF **	pg	<7.8	7.8	60	12	0.0300	0.234	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	<7.8	7.8	60	12	0.300	2.34	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	<6.2	6.2	60	12	0.100	0.620	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	<5.7	5.7	60	12	0.100	0.570	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	<6.2	6.2	60	12	0.100	0.620	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<6.8	6.8	60	12	0.100	0.680	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	<4.9	4.9	60	18	0.0100	0.0490	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	<5.9	5.9	60	12	0.0100	0.0590	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<6.4	6.4	600	30	0.000300	0.00192	N/A	4499555
Total Tetra CDF **	pg	<6.8	6.8	60	N/A	N/A	N/A	0	4499555
Total Penta CDF **	pg	<7.8	7.8	60	N/A	N/A	N/A	0	4499555
Total Hexa CDF **	pg	<6.2	6.2	60	N/A	N/A	N/A	0	4499555
Total Hepta CDF **	pg	<5.3	5.3	60	N/A	N/A	N/A	0	4499555
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	20.0	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP575							
Sampling Date		2016/05/06				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 36-40	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-1234678 HeptaCDF **	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	69	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	64	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

UI T1

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP576							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 1-5	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	54.7 (1)	7.6	60	12	1.00	54.7	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	1180	11	60	12	1.00	1180	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	4510 (2)	390	600	12	0.100	451	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	14700 (2)	390	600	12	0.100	1470	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	22900 (2)	350	600	12	0.100	2290	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	62100 (2)	490	600	18	0.0100	621	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	35800	7.9	600	18	0.000300	10.7	N/A	4499555
Total Tetra CDD *	pg	5900	7.6	60	N/A	N/A	N/A	14	4499555
Total Penta CDD *	pg	52200	11	60	N/A	N/A	N/A	12	4499555
Total Hexa CDD *	pg	173000 (2)	380	600	N/A	N/A	N/A	7	4499555
Total Hepta CDD *	pg	125000 (2)	490	600	N/A	N/A	N/A	2	4499555
1,2,3,7,8-Penta CDF **	pg	978	6.8	60	12	0.0300	29.3	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	<3400 (3)	3400	60	12	0.300	1020	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	11200 (4)	16	60	12	0.100	1120	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	5630	15	60	12	0.100	563	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	10100	16	60	12	0.100	1010	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<750 (3)	750	60	12	0.100	75.0	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	20200 (2)	270	600	18	0.0100	202	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	4670 (2)	330	600	12	0.0100	46.7	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<9500 (3)	9500	600	30	0.000300	2.85	N/A	4499555
Total Tetra CDF **	pg	9090	7.0	60	N/A	N/A	N/A	15	4499555
Total Penta CDF **	pg	22100	6.8	60	N/A	N/A	N/A	14	4499555
Total Hexa CDF **	pg	47800	16	60	N/A	N/A	N/A	11	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) ** From 10X Dilution **
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.
(4) EMPC / Merged Peak

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP576							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 1-5	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	40100 (1)	300	600	N/A	N/A	N/A	4	4499555
Confirmation 2,3,7,8-Tetra CDF **	pg	309	19	60	N/A	0.100	30.9	N/A	4501249
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	10200	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4501249
C13-1234678 HeptaCDD *	%	89 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234678 HeptaCDF **	%	80 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	70 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	61	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) ** From 10X Dilution **

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

UI T2

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP577							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 6-10	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	26.0 (1)	7.2	60	12	1.00	26.0	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	703	16	60	12	1.00	703	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	2960 (2)	290	600	12	0.100	296	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	8490 (2)	290	600	12	0.100	849	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	9870 (2)	260	600	12	0.100	987	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	46300 (2)	580	600	18	0.0100	463	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	28400	8.6	600	18	0.000300	8.52	N/A	4499555
Total Tetra CDD *	pg	4680	7.2	60	N/A	N/A	N/A	14	4499555
Total Penta CDD *	pg	33400	16	60	N/A	N/A	N/A	12	4499555
Total Hexa CDD *	pg	118000 (2)	280	600	N/A	N/A	N/A	7	4499555
Total Hepta CDD *	pg	93200 (2)	580	600	N/A	N/A	N/A	2	4499555
1,2,3,7,8-Penta CDF **	pg	575	12	60	12	0.0300	17.3	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	<2000 (3)	2000	60	12	0.300	600	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	7670 (4)	8.7	60	12	0.100	767	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	3690	8.0	60	12	0.100	369	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	6200	8.8	60	12	0.100	620	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<460 (3)	460	60	12	0.100	46.0	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	14100 (2)	800	600	18	0.0100	141	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	3250 (2)	970	600	12	0.0100	32.5	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<7700 (3)	7700	600	30	0.000300	2.31	N/A	4499555
Total Tetra CDF **	pg	6560	8.0	60	N/A	N/A	N/A	15	4499555
Total Penta CDF **	pg	15100	12	60	N/A	N/A	N/A	14	4499555
Total Hexa CDF **	pg	31700	8.7	60	N/A	N/A	N/A	12	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) ** From 10X Dilution **
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.
(4) EMPC / Merged Peak

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP577							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 6-10	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	27900 (1)	880	600	N/A	N/A	N/A	4	4499555
Confirmation 2,3,7,8-Tetra CDF **	pg	243	41	60	N/A	0.100	24.3	N/A	4501249
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	5950	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4501249
C13-1234678 HeptaCDD *	%	107 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234678 HeptaCDF **	%	101 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	92 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) ** From 10X Dilution **

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

UI T3

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP578							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 11-15	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	24.5 (1)	8.2	60	12	1.00	24.5	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	545	12	60	12	1.00	545	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	2730	9.9	60	12	0.100	273	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	7400	10	60	12	0.100	740	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	9470	8.9	60	12	0.100	947	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	90100 (2)	860	600	18	0.0100	901	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	27200	7.1	600	18	0.000300	8.16	N/A	4499555
Total Tetra CDD *	pg	3280	8.2	60	N/A	N/A	N/A	14	4499555
Total Penta CDD *	pg	27000	12	60	N/A	N/A	N/A	12	4499555
Total Hexa CDD *	pg	104000	9.6	60	N/A	N/A	N/A	7	4499555
Total Hepta CDD *	pg	126000 (2)	860	600	N/A	N/A	N/A	2	4499555
1,2,3,7,8-Penta CDF **	pg	445	7.2	60	12	0.0300	13.4	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	<1500 (3)	1500	60	12	0.300	450	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	6160 (4)	11	60	12	0.100	616	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	2920	10	60	12	0.100	292	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	5710	11	60	12	0.100	571	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<330 (3)	330	60	12	0.100	33.0	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	12000	25	60	18	0.0100	120	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	2820	31	60	12	0.0100	28.2	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<7500 (3)	7500	600	30	0.000300	2.25	N/A	4499555
Total Tetra CDF **	pg	5090	5.9	60	N/A	N/A	N/A	15	4499555
Total Penta CDF **	pg	11200	7.2	60	N/A	N/A	N/A	15	4499555
Total Hexa CDF **	pg	27700	11	60	N/A	N/A	N/A	12	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) ** From 10X Dilution **
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.
(4) EMPC / Merged Peak

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP578							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 11-15	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	23700	28	60	N/A	N/A	N/A	4	4499555
Confirmation 2,3,7,8-Tetra CDF **	pg	181	26	60	N/A	0.100	18.1	N/A	4501249
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	5580	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4501249
C13-1234678 HeptaCDD *	%	127 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234678 HeptaCDF **	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) ** From 10X Dilution **

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Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

U2 T1

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP579							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 21-25	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<10	10	60	12	1.00	10.0	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	28	11	60	12	1.00	28.0	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	39.9	7.0	60	12	0.100	3.99	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	101	7.0	60	12	0.100	10.1	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	129	6.2	60	12	0.100	12.9	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	548	4.2	60	18	0.0100	5.48	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	845	8.3	600	18	0.000300	0.254	N/A	4499555
Total Tetra CDD *	pg	426	10	60	N/A	N/A	N/A	7	4499555
Total Penta CDD *	pg	1170	11	60	N/A	N/A	N/A	8	4499555
Total Hexa CDD *	pg	1900	6.7	60	N/A	N/A	N/A	7	4499555
Total Hepta CDD *	pg	1290	4.2	60	N/A	N/A	N/A	2	4499555
1,2,3,7,8-Penta CDF **	pg	49	14	60	12	0.0300	1.47	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	75	14	60	12	0.300	22.5	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	126	7.6	60	12	0.100	12.6	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	<59 (1)	59	60	12	0.100	5.90	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	77.4	7.7	60	12	0.100	7.74	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<9.1 (1)	9.1	60	12	0.100	0.910	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	214	3.8	60	18	0.0100	2.14	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	29.1	4.7	60	12	0.0100	0.291	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<140 (1)	140	600	30	0.000300	0.0420	N/A	4499555
Total Tetra CDF **	pg	816	12	60	N/A	N/A	N/A	14	4499555
Total Penta CDF **	pg	762	14	60	N/A	N/A	N/A	9	4499555
Total Hexa CDF **	pg	544	7.6	60	N/A	N/A	N/A	11	4499555
Total Hepta CDF **	pg	307	4.2	60	N/A	N/A	N/A	3	4499555
Confirmation 2,3,7,8-Tetra CDF **	pg	62	34	60	N/A	0.100	6.20	N/A	4501249
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	131	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP579							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 21-25	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4501249
C13-1234678 HeptaCDD *	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234678 HeptaCDF **	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	61	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin

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U2 T2

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP580							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 26-30	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<7.0	7.0	60	12	1.00	7.00	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	18.3	7.8	60	12	1.00	18.3	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	23.3	6.0	60	12	0.100	2.33	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	65.1	6.0	60	12	0.100	6.51	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	78.7	5.3	60	12	0.100	7.87	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	333	6.3	60	18	0.0100	3.33	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	593	8.6	600	18	0.000300	0.178	N/A	4499555
Total Tetra CDD *	pg	379	7.0	60	N/A	N/A	N/A	8	4499555
Total Penta CDD *	pg	874	7.8	60	N/A	N/A	N/A	10	4499555
Total Hexa CDD *	pg	1200	5.8	60	N/A	N/A	N/A	7	4499555
Total Hepta CDD *	pg	782	6.3	60	N/A	N/A	N/A	2	4499555
1,2,3,7,8-Penta CDF **	pg	30.8 (1)	5.4	60	12	0.0300	0.924	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	54.6	5.4	60	12	0.300	16.4	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	86.5	6.0	60	12	0.100	8.65	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	43.3	5.5	60	12	0.100	4.33	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	53.7	6.0	60	12	0.100	5.37	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<6.5	6.5	60	12	0.100	0.650	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	125	3.3	60	18	0.0100	1.25	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	17.7	4.0	60	12	0.0100	0.177	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<95 (2)	95	600	30	0.000300	0.0285	N/A	4499555
Total Tetra CDF **	pg	660	6.4	60	N/A	N/A	N/A	14	4499555
Total Penta CDF **	pg	561	5.4	60	N/A	N/A	N/A	11	4499555
Total Hexa CDF **	pg	399	6.0	60	N/A	N/A	N/A	10	4499555
Total Hepta CDF **	pg	214	3.7	60	N/A	N/A	N/A	4	4499555
Confirmation 2,3,7,8-Tetra CDF **	pg	21.2	5.9	60	N/A	0.100	2.12	N/A	4501249

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP580							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 26-30	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	85.4	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	113	N/A	N/A	N/A	N/A	N/A	N/A	4501249
C13-1234678 HeptaCDD *	%	123	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234678 HeptaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	113	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	117	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
* CDD = Chloro Dibenzo-p-Dioxin

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Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

U2T3

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP581							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 31-35	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<8.7	8.7	60	12	1.00	8.70	N/A	4499555
1,2,3,7,8-Penta CDD *	pg	23	10	60	12	1.00	23.0	N/A	4499555
1,2,3,4,7,8-Hexa CDD *	pg	27.2	5.2	60	12	0.100	2.72	N/A	4499555
1,2,3,6,7,8-Hexa CDD *	pg	84.0	5.3	60	12	0.100	8.40	N/A	4499555
1,2,3,7,8,9-Hexa CDD *	pg	102	4.7	60	12	0.100	10.2	N/A	4499555
1,2,3,4,6,7,8-Hepta CDD *	pg	530	4.8	60	18	0.0100	5.30	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDD *	pg	824	6.0	600	18	0.000300	0.247	N/A	4499555
Total Tetra CDD *	pg	359	8.7	60	N/A	N/A	N/A	7	4499555
Total Penta CDD *	pg	931	10	60	N/A	N/A	N/A	7	4499555
Total Hexa CDD *	pg	1550	5.1	60	N/A	N/A	N/A	7	4499555
Total Hepta CDD *	pg	1210	4.8	60	N/A	N/A	N/A	2	4499555
1,2,3,7,8-Penta CDF **	pg	48.4	6.0	60	12	0.0300	1.45	N/A	4499555
2,3,4,7,8-Penta CDF **	pg	68.6	6.0	60	12	0.300	20.6	N/A	4499555
1,2,3,4,7,8-Hexa CDF **	pg	116	6.8	60	12	0.100	11.6	N/A	4499555
1,2,3,6,7,8-Hexa CDF **	pg	58.6	6.3	60	12	0.100	5.86	N/A	4499555
2,3,4,6,7,8-Hexa CDF **	pg	62.4	6.8	60	12	0.100	6.24	N/A	4499555
1,2,3,7,8,9-Hexa CDF **	pg	<10 (1)	10	60	12	0.100	1.00	N/A	4499555
1,2,3,4,6,7,8-Hepta CDF **	pg	223	5.6	60	18	0.0100	2.23	N/A	4499555
1,2,3,4,7,8,9-Hepta CDF **	pg	29.9	6.8	60	12	0.0100	0.299	N/A	4499555
1,2,3,4,6,7,8,9-Octa CDF **	pg	<140 (1)	140	600	30	0.000300	0.0420	N/A	4499555
Total Tetra CDF **	pg	710	8.8	60	N/A	N/A	N/A	12	4499555
Total Penta CDF **	pg	689	6.0	60	N/A	N/A	N/A	13	4499555
Total Hexa CDF **	pg	504	6.8	60	N/A	N/A	N/A	11	4499555
Total Hepta CDF **	pg	382	6.1	60	N/A	N/A	N/A	4	4499555
Confirmation 2,3,7,8-Tetra CDF **	pg	25.3	6.1	60	N/A	0.100	2.53	N/A	4501249
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	110	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS, FURANS AND PCBS (STACK SAMPLING TRAIN)

Maxxam ID		CIP581							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 31-35	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4501249
C13-1234678 HeptaCDD *	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234678 HeptaCDF **	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123478 HexaCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-1234789 HeptaCDF **	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDD *	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123678 HexaCDF **	%	63	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDD *	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-12378 PentaCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-123789 HexaCDF **	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-23478 PentaCDF **	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDD *	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-2378 TetraCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555
C13-Octachlorodibenzo-p-Dioxin	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4499555
Cl37-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4499555

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin

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Client Project #: 21656
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EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP574	CIP575	CIP576			
Sampling Date		2016/05/11	2016/05/06	2016/05/09			
	UNITS	16-21656-SVOC 16-20	16-21656-SVOC 36-40	16-21656-SVOC 1-5	RDL	MDL	QC Batch
1-Methylnaphthalene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
1-Methylphenanthrene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
2-Chloronaphthalene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
2-Methylanthracene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
2-Methylnaphthalene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
3-Methylcholanthrene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
7,12-Dimethylbenzo(a)anthracene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
9,10-Dimethylanthracene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
9-Methylphenanthrene	ug	<0.30	<0.30	<0.30	0.30	N/A	4495754
Acenaphthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Acenaphthylene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Anthracene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(a)anthracene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(a)fluorene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Benzo(a)pyrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(b)fluoranthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(b)fluorene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Benzo(e)pyrene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Benzo(g,h,i)perylene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(k)fluoranthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Biphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Chrysene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Coronene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Dibenz(a,h)anthracene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Dibenzo(a,c) anthracene + Picene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Dibenzo(a,e)pyrene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Fluoranthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Fluorene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Indeno(1,2,3-cd)pyrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
m-Terphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Naphthalene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
o-Terphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Perylene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Phenanthrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
p-Terphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754

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

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP574	CIP575	CIP576			
Sampling Date		2016/05/11	2016/05/06	2016/05/09			
	UNITS	16-21656-SVOC 16-20	16-21656-SVOC 36-40	16-21656-SVOC 1-5	RDL	MDL	QC Batch
Pyrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Quinoline	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Tetralin	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Triphenylene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
1,2,3,4-Tetrachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2,3,5+1,2,4,5-Tetrachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2,3-Trichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2,4-Trichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2-Dichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,3,5-Trichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,3-Dichlorobenzene	ug	<0.30	<0.30	0.31	0.30	0.060	4495745
1,4-Dichlorobenzene	ug	<0.30	<0.30	0.31	0.30	0.060	4495745
Hexachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
Pentachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
2,3,4,5-Tetrachlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,4,6-Tetrachlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,4-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,5,6-Tetrachlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,5-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,6-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,4 + 2,5-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,4,5-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,4,6-Trichlorophenol	ug	<0.30	<0.30	1.17	0.30	0.24	4495752
2,6-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2-Chlorophenol	ug	<0.30	<0.30	0.32	0.30	0.24	4495752
3,4,5-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3,4-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3,5-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3-Chlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
4-Chlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
Pentachlorophenol	ug	<0.30	<0.30	0.57	0.30	0.24	4495752
Surrogate Recovery (%)							
13C6-Hexachlorobenzene	%	89	108	89	N/A	N/A	4495745
2H3-1,2,3-Trichlorobenzene (FS)	%	75	91	76	N/A	N/A	4495745

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

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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A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP574	CIP575	CIP576			
Sampling Date		2016/05/11	2016/05/06	2016/05/09			
	UNITS	16-21656-SVOC 16-20	16-21656-SVOC 36-40	16-21656-SVOC 1-5	RDL	MDL	QC Batch
2H3-1,2,4-Trichlorobenzene	%	75	90	74	N/A	N/A	4495745
2H4-1,3-Dichlorobenzene	%	74	84	72	N/A	N/A	4495745
2H4-1,4-Dichlorobenzene (FS)	%	66	77	63	N/A	N/A	4495745
2,6-Dibromo-4-fluorophenol (FS)	%	93	95	87	N/A	N/A	4495752
D3-2,4-Dichlorophenol	%	97	84	96	N/A	N/A	4495752
D6-Pentachlorophenol	%	85	88	87	N/A	N/A	4495752
D10-2-Methylnaphthalene	%	90	84	70	N/A	N/A	4495754
D10-Anthracene	%	74	70	64	N/A	N/A	4495754
D10-Fluoranthene	%	92	92	84	N/A	N/A	4495754
D10-Fluorene (FS)	%	96	90	79	N/A	N/A	4495754
D10-Phenanthrene	%	98	94	82	N/A	N/A	4495754
D12-Benzo(a)anthracene	%	94	92	86	N/A	N/A	4495754
D12-Benzo(a)pyrene	%	78	78	78	N/A	N/A	4495754
D12-Benzo(b)fluoranthene	%	96	98	88	N/A	N/A	4495754
D12-Benzo(ghi)perylene	%	98	96	90	N/A	N/A	4495754
D12-Benzo(k)fluoranthene	%	98	94	86	N/A	N/A	4495754
D12-Chrysene	%	100	96	88	N/A	N/A	4495754
D12-Indeno(1,2,3-cd)pyrene	%	94	92	86	N/A	N/A	4495754
D12-Perylene	%	82	82	78	N/A	N/A	4495754
D14-Dibenzo(a,h)anthracene	%	94	94	86	N/A	N/A	4495754
D14-Terphenyl (FS)	%	91	92	85	N/A	N/A	4495754
D8-Acenaphthylene	%	92	82	76	N/A	N/A	4495754
D8-Naphthalene	%	94	88	72	N/A	N/A	4495754

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

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP577	CIP578	CIP579			
Sampling Date		2016/05/10	2016/05/11	2016/05/05			
	UNITS	16-21656-SVOC 6-10	16-21656-SVOC 11-15	16-21656-SVOC 21-25	RDL	MDL	QC Batch
1-Methylnaphthalene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
1-Methylphenanthrene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
2-Chloronaphthalene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
2-Methylanthracene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
2-Methylnaphthalene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
3-Methylcholanthrene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
7,12-Dimethylbenzo(a)anthracene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
9,10-Dimethylanthracene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
9-Methylphenanthrene	ug	<0.30	<0.30	<0.30	0.30	N/A	4495754
Acenaphthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Acenaphthylene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Anthracene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(a)anthracene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(a)fluorene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Benzo(a)pyrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(b)fluoranthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(b)fluorene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Benzo(e)pyrene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Benzo(g,h,i)perylene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Benzo(k)fluoranthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Biphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Chrysene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Coronene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Dibenz(a,h)anthracene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Dibenzo(a,c) anthracene + Picene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Dibenzo(a,e)pyrene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Fluoranthene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Fluorene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Indeno(1,2,3-cd)pyrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
m-Terphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Naphthalene	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
o-Terphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Perylene	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Phenanthrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
p-Terphenyl	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754

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

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP577	CIP578	CIP579			
Sampling Date		2016/05/10	2016/05/11	2016/05/05			
	UNITS	16-21656-SVOC 6-10	16-21656-SVOC 11-15	16-21656-SVOC 21-25	RDL	MDL	QC Batch
Pyrene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
Quinoline	ug	<1.2	<1.2	<1.2	1.2	0.30	4495754
Tetralin	ug	<0.60	<0.60	<0.60	0.60	0.30	4495754
Triphenylene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495754
1,2,3,4-Tetrachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2,3,5+1,2,4,5-Tetrachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2,3-Trichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2,4-Trichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,2-Dichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,3,5-Trichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,3-Dichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
1,4-Dichlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
Hexachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
Pentachlorobenzene	ug	<0.30	<0.30	<0.30	0.30	0.060	4495745
2,3,4,5-Tetrachlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,4,6-Tetrachlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,4-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,5,6-Tetrachlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,5-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3,6-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,3-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,4 + 2,5-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,4,5-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2,4,6-Trichlorophenol	ug	1.05	1.12	0.71	0.30	0.24	4495752
2,6-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
2-Chlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3,4,5-Trichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3,4-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3,5-Dichlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
3-Chlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
4-Chlorophenol	ug	<0.30	<0.30	<0.30	0.30	0.24	4495752
Pentachlorophenol	ug	0.55	0.56	0.41	0.30	0.24	4495752
Surrogate Recovery (%)							
13C6-Hexachlorobenzene	%	93	96	92	N/A	N/A	4495745
2H3-1,2,3-Trichlorobenzene (FS)	%	81	77	72	N/A	N/A	4495745

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

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EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP577	CIP578	CIP579			
Sampling Date		2016/05/10	2016/05/11	2016/05/05			
	UNITS	16-21656-SVOC 6-10	16-21656-SVOC 11-15	16-21656-SVOC 21-25	RDL	MDL	QC Batch
2H3-1,2,4-Trichlorobenzene	%	82	79	81	N/A	N/A	4495745
2H4-1,3-Dichlorobenzene	%	70	67	74	N/A	N/A	4495745
2H4-1,4-Dichlorobenzene (FS)	%	66	70	49	N/A	N/A	4495745
2,6-Dibromo-4-fluorophenol (FS)	%	97	101	91	N/A	N/A	4495752
D3-2,4-Dichlorophenol	%	95	104	92	N/A	N/A	4495752
D6-Pentachlorophenol	%	85	88	95	N/A	N/A	4495752
D10-2-Methylnaphthalene	%	78	78	84	N/A	N/A	4495754
D10-Anthracene	%	66	46 (1)	58	N/A	N/A	4495754
D10-Fluoranthene	%	88	90	92	N/A	N/A	4495754
D10-Fluorene (FS)	%	84	85	91	N/A	N/A	4495754
D10-Phenanthrene	%	88	90	94	N/A	N/A	4495754
D12-Benzo(a)anthracene	%	90	90	94	N/A	N/A	4495754
D12-Benzo(a)pyrene	%	80	84	90	N/A	N/A	4495754
D12-Benzo(b)fluoranthene	%	92	92	92	N/A	N/A	4495754
D12-Benzo(ghi)perylene	%	94	90	96	N/A	N/A	4495754
D12-Benzo(k)fluoranthene	%	92	90	94	N/A	N/A	4495754
D12-Chrysene	%	90	90	96	N/A	N/A	4495754
D12-Indeno(1,2,3-cd)pyrene	%	90	86	92	N/A	N/A	4495754
D12-Perylene	%	84	86	88	N/A	N/A	4495754
D14-Dibenzo(a,h)anthracene	%	90	88	92	N/A	N/A	4495754
D14-Terphenyl (FS)	%	87	88	88	N/A	N/A	4495754
D8-Acenaphthylene	%	82	82	92	N/A	N/A	4495754
D8-Naphthalene	%	80	78	86	N/A	N/A	4495754

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP580	CIP581			
Sampling Date		2016/05/09	2016/05/10			
	UNITS	16-21656-SVOC 26-30	16-21656-SVOC 31-35	RDL	MDL	QC Batch
1-Methylnaphthalene	ug	<0.60	<0.60	0.60	0.30	4495754
1-Methylphenanthrene	ug	<0.60	<0.60	0.60	0.30	4495754
2-Chloronaphthalene	ug	<0.60	<0.60	0.60	0.30	4495754
2-Methylanthracene	ug	<0.60	<0.60	0.60	0.30	4495754
2-Methylnaphthalene	ug	<0.30	<0.30	0.30	0.060	4495754
3-Methylcholanthrene	ug	<1.2	<1.2	1.2	0.30	4495754
7,12-Dimethylbenzo(a)anthracene	ug	<1.2	<1.2	1.2	0.30	4495754
9,10-Dimethylanthracene	ug	<1.2	<1.2	1.2	0.30	4495754
9-Methylphenanthrene	ug	<0.30	<0.30	0.30	N/A	4495754
Acenaphthene	ug	<0.30	<0.30	0.30	0.060	4495754
Acenaphthylene	ug	<0.30	<0.30	0.30	0.060	4495754
Anthracene	ug	<0.30	<0.30	0.30	0.060	4495754
Benzo(a)anthracene	ug	<0.30	<0.30	0.30	0.060	4495754
Benzo(a)fluorene	ug	<1.2	<1.2	1.2	0.30	4495754
Benzo(a)pyrene	ug	<0.30	<0.30	0.30	0.060	4495754
Benzo(b)fluoranthene	ug	<0.30	<0.30	0.30	0.060	4495754
Benzo(b)fluorene	ug	<0.60	<0.60	0.60	0.30	4495754
Benzo(e)pyrene	ug	<0.60	<0.60	0.60	0.30	4495754
Benzo(g,h,i)perylene	ug	<0.30	<0.30	0.30	0.060	4495754
Benzo(k)fluoranthene	ug	<0.30	<0.30	0.30	0.060	4495754
Biphenyl	ug	<0.60	<0.60	0.60	0.30	4495754
Chrysene	ug	<0.30	<0.30	0.30	0.060	4495754
Coronene	ug	<1.2	<1.2	1.2	0.30	4495754
Dibenz(a,h)anthracene	ug	<0.30	<0.30	0.30	0.060	4495754
Dibenzo(a,c) anthracene + Picene	ug	<0.30	<0.30	0.30	0.060	4495754
Dibenzo(a,e)pyrene	ug	<1.2	<1.2	1.2	0.30	4495754
Fluoranthene	ug	<0.30	<0.30	0.30	0.060	4495754
Fluorene	ug	<0.30	<0.30	0.30	0.060	4495754
Indeno(1,2,3-cd)pyrene	ug	<0.30	<0.30	0.30	0.060	4495754
m-Terphenyl	ug	<0.60	<0.60	0.60	0.30	4495754
Naphthalene	ug	<0.60	<0.60	0.60	0.30	4495754
o-Terphenyl	ug	<0.60	<0.60	0.60	0.30	4495754
Perylene	ug	<1.2	<1.2	1.2	0.30	4495754
Phenanthrene	ug	<0.30	<0.30	0.30	0.060	4495754
p-Terphenyl	ug	<0.60	<0.60	0.60	0.30	4495754

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

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP580	CIP581			
Sampling Date		2016/05/09	2016/05/10			
	UNITS	16-21656-SVOC 26-30	16-21656-SVOC 31-35	RDL	MDL	QC Batch
Pyrene	ug	<0.30	<0.30	0.30	0.060	4495754
Quinoline	ug	<1.2	<1.2	1.2	0.30	4495754
Tetralin	ug	<0.60	<0.60	0.60	0.30	4495754
Triphenylene	ug	<0.30	<0.30	0.30	0.060	4495754
1,2,3,4-Tetrachlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,2,3,5+1,2,4,5-Tetrachlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,2,3-Trichlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,2,4-Trichlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,2-Dichlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,3,5-Trichlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,3-Dichlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
1,4-Dichlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
Hexachlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
Pentachlorobenzene	ug	<0.30	<0.30	0.30	0.060	4495745
2,3,4,5-Tetrachlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,3,4,6-Tetrachlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,3,4-Trichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,3,5,6-Tetrachlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,3,5-Trichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,3,6-Trichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,3-Dichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,4 + 2,5-Dichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,4,5-Trichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2,4,6-Trichlorophenol	ug	0.54	0.57	0.30	0.24	4495752
2,6-Dichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
2-Chlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
3,4,5-Trichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
3,4-Dichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
3,5-Dichlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
3-Chlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
4-Chlorophenol	ug	<0.30	<0.30	0.30	0.24	4495752
Pentachlorophenol	ug	0.36	0.44	0.30	0.24	4495752
Surrogate Recovery (%)						
13C6-Hexachlorobenzene	%	103	90	N/A	N/A	4495745
2H3-1,2,3-Trichlorobenzene (FS)	%	88	77	N/A	N/A	4495745

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

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/2 SEMIVOLATILES (STACK SAMPLING TRAIN)

Maxxam ID		CIP580	CIP581			
Sampling Date		2016/05/09	2016/05/10			
	UNITS	16-21656-SVOC 26-30	16-21656-SVOC 31-35	RDL	MDL	QC Batch
2H3-1,2,4-Trichlorobenzene	%	94	78	N/A	N/A	4495745
2H4-1,3-Dichlorobenzene	%	81	71	N/A	N/A	4495745
2H4-1,4-Dichlorobenzene (FS)	%	82	73	N/A	N/A	4495745
2,6-Dibromo-4-fluorophenol (FS)	%	79	86	N/A	N/A	4495752
D3-2,4-Dichlorophenol	%	98	88	N/A	N/A	4495752
D6-Pentachlorophenol	%	95	116	N/A	N/A	4495752
D10-2-Methylnaphthalene	%	78	70	N/A	N/A	4495754
D10-Anthracene	%	46 (1)	52	N/A	N/A	4495754
D10-Fluoranthene	%	88	82	N/A	N/A	4495754
D10-Fluorene (FS)	%	86	79	N/A	N/A	4495754
D10-Phenanthrene	%	88	82	N/A	N/A	4495754
D12-Benzo(a)anthracene	%	88	82	N/A	N/A	4495754
D12-Benzo(a)pyrene	%	64	72	N/A	N/A	4495754
D12-Benzo(b)fluoranthene	%	90	84	N/A	N/A	4495754
D12-Benzo(ghi)perylene	%	92	86	N/A	N/A	4495754
D12-Benzo(k)fluoranthene	%	92	84	N/A	N/A	4495754
D12-Chrysene	%	92	82	N/A	N/A	4495754
D12-Indeno(1,2,3-cd)pyrene	%	90	82	N/A	N/A	4495754
D12-Perylene	%	60	74	N/A	N/A	4495754
D14-Dibenzo(a,h)anthracene	%	90	82	N/A	N/A	4495754
D14-Terphenyl (FS)	%	87	82	N/A	N/A	4495754
D8-Acenaphthylene	%	82	74	N/A	N/A	4495754
D8-Naphthalene	%	80	72	N/A	N/A	4495754

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP574							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 16-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	<63	63	600	N/A	0.00010	0.0063	N/A	4495763
344'5-TetraCB-(81)	pg	<64	64	600	N/A	0.00030	0.019	N/A	4495763
233'44'-PentaCB-(105)	pg	<150 (1)	150	600	N/A	0.000030	0.0045	N/A	4495763
2344'5-PentaCB-(114)	pg	<49	49	600	N/A	0.000030	0.0015	N/A	4495763
23'44'5-PentaCB-(118)	pg	440	51	600	N/A	0.000030	0.013	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<57	57	600	N/A	0.000030	0.0017	N/A	4495763
33'44'5-PentaCB-(126)	pg	<51	51	600	N/A	0.10	5.1	N/A	4495763
HexaCB-(156)+(157)	pg	<84	84	1200	N/A	0.000030	0.0025	N/A	4495763
23'44'55'-HexaCB-(167)	pg	<90	90	600	N/A	0.000030	0.0027	N/A	4495763
33'44'55'-HexaCB-(169)	pg	<90	90	600	N/A	0.030	2.7	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	<80	80	600	N/A	0.000030	0.0024	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	7.9	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	40	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP575							
Sampling Date		2016/05/06				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 36-40	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	<72	72	600	N/A	0.00010	0.0072	N/A	4495763
344'5-TetraCB-(81)	pg	<74	74	600	N/A	0.00030	0.022	N/A	4495763
233'44'-PentaCB-(105)	pg	<190 (1)	190	600	N/A	0.000030	0.0057	N/A	4495763
2344'5-PentaCB-(114)	pg	<57	57	600	N/A	0.000030	0.0017	N/A	4495763
23'44'5-PentaCB-(118)	pg	590	59	600	N/A	0.000030	0.018	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<66	66	600	N/A	0.000030	0.0020	N/A	4495763
33'44'5-PentaCB-(126)	pg	<60	60	600	N/A	0.10	6.0	N/A	4495763
HexaCB-(156)+(157)	pg	<40	40	1200	N/A	0.000030	0.0012	N/A	4495763
23'44'55'-HexaCB-(167)	pg	<43	43	600	N/A	0.000030	0.0013	N/A	4495763
33'44'55'-HexaCB-(169)	pg	<42	42	600	N/A	0.030	1.3	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	<72	72	600	N/A	0.000030	0.0022	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	7.4	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	120	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	40	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP576							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 1-5	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	540	88	600	N/A	0.00010	0.054	N/A	4495763
344'5-TetraCB-(81)	pg	240	91	600	N/A	0.00030	0.072	N/A	4495763
233'44'-PentaCB-(105)	pg	1300	100	600	N/A	0.000030	0.039	N/A	4495763
2344'5-PentaCB-(114)	pg	<97	97	600	N/A	0.000030	0.0029	N/A	4495763
23'44'5-PentaCB-(118)	pg	3200	99	600	N/A	0.000030	0.096	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<110	110	600	N/A	0.000030	0.0033	N/A	4495763
33'44'5-PentaCB-(126)	pg	920	100	600	N/A	0.10	92	N/A	4495763
HexaCB-(156)+(157)	pg	1300	85	1200	N/A	0.000030	0.039	N/A	4495763
23'44'55'-HexaCB-(167)	pg	230	91	600	N/A	0.000030	0.0069	N/A	4495763
33'44'55'-HexaCB-(169)	pg	840	91	600	N/A	0.030	25	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	1400	92	600	N/A	0.000030	0.042	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	120	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	127	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	43	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

Maxxam
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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP577							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 6-10	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	390	76	600	N/A	0.00010	0.039	N/A	4495763
344'5-TetraCB-(81)	pg	160	79	600	N/A	0.00030	0.048	N/A	4495763
233'44'-PentaCB-(105)	pg	810	61	600	N/A	0.000030	0.024	N/A	4495763
2344'5-PentaCB-(114)	pg	<120 (1)	120	600	N/A	0.000030	0.0036	N/A	4495763
23'44'5-PentaCB-(118)	pg	2100	61	600	N/A	0.000030	0.063	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<67	67	600	N/A	0.000030	0.0020	N/A	4495763
33'44'5-PentaCB-(126)	pg	520	61	600	N/A	0.10	52	N/A	4495763
HexaCB-(156)+(157)	pg	920	81	1200	N/A	0.000030	0.028	N/A	4495763
23'44'55'-HexaCB-(167)	pg	<180 (1)	180	600	N/A	0.000030	0.0054	N/A	4495763
33'44'55'-HexaCB-(169)	pg	600	86	600	N/A	0.030	18	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	1100	140	600	N/A	0.000030	0.033	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	70	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	123	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	46	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP578							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 11-15	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	330	89	600	N/A	0.00010	0.033	N/A	4495763
344'5-TetraCB-(81)	pg	120	92	600	N/A	0.00030	0.036	N/A	4495763
233'44'-PentaCB-(105)	pg	500	68	600	N/A	0.000030	0.015	N/A	4495763
2344'5-PentaCB-(114)	pg	84	65	600	N/A	0.000030	0.0025	N/A	4495763
23'44'5-PentaCB-(118)	pg	1100	67	600	N/A	0.000030	0.033	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<74	74	600	N/A	0.000030	0.0022	N/A	4495763
33'44'5-PentaCB-(126)	pg	370	68	600	N/A	0.10	37	N/A	4495763
HexaCB-(156)+(157)	pg	<520 (1)	520	1200	N/A	0.000030	0.016	N/A	4495763
23'44'55'-HexaCB-(167)	pg	130	85	600	N/A	0.000030	0.0039	N/A	4495763
33'44'55'-HexaCB-(169)	pg	430	85	600	N/A	0.030	13	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	<680	680	600	N/A	0.000030	0.020	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	50	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	121	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	58	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP579							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 21-25	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	110	73	600	N/A	0.00010	0.011	N/A	4495763
344'5-TetraCB-(81)	pg	<76	76	600	N/A	0.00030	0.023	N/A	4495763
233'44'-PentaCB-(105)	pg	490	60	600	N/A	0.000030	0.015	N/A	4495763
2344'5-PentaCB-(114)	pg	<57	57	600	N/A	0.000030	0.0017	N/A	4495763
23'44'5-PentaCB-(118)	pg	1200	59	600	N/A	0.000030	0.036	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<66	66	600	N/A	0.000030	0.0020	N/A	4495763
33'44'5-PentaCB-(126)	pg	<59	59	600	N/A	0.10	5.9	N/A	4495763
HexaCB-(156)+(157)	pg	<84	84	1200	N/A	0.000030	0.0025	N/A	4495763
23'44'55'-HexaCB-(167)	pg	<90	90	600	N/A	0.000030	0.0027	N/A	4495763
33'44'55'-HexaCB-(169)	pg	<89	89	600	N/A	0.030	2.7	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	<71	71	600	N/A	0.000030	0.0021	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	8.7	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP580							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 26-30	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	120	75	600	N/A	0.00010	0.012	N/A	4495763
344'5-TetraCB-(81)	pg	<77	77	600	N/A	0.00030	0.023	N/A	4495763
233'44'-PentaCB-(105)	pg	690	82	600	N/A	0.000030	0.021	N/A	4495763
2344'5-PentaCB-(114)	pg	<78	78	600	N/A	0.000030	0.0023	N/A	4495763
23'44'5-PentaCB-(118)	pg	2500	81	600	N/A	0.000030	0.075	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<90	90	600	N/A	0.000030	0.0027	N/A	4495763
33'44'5-PentaCB-(126)	pg	<81	81	600	N/A	0.10	8.1	N/A	4495763
HexaCB-(156)+(157)	pg	<97	97	1200	N/A	0.000030	0.0029	N/A	4495763
23'44'55'-HexaCB-(167)	pg	<100	100	600	N/A	0.000030	0.0030	N/A	4495763
33'44'55'-HexaCB-(169)	pg	<100	100	600	N/A	0.030	3.0	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	<59	59	600	N/A	0.000030	0.0018	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	11	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	48	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

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N/A = Not Applicable

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CIP581							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-SVOC 31-35	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	pg	120	97	600	N/A	0.00010	0.012	N/A	4495763
344'5-TetraCB-(81)	pg	<100	100	600	N/A	0.00030	0.030	N/A	4495763
233'44'-PentaCB-(105)	pg	870	69	600	N/A	0.000030	0.026	N/A	4495763
2344'5-PentaCB-(114)	pg	<67	67	600	N/A	0.000030	0.0020	N/A	4495763
23'44'5-PentaCB-(118)	pg	2600	68	600	N/A	0.000030	0.078	N/A	4495763
23'44'5'-PentaCB-(123)	pg	<76	76	600	N/A	0.000030	0.0023	N/A	4495763
33'44'5-PentaCB-(126)	pg	<69	69	600	N/A	0.10	6.9	N/A	4495763
HexaCB-(156)+(157)	pg	200	95	1200	N/A	0.000030	0.0060	N/A	4495763
23'44'55'-HexaCB-(167)	pg	<100	100	600	N/A	0.000030	0.0030	N/A	4495763
33'44'55'-HexaCB-(169)	pg	<100	100	600	N/A	0.030	3.0	N/A	4495763
233'44'55'-HeptaCB-(189)	pg	<82	82	600	N/A	0.000030	0.0025	N/A	4495763
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5-HexaCB-(156)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'5'-HexaCB-(157)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-233'44'-PentaCB-(105)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'55'-HexaCB-(167)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2344'5-PentaCB-(114)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-23'44'5-PentaCB-(118)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-2'344'5-PentaCB-(123)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'55'-HexaCB-(169)	%	46	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'5-PentaCB-(126)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-33'44'-TetraCB-(77)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4495763
C13-344'5-TetraCB-(81)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4495763

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

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N/A = Not Applicable

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIP574
Sample ID: 16-21656-SVOC 16-20
Matrix: Stack Sampling Train

Collected: 2016/05/11
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/16	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

Maxxam ID: CIP575
Sample ID: 16-21656-SVOC 36-40
Matrix: Stack Sampling Train

Collected: 2016/05/06
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/14	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

Maxxam ID: CIP576
Sample ID: 16-21656-SVOC 1-5
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4501249	N/A	2016/05/17	Branko Vrzic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/14	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

Maxxam ID: CIP577
Sample ID: 16-21656-SVOC 6-10
Matrix: Stack Sampling Train

Collected: 2016/05/10
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4501249	N/A	2016/05/17	Branko Vrzic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/14	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIP578
Sample ID: 16-21656-SVOC 11-15
Matrix: Stack Sampling Train

Collected: 2016/05/11
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4501249	N/A	2016/05/17	Branko Vrzic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/14	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

Maxxam ID: CIP579
Sample ID: 16-21656-SVOC 21-25
Matrix: Stack Sampling Train

Collected: 2016/05/05
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4501249	N/A	2016/05/17	Branko Vrzic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/14	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

Maxxam ID: CIP580
Sample ID: 16-21656-SVOC 26-30
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4501249	N/A	2016/05/17	Branko Vrzic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/14	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

Maxxam ID: CIP581
Sample ID: 16-21656-SVOC 31-35
Matrix: Stack Sampling Train

Collected: 2016/05/10
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4495745	2016/05/12	2016/05/17	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4495752	2016/05/12	2016/05/17	Lidija Tomic
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4501249	N/A	2016/05/17	Branko Vrzic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4499555	2016/05/13	2016/05/16	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4495754	2016/05/12	2016/05/15	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4495763	2016/05/12	2016/05/16	Cathy Xu

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Your P.O. #: 21656-J2227

GENERAL COMMENTS

7,12-dimethylbenzo(a)anthracene is above 25% RSD in initial calibration. No positives found for this compound.
3-Methylcholanthrene is above 25% RSD in continuing calibration. No positives found for this compound.

Sample CIP578-01 : Low recovery for D10-Anthracene

Sample CIP580-01 : Low recovery for D10-Anthracene

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4495745	LTO	Spiked Blank	1,2,3,4-Tetrachlorobenzene	2016/05/17		98	%	40 - 130
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/05/17		97	%	40 - 130
			1,2,3-Trichlorobenzene	2016/05/17		92	%	40 - 130
			1,2,4-Trichlorobenzene	2016/05/17		85	%	40 - 130
			1,2-Dichlorobenzene	2016/05/17		79	%	40 - 130
			1,3,5-Trichlorobenzene	2016/05/17		109	%	40 - 130
			1,3-Dichlorobenzene	2016/05/17		76	%	40 - 130
			1,4-Dichlorobenzene	2016/05/17		123	%	40 - 130
			13C6-Hexachlorobenzene	2016/05/17		109	%	30 - 130
			2H3-1,2,4-Trichlorobenzene	2016/05/17		97	%	30 - 130
			2H4-1,3-Dichlorobenzene	2016/05/17		95	%	30 - 130
			Hexachlorobenzene	2016/05/17		100	%	40 - 130
			Pentachlorobenzene	2016/05/17		96	%	40 - 130
4495745	LTO	Spiked Blank DUP	1,2,3,4-Tetrachlorobenzene	2016/05/17		87	%	40 - 130
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/05/17		83	%	40 - 130
			1,2,3-Trichlorobenzene	2016/05/17		77	%	40 - 130
			1,2,4-Trichlorobenzene	2016/05/17		72	%	40 - 130
			1,2-Dichlorobenzene	2016/05/17		67	%	40 - 130
			1,3,5-Trichlorobenzene	2016/05/17		87	%	40 - 130
			1,3-Dichlorobenzene	2016/05/17		63	%	40 - 130
			1,4-Dichlorobenzene	2016/05/17		93	%	40 - 130
			13C6-Hexachlorobenzene	2016/05/17		96	%	30 - 130
			2H3-1,2,4-Trichlorobenzene	2016/05/17		82	%	30 - 130
			2H4-1,3-Dichlorobenzene	2016/05/17		68	%	30 - 130
			Hexachlorobenzene	2016/05/17		87	%	40 - 130
			Pentachlorobenzene	2016/05/17		81	%	40 - 130
4495745	LTO	RPD	1,2,3,4-Tetrachlorobenzene	2016/05/17	12		%	50
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/05/17	16		%	50
			1,2,3-Trichlorobenzene	2016/05/17	18		%	50
			1,2,4-Trichlorobenzene	2016/05/17	17		%	50
			1,2-Dichlorobenzene	2016/05/17	17		%	50
			1,3,5-Trichlorobenzene	2016/05/17	23		%	50
			1,3-Dichlorobenzene	2016/05/17	19		%	50
			1,4-Dichlorobenzene	2016/05/17	27		%	50
			Hexachlorobenzene	2016/05/17	15		%	50
			Pentachlorobenzene	2016/05/17	17		%	50
4495745	LTO	Method Blank	1,2,3,4-Tetrachlorobenzene	2016/05/17	<0.30		ug	
			1,2,3,5+1,2,4,5-Tetrachlorobenzene	2016/05/17	<0.30		ug	
			1,2,3-Trichlorobenzene	2016/05/17	<0.30		ug	
			1,2,4-Trichlorobenzene	2016/05/17	<0.30		ug	
			1,2-Dichlorobenzene	2016/05/17	<0.30		ug	
			1,3,5-Trichlorobenzene	2016/05/17	<0.30		ug	
			1,3-Dichlorobenzene	2016/05/17	<0.30		ug	
			1,4-Dichlorobenzene	2016/05/17	<0.30		ug	
			13C6-Hexachlorobenzene	2016/05/17		86	%	30 - 130
			2H3-1,2,4-Trichlorobenzene	2016/05/17		75	%	30 - 130
			2H4-1,3-Dichlorobenzene	2016/05/17		66	%	30 - 130
			Hexachlorobenzene	2016/05/17	<0.30		ug	
			Pentachlorobenzene	2016/05/17	<0.30		ug	
4495752	LTO	Spiked Blank	2,3,4,5-Tetrachlorophenol	2016/05/17		112	%	22 - 134
			2,3,4-Trichlorophenol	2016/05/17		91	%	22 - 134
			2,3,5-Trichlorophenol	2016/05/17		103	%	22 - 134

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,4 + 2,5-Dichlorophenol	2016/05/17		85	%	22 - 134
			2,4,6-Trichlorophenol	2016/05/17		97	%	22 - 134
			2,6-Dichlorophenol	2016/05/17		80	%	22 - 134
			2-Chlorophenol	2016/05/17		75	%	22 - 134
			3,4,5-Trichlorophenol	2016/05/17		95	%	22 - 134
			3,4-Dichlorophenol	2016/05/17		87	%	22 - 134
			3,5-Dichlorophenol	2016/05/17		87	%	22 - 134
			4-Chlorophenol	2016/05/17		81	%	22 - 134
			D3-2,4-Dichlorophenol	2016/05/17		87	%	20 - 130
			D6-Pentachlorophenol	2016/05/17		113	%	20 - 130
			Pentachlorophenol	2016/05/17		107	%	22 - 134
			2,3,4,6-Tetrachlorophenol	2016/05/17		93	%	22 - 134
			2,3,5,6-Tetrachlorophenol	2016/05/17		108	%	22 - 134
			2,3,6-Trichlorophenol	2016/05/17		92	%	22 - 134
			2,3-Dichlorophenol	2016/05/17		85	%	22 - 134
			2,4,5-Trichlorophenol	2016/05/17		92	%	22 - 134
			3-Chlorophenol	2016/05/17		81	%	22 - 134
4495752	LTO	Spiked Blank DUP	2,3,4,5-Tetrachlorophenol	2016/05/17		73	%	22 - 134
			2,3,4-Trichlorophenol	2016/05/17		78	%	22 - 134
			2,3,5-Trichlorophenol	2016/05/17		84	%	22 - 134
			2,4 + 2,5-Dichlorophenol	2016/05/17		101	%	22 - 134
			2,4,6-Trichlorophenol	2016/05/17		96	%	22 - 134
			2,6-Dichlorophenol	2016/05/17		105	%	22 - 134
			2-Chlorophenol	2016/05/17		122	%	22 - 134
			3,4,5-Trichlorophenol	2016/05/17		78	%	22 - 134
			3,4-Dichlorophenol	2016/05/17		93	%	22 - 134
			3,5-Dichlorophenol	2016/05/17		104	%	22 - 134
			4-Chlorophenol	2016/05/17		115	%	22 - 134
			D3-2,4-Dichlorophenol	2016/05/17		112	%	20 - 130
			D6-Pentachlorophenol	2016/05/17		96	%	20 - 130
			Pentachlorophenol	2016/05/17		58	%	22 - 134
			2,3,4,6-Tetrachlorophenol	2016/05/17		75	%	22 - 134
			2,3,5,6-Tetrachlorophenol	2016/05/17		76	%	22 - 134
			2,3,6-Trichlorophenol	2016/05/17		85	%	22 - 134
			2,3-Dichlorophenol	2016/05/17		92	%	22 - 134
			2,4,5-Trichlorophenol	2016/05/17		84	%	22 - 134
			3-Chlorophenol	2016/05/17		125	%	22 - 134
4495752	LTO	RPD	2,3,4,5-Tetrachlorophenol	2016/05/17	42		%	50
			2,3,4-Trichlorophenol	2016/05/17	16		%	50
			2,3,5-Trichlorophenol	2016/05/17	20		%	50
			2,4 + 2,5-Dichlorophenol	2016/05/17	17		%	50
			2,4,6-Trichlorophenol	2016/05/17	1.2		%	50
			2,6-Dichlorophenol	2016/05/17	27		%	50
			2-Chlorophenol	2016/05/17	48		%	50
			3,4,5-Trichlorophenol	2016/05/17	20		%	50
			3,4-Dichlorophenol	2016/05/17	6.6		%	50
			3,5-Dichlorophenol	2016/05/17	19		%	50
			4-Chlorophenol	2016/05/17	35		%	50
			Pentachlorophenol	2016/05/17	59 (1)		%	50
			2,3,4,6-Tetrachlorophenol	2016/05/17	22		%	50
			2,3,5,6-Tetrachlorophenol	2016/05/17	34		%	50
			2,3,6-Trichlorophenol	2016/05/17	8.3		%	50

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3-Dichlorophenol	2016/05/17	7.9		%	50
			2,4,5-Trichlorophenol	2016/05/17	8.9		%	50
			3-Chlorophenol	2016/05/17	43		%	50
4495752	LTO	Method Blank	2,3,4,5-Tetrachlorophenol	2016/05/17	<0.30		ug	
			2,3,4-Trichlorophenol	2016/05/17	<0.30		ug	
			2,3,5-Trichlorophenol	2016/05/17	<0.30		ug	
			2,4 + 2,5-Dichlorophenol	2016/05/17	<0.30		ug	
			2,4,6-Trichlorophenol	2016/05/17	<0.30		ug	
			2,6-Dichlorophenol	2016/05/17	<0.30		ug	
			2-Chlorophenol	2016/05/17	<0.30		ug	
			3,4,5-Trichlorophenol	2016/05/17	<0.30		ug	
			3,4-Dichlorophenol	2016/05/17	<0.30		ug	
			3,5-Dichlorophenol	2016/05/17	<0.30		ug	
			4-Chlorophenol	2016/05/17	<0.30		ug	
			D3-2,4-Dichlorophenol	2016/05/17		104	%	20 - 130
			D6-Pentachlorophenol	2016/05/17		93	%	20 - 130
			Pentachlorophenol	2016/05/17	<0.30		ug	
			2,3,4,6-Tetrachlorophenol	2016/05/17	<0.30		ug	
			2,3,5,6-Tetrachlorophenol	2016/05/17	<0.30		ug	
			2,3,6-Trichlorophenol	2016/05/17	<0.30		ug	
			2,3-Dichlorophenol	2016/05/17	<0.30		ug	
			2,4,5-Trichlorophenol	2016/05/17	<0.30		ug	
			3-Chlorophenol	2016/05/17	<0.30		ug	
4495754	LTO	Spiked Blank	Acenaphthene	2016/05/14		92	%	60 - 130
			Acenaphthylene	2016/05/14		84	%	60 - 130
			Anthracene	2016/05/14		83	%	60 - 130
			Benzo(a)anthracene	2016/05/14		96	%	60 - 130
			Benzo(a)pyrene	2016/05/14		88	%	60 - 130
			Benzo(b)fluoranthene	2016/05/14		92	%	60 - 130
			Benzo(g,h,i)perylene	2016/05/14		89	%	60 - 130
			Benzo(k)fluoranthene	2016/05/14		101	%	60 - 130
			Chrysene	2016/05/14		99	%	60 - 130
			D10-2-Methylnaphthalene	2016/05/14		96	%	50 - 150
			D10-Fluoranthene	2016/05/14		96	%	50 - 150
			D10-Phenanthrene	2016/05/14		102	%	50 - 150
			D12-Benzo(a)anthracene	2016/05/14		98	%	50 - 150
			D12-Benzo(a)pyrene	2016/05/14		88	%	50 - 150
			D12-Benzo(b)fluoranthene	2016/05/14		100	%	50 - 150
			D12-Benzo(ghi)perylene	2016/05/14		102	%	50 - 150
			D12-Benzo(k)fluoranthene	2016/05/14		102	%	50 - 150
			D12-Chrysene	2016/05/14		106	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2016/05/14		98	%	50 - 150
			D12-Perylene	2016/05/14		94	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2016/05/14		98	%	50 - 150
			D8-Acenaphthylene	2016/05/14		94	%	50 - 150
			D8-Naphthalene	2016/05/14		98	%	50 - 150
			Dibenz(a,h)anthracene	2016/05/14		98	%	60 - 130
			Fluoranthene	2016/05/14		94	%	60 - 130
			Fluorene	2016/05/14		94	%	60 - 130
			Indeno(1,2,3-cd)pyrene	2016/05/14		97	%	60 - 130
			Naphthalene	2016/05/14		99	%	60 - 130
			Phenanthrene	2016/05/14		95	%	60 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Pyrene	2016/05/14		92	%	60 - 130
4495754	LTO	Spiked Blank DUP	Acenaphthene	2016/05/14		84	%	60 - 130
			Acenaphthylene	2016/05/14		73	%	60 - 130
			Anthracene	2016/05/14		73	%	60 - 130
			Benzo(a)anthracene	2016/05/14		89	%	60 - 130
			Benzo(a)pyrene	2016/05/14		76	%	60 - 130
			Benzo(b)fluoranthene	2016/05/14		87	%	60 - 130
			Benzo(g,h,i)perylene	2016/05/14		82	%	60 - 130
			Benzo(k)fluoranthene	2016/05/14		89	%	60 - 130
			Chrysene	2016/05/14		91	%	60 - 130
			D10-2-Methylnaphthalene	2016/05/14		88	%	50 - 150
			D10-Fluoranthene	2016/05/14		92	%	50 - 150
			D10-Phenanthrene	2016/05/14		96	%	50 - 150
			D12-Benzo(a)anthracene	2016/05/14		90	%	50 - 150
			D12-Benzo(a)pyrene	2016/05/14		76	%	50 - 150
			D12-Benzo(b)fluoranthene	2016/05/14		94	%	50 - 150
			D12-Benzo(ghi)perylene	2016/05/14		94	%	50 - 150
			D12-Benzo(k)fluoranthene	2016/05/14		94	%	50 - 150
			D12-Chrysene	2016/05/14		96	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2016/05/14		90	%	50 - 150
			D12-Perylene	2016/05/14		80	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2016/05/14		90	%	50 - 150
			D8-Acenaphthylene	2016/05/14		82	%	50 - 150
			D8-Naphthalene	2016/05/14		90	%	50 - 150
			Dibenz(a,h)anthracene	2016/05/14		91	%	60 - 130
			Fluoranthene	2016/05/14		90	%	60 - 130
			Fluorene	2016/05/14		88	%	60 - 130
			Indeno(1,2,3-cd)pyrene	2016/05/14		89	%	60 - 130
			Naphthalene	2016/05/14		91	%	60 - 130
			Phenanthrene	2016/05/14		90	%	60 - 130
			Pyrene	2016/05/14		88	%	60 - 130
4495754	LTO	RPD	Acenaphthene	2016/05/14	8.3		%	50
			Acenaphthylene	2016/05/14	13		%	50
			Anthracene	2016/05/14	13		%	50
			Benzo(a)anthracene	2016/05/14	8.1		%	50
			Benzo(a)pyrene	2016/05/14	14		%	50
			Benzo(b)fluoranthene	2016/05/14	5.9		%	50
			Benzo(g,h,i)perylene	2016/05/14	7.9		%	50
			Benzo(k)fluoranthene	2016/05/14	12		%	50
			Chrysene	2016/05/14	8.4		%	50
			Dibenz(a,h)anthracene	2016/05/14	8.2		%	50
			Fluoranthene	2016/05/14	4.9		%	50
			Fluorene	2016/05/14	6.6		%	50
			Indeno(1,2,3-cd)pyrene	2016/05/14	8.3		%	50
			Naphthalene	2016/05/14	8.4		%	50
			Phenanthrene	2016/05/14	4.9		%	50
			Pyrene	2016/05/14	4.2		%	50
4495754	LTO	Method Blank	1-Methylnaphthalene	2016/05/14	<0.60		ug	
			1-Methylphenanthrene	2016/05/14	<0.60		ug	
			2-Chloronaphthalene	2016/05/14	<0.60		ug	
			2-Methylanthracene	2016/05/14	<0.60		ug	
			2-Methylnaphthalene	2016/05/14	<0.30		ug	

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			3-Methylcholanthrene	2016/05/14	<1.2		ug	
			7,12-Dimethylbenzo(a)anthracene	2016/05/14	<1.2		ug	
			9,10-Dimethylanthracene	2016/05/14	<1.2		ug	
			9-Methylphenanthrene	2016/05/14	0		ug	
			Acenaphthene	2016/05/14	<0.30		ug	
			Acenaphthylene	2016/05/14	<0.30		ug	
			Anthracene	2016/05/14	<0.30		ug	
			Benzo(a)anthracene	2016/05/14	<0.30		ug	
			Benzo(a)fluorene	2016/05/14	<1.2		ug	
			Benzo(a)pyrene	2016/05/14	<0.30		ug	
			Benzo(b)fluoranthene	2016/05/14	<0.30		ug	
			Benzo(b)fluorene	2016/05/14	<0.60		ug	
			Benzo(e)pyrene	2016/05/14	<0.60		ug	
			Benzo(g,h,i)perylene	2016/05/14	<0.30		ug	
			Benzo(k)fluoranthene	2016/05/14	<0.30		ug	
			Biphenyl	2016/05/14	<0.60		ug	
			Chrysene	2016/05/14	<0.30		ug	
			Coronene	2016/05/14	<1.2		ug	
			D10-2-Methylnaphthalene	2016/05/14		94	%	50 - 150
			D10-Fluoranthene	2016/05/14		98	%	50 - 150
			D10-Phenanthrene	2016/05/14		102	%	50 - 150
			D12-Benzo(a)anthracene	2016/05/14		98	%	50 - 150
			D12-Benzo(a)pyrene	2016/05/14		84	%	50 - 150
			D12-Benzo(b)fluoranthene	2016/05/14		98	%	50 - 150
			D12-Benzo(ghi)perylene	2016/05/14		102	%	50 - 150
			D12-Benzo(k)fluoranthene	2016/05/14		102	%	50 - 150
			D12-Chrysene	2016/05/14		100	%	50 - 150
			D12-Indeno(1,2,3-cd)pyrene	2016/05/14		98	%	50 - 150
			D12-Perylene	2016/05/14		90	%	50 - 150
			D14-Dibenzo(a,h)anthracene	2016/05/14		98	%	50 - 150
			D8-Acenaphthylene	2016/05/14		96	%	50 - 150
			D8-Naphthalene	2016/05/14		96	%	50 - 150
			Dibenz(a,h)anthracene	2016/05/14	<0.30		ug	
			Dibenzo(a,c) anthracene + Picene	2016/05/14	<0.30		ug	
			Dibenzo(a,e)pyrene	2016/05/14	<1.2		ug	
			Fluoranthene	2016/05/14	<0.30		ug	
			Fluorene	2016/05/14	<0.30		ug	
			Indeno(1,2,3-cd)pyrene	2016/05/14	<0.30		ug	
			m-Terphenyl	2016/05/14	<0.60		ug	
			Naphthalene	2016/05/14	<0.60		ug	
			o-Terphenyl	2016/05/14	<0.60		ug	
			Perylene	2016/05/14	<1.2		ug	
			Phenanthrene	2016/05/14	<0.30		ug	
			p-Terphenyl	2016/05/14	<0.60		ug	
			Pyrene	2016/05/14	<0.30		ug	
			Quinoline	2016/05/14	<1.2		ug	
			Tetralin	2016/05/14	<0.60		ug	
			Triphenylene	2016/05/14	<0.30		ug	
4495763	CXU	Spiked Blank	C13-233'44'55'-HeptaCB-(189)	2016/05/16		100	%	30 - 140
			C13-233'44'5-HexaCB-(156)	2016/05/16		80	%	30 - 140
			C13-233'44'5'-HexaCB-(157)	2016/05/16		80	%	30 - 140
			C13-233'44'-PentaCB-(105)	2016/05/16		86	%	30 - 140

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			C13-23'44'55'-HexaCB-(167)	2016/05/16		80	%	30 - 140
			C13-2344'5-PentaCB-(114)	2016/05/16		83	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2016/05/16		84	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2016/05/16		82	%	30 - 140
			C13-33'44'55'-HexaCB-(169)	2016/05/16		65	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2016/05/16		84	%	30 - 140
			C13-33'44'-TetraCB-(77)	2016/05/16		78	%	30 - 140
			C13-344'5-TetraCB-(81)	2016/05/16		76	%	30 - 140
			33'44'-TetraCB-(77)	2016/05/16		101	%	50 - 150
			344'5-TetraCB-(81)	2016/05/16		100	%	50 - 150
			233'44'-PentaCB-(105)	2016/05/16		105	%	50 - 150
			2344'5-PentaCB-(114)	2016/05/16		99	%	50 - 150
			23'44'5-PentaCB-(118)	2016/05/16		101	%	50 - 150
			23'44'5'-PentaCB-(123)	2016/05/16		102	%	50 - 150
			33'44'5-PentaCB-(126)	2016/05/16		103	%	50 - 150
			HexaCB-(156)+(157)	2016/05/16		103	%	N/A
			23'44'55'-HexaCB-(167)	2016/05/16		100	%	50 - 150
			33'44'55'-HexaCB-(169)	2016/05/16		100	%	50 - 150
			233'44'55'-HeptaCB-(189)	2016/05/16		95	%	50 - 150
4495763	CXU	Spiked Blank DUP	C13-233'44'55'-HeptaCB-(189)	2016/05/16		119	%	30 - 140
			C13-233'44'5-HexaCB-(156)	2016/05/16		73	%	30 - 140
			C13-233'44'5'-HexaCB-(157)	2016/05/16		73	%	30 - 140
			C13-233'44'-PentaCB-(105)	2016/05/16		85	%	30 - 140
			C13-23'44'55'-HexaCB-(167)	2016/05/16		75	%	30 - 140
			C13-2344'5-PentaCB-(114)	2016/05/16		84	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2016/05/16		84	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2016/05/16		86	%	30 - 140
			C13-33'44'55'-HexaCB-(169)	2016/05/16		50	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2016/05/16		74	%	30 - 140
			C13-33'44'-TetraCB-(77)	2016/05/16		84	%	30 - 140
			C13-344'5-TetraCB-(81)	2016/05/16		83	%	30 - 140
			33'44'-TetraCB-(77)	2016/05/16		102	%	50 - 150
			344'5-TetraCB-(81)	2016/05/16		101	%	50 - 150
			233'44'-PentaCB-(105)	2016/05/16		104	%	50 - 150
			2344'5-PentaCB-(114)	2016/05/16		100	%	50 - 150
			23'44'5-PentaCB-(118)	2016/05/16		106	%	50 - 150
			23'44'5'-PentaCB-(123)	2016/05/16		105	%	50 - 150
			33'44'5-PentaCB-(126)	2016/05/16		100	%	50 - 150
			HexaCB-(156)+(157)	2016/05/16		104	%	N/A
			23'44'55'-HexaCB-(167)	2016/05/16		104	%	50 - 150
			33'44'55'-HexaCB-(169)	2016/05/16		99	%	50 - 150
			233'44'55'-HeptaCB-(189)	2016/05/16		98	%	50 - 150
4495763	CXU	RPD	33'44'-TetraCB-(77)	2016/05/16	0.99		%	30
			344'5-TetraCB-(81)	2016/05/16	1.0		%	30
			233'44'-PentaCB-(105)	2016/05/16	0.96		%	30
			2344'5-PentaCB-(114)	2016/05/16	1.0		%	30
			23'44'5-PentaCB-(118)	2016/05/16	4.8		%	30
			23'44'5'-PentaCB-(123)	2016/05/16	2.9		%	30
			33'44'5-PentaCB-(126)	2016/05/16	3.0		%	30
			HexaCB-(156)+(157)	2016/05/16	0.97		%	30
			23'44'55'-HexaCB-(167)	2016/05/16	3.9		%	30
			33'44'55'-HexaCB-(169)	2016/05/16	1.0		%	30

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			233'44'55'-HeptaCB-(189)	2016/05/16	3.1		%	30
4495763	CXU	Method Blank	C13-233'44'55'-HeptaCB-(189)	2016/05/16		117	%	30 - 140
			C13-233'44'5-HexaCB-(156)	2016/05/16		69	%	30 - 140
			C13-233'44'5'-HexaCB-(157)	2016/05/16		69	%	30 - 140
			C13-233'44'-PentaCB-(105)	2016/05/16		78	%	30 - 140
			C13-23'44'55'-HexaCB-(167)	2016/05/16		75	%	30 - 140
			C13-2344'5-PentaCB-(114)	2016/05/16		73	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2016/05/16		79	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2016/05/16		79	%	30 - 140
			C13-33'44'55'-HexaCB-(169)	2016/05/16		36	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2016/05/16		67	%	30 - 140
			C13-33'44'-TetraCB-(77)	2016/05/16		83	%	30 - 140
			C13-344'5-TetraCB-(81)	2016/05/16		84	%	30 - 140
			33'44'-TetraCB-(77)	2016/05/16	<120		pg	
			344'5-TetraCB-(81)	2016/05/16	<120		pg	
			233'44'-PentaCB-(105)	2016/05/16	<99		pg	
			2344'5-PentaCB-(114)	2016/05/16	<95		pg	
			23'44'5-PentaCB-(118)	2016/05/16	<98		pg	
			23'44'5'-PentaCB-(123)	2016/05/16	<110		pg	
			33'44'5-PentaCB-(126)	2016/05/16	<99		pg	
			HexaCB-(156)+(157)	2016/05/16	<53		pg	
			23'44'55'-HexaCB-(167)	2016/05/16	<57		pg	
			33'44'55'-HexaCB-(169)	2016/05/16	<56		pg	
			233'44'55'-HeptaCB-(189)	2016/05/16	<100		pg	
4499555	OBC	Spiked Blank	C13-1234678 HeptaCDD	2016/05/16		79	%	25 - 130
			C13-1234678 HeptaCDF	2016/05/16		64	%	25 - 130
			C13-123678 HexaCDD	2016/05/16		58	%	40 - 130
			C13-123678 HexaCDF	2016/05/16		50	%	40 - 130
			C13-12378 PentaCDD	2016/05/16		85	%	40 - 130
			C13-12378 PentaCDF	2016/05/16		88	%	40 - 130
			C13-123789 HexaCDF	2016/05/16		70	%	40 - 130
			C13-2378 TetraCDD	2016/05/16		88	%	40 - 130
			C13-2378 TetraCDF	2016/05/16		95	%	40 - 130
			C13-Octachlorodibenzo-p-Dioxin	2016/05/16		67	%	25 - 130
			2,3,7,8-Tetra CDD	2016/05/16		98	%	80 - 140
			1,2,3,7,8-Penta CDD	2016/05/16		90	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2016/05/16		99	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2016/05/16		99	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2016/05/16		123	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2016/05/16		95	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/16		94	%	80 - 140
			2,3,7,8-Tetra CDF	2016/05/16		93	%	80 - 140
			1,2,3,7,8-Penta CDF	2016/05/16		97	%	80 - 140
			2,3,4,7,8-Penta CDF	2016/05/16		94	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2016/05/16		101	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2016/05/16		92	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2016/05/16		110	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2016/05/16		110	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2016/05/16		96	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2016/05/16		97	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/16		95	%	80 - 140
4499555	OBC	Spiked Blank DUP	C13-1234678 HeptaCDD	2016/05/16		67	%	25 - 130

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			C13-1234678 HeptaCDF	2016/05/16		65	%	25 - 130
			C13-123678 HexaCDD	2016/05/16		63	%	40 - 130
			C13-123678 HexaCDF	2016/05/16		58	%	40 - 130
			C13-12378 PentaCDD	2016/05/16		84	%	40 - 130
			C13-12378 PentaCDF	2016/05/16		87	%	40 - 130
			C13-123789 HexaCDF	2016/05/16		71	%	40 - 130
			C13-2378 TetraCDD	2016/05/16		92	%	40 - 130
			C13-2378 TetraCDF	2016/05/16		97	%	40 - 130
			C13-Octachlorodibenzo-p-Dioxin	2016/05/16		68	%	25 - 130
			2,3,7,8-Tetra CDD	2016/05/16		100	%	80 - 140
			1,2,3,7,8-Penta CDD	2016/05/16		99	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2016/05/16		101	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2016/05/16		102	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2016/05/16		123	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2016/05/16		100	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/16		99	%	80 - 140
			2,3,7,8-Tetra CDF	2016/05/16		97	%	80 - 140
			1,2,3,7,8-Penta CDF	2016/05/16		101	%	80 - 140
			2,3,4,7,8-Penta CDF	2016/05/16		99	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2016/05/16		100	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2016/05/16		91	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2016/05/16		98	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2016/05/16		105	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2016/05/16		101	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2016/05/16		96	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/16		98	%	80 - 140
4499555	OBC	RPD	2,3,7,8-Tetra CDD	2016/05/16	NC		%	20
			1,2,3,7,8-Penta CDD	2016/05/16	NC		%	20
			1,2,3,4,7,8-Hexa CDD	2016/05/16	NC		%	20
			1,2,3,6,7,8-Hexa CDD	2016/05/16	NC		%	20
			1,2,3,7,8,9-Hexa CDD	2016/05/16	NC		%	20
			1,2,3,4,6,7,8-Hepta CDD	2016/05/16	NC		%	20
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/16	NC		%	20
			2,3,7,8-Tetra CDF	2016/05/16	NC		%	20
			1,2,3,7,8-Penta CDF	2016/05/16	NC		%	20
			2,3,4,7,8-Penta CDF	2016/05/16	NC		%	20
			1,2,3,4,7,8-Hexa CDF	2016/05/16	NC		%	20
			1,2,3,6,7,8-Hexa CDF	2016/05/16	NC		%	20
			2,3,4,6,7,8-Hexa CDF	2016/05/16	NC		%	20
			1,2,3,7,8,9-Hexa CDF	2016/05/16	NC		%	20
			1,2,3,4,6,7,8-Hepta CDF	2016/05/16	NC		%	20
			1,2,3,4,7,8,9-Hepta CDF	2016/05/16	NC		%	20
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/16	NC		%	20
4499555	OBC	Method Blank	C13-1234678 HeptaCDD	2016/05/16		65	%	25 - 130
			C13-1234678 HeptaCDF	2016/05/16		63	%	25 - 130
			C13-123678 HexaCDD	2016/05/16		60	%	40 - 130
			C13-123678 HexaCDF	2016/05/16		53	%	40 - 130
			C13-12378 PentaCDD	2016/05/16		79	%	40 - 130
			C13-12378 PentaCDF	2016/05/16		81	%	40 - 130
			C13-123789 HexaCDF	2016/05/16		72	%	40 - 130
			C13-2378 TetraCDD	2016/05/16		84	%	40 - 130
			C13-2378 TetraCDF	2016/05/16		89	%	40 - 130

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			C13-Octachlorodibenzo-p-Dioxin	2016/05/16		66	%	25 - 130
			2,3,7,8-Tetra CDD	2016/05/16	<5.6, EDL=5.6		pg	
			1,2,3,7,8-Penta CDD	2016/05/16	<7.2, EDL=7.2		pg	
			1,2,3,4,7,8-Hexa CDD	2016/05/16	<6.4, EDL=6.4		pg	
			1,2,3,6,7,8-Hexa CDD	2016/05/16	<6.5, EDL=6.5		pg	
			1,2,3,7,8,9-Hexa CDD	2016/05/16	<5.8, EDL=5.8		pg	
			1,2,3,4,6,7,8-Hepta CDD	2016/05/16	<5.9, EDL=5.9		pg	
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/16	25.4, EDL=5.9		pg	
			Total Tetra CDD	2016/05/16	<7.8, EDL=7.8 (2)		pg	
			Total Penta CDD	2016/05/16	<7.2, EDL=7.2		pg	
			Total Hexa CDD	2016/05/16	<9.1, EDL=9.1 (2)		pg	
			Total Hepta CDD	2016/05/16	<5.9, EDL=5.9		pg	
			2,3,7,8-Tetra CDF	2016/05/16	<3.9, EDL=3.9		pg	
			1,2,3,7,8-Penta CDF	2016/05/16	<5.8, EDL=5.8		pg	
			2,3,4,7,8-Penta CDF	2016/05/16	<5.8, EDL=5.8		pg	
			1,2,3,4,7,8-Hexa CDF	2016/05/16	<6.0, EDL=6.0		pg	
			1,2,3,6,7,8-Hexa CDF	2016/05/16	<5.5, EDL=5.5		pg	
			2,3,4,6,7,8-Hexa CDF	2016/05/16	<6.0, EDL=6.0		pg	
			1,2,3,7,8,9-Hexa CDF	2016/05/16	<6.6, EDL=6.6		pg	
			1,2,3,4,6,7,8-Hepta CDF	2016/05/16	<5.6, EDL=5.6		pg	
			1,2,3,4,7,8,9-Hepta CDF	2016/05/16	<6.8, EDL=6.8		pg	
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/16	<6.0, EDL=6.0		pg	
			Total Tetra CDF	2016/05/16	<3.9, EDL=3.9		pg	
			Total Penta CDF	2016/05/16	<5.8, EDL=5.8		pg	
			Total Hexa CDF	2016/05/16	<6.0, EDL=6.0		pg	

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Maxxam Job #: B695926
Report Date: 2016/05/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Total Hepta CDF	2016/05/16	<6.1, EDL=6.1		pg	
4501249	BY	Method Blank	Confirmation 2,3,7,8-Tetra CDF	2016/05/17	<12, EDL=12		pg	
			Confirmation C13-2378 TetraCDF	2016/05/17		80	%	40 - 135

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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

VALIDATION SIGNATURE PAGE

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

Karen Nicol

Karen Nicol, Supervisor, Semi-Volatiles

Kay Shaw

Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

APPENDIX 16

Acid Gas Recovery Data Sheets
(8 page)

Method 26A Recovery Sheet

Client: Covanta DYEC
Project No.: 21656
Date: May 2, 2016
Test No.: 1
Test Location: UNIT #1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a
Probe Rinse Residue

Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Filter

Filter ID: 16 GFF-42

CONTAINER TS2

Initial Wt:	0.6811
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impingers 1, 2, 3

CONTAINER TS3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	657.6
Initial Wt:	755.8
Final Wt:	889.0
1 Gain:	133.2 ✓
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	669.8
Initial Wt:	769.2
Final Wt:	795.5
2 Gain:	26.3 ✓
Colour:	Clear

Impinger #3 EMPTY	
Empty Wt:	612.2
Final Wt:	614.4
3 Gain:	2.2 ✓
Colour:	Clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	419.2
With Imp. 1,2,3 Soln:	772.7
Imp. 1,2,3 Volume:	353.5 ✓
After Rinse:	823.8
Total TS3:	404.6 ✓

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	992.0
Final Wt:	1001.5
4 Gain:	9.5 ✓

SAMPLE IDENTIFICATION	16-21656-M26A
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	1

Train Loaded By: A. NOLAN
Train Recovered By: T. SANDERSON
Recovery Witnessed By: —
Date: MAY 2, 2016

CWTR = 1+2+3: 161.7 ✓

WCBDA= 4: 9.5 ✓

Box 13

ORTECH Environmental

Revision: Jan 16, 2006

Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 21656
Date: 2 May 16
Test No.: 2
Test Location: APC#1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3	Impinger 4
	Filter ID: 16-GFF-12		
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a Probe Rinse Residue	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Initial Wt:	0.6802
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impinger #1 0.1 N H_2SO4	
Empty Wt:	661.5
Initial Wt:	758.9
Final Wt:	890.8
1 Gain:	131.9
Colour:	Clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	657.5
Initial Wt:	750.2
Final Wt:	771.4
2 Gain:	21.2
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	639.9
Final Wt:	642.1
3 Gain:	2.2
Colour:	clear

Impinger #4 Silica Gel	
Initial Wt:	770.7
Final Wt:	779.8
4 Gain:	9.1

SAMPLE IDENTIFICATION	16-21656-M2A
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	2

CONTAINER TS3 WEIGHTS	
Empty Wt:	418.8
With Imp. 1,2,3 Soln:	764.4
Imp. 1,2,3 Volume:	345.6
After Rinse:	810.4
Total TS3:	391.6

Train Loaded By: DT
Train Recovered By: TS
Recovery Witnessed By: —
Date: 2 May 16

CWTR = 1+2+3: 155.3 ✓

WCBDA= 4: 9.1

Box 6

Revision: Jan 16, 2006

ORTECH Environmental

Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	21656
Date:	2 May 16
Test No.:	3
Test Location:	APC #1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3	Impinger 4
	Filter ID:		
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a Probe Rinse Residue	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Container TS2	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impinger #1 0.1 N H_2SO4	
Empty Wt:	659.1
Initial Wt:	759.4
Final Wt:	874.3
1 Gain:	114.9
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	671.1
Initial Wt:	771.4
Final Wt:	790.6
2 Gain:	19.2
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	614.3
Final Wt:	616.6
3 Gain:	2.3
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	419.7
With Imp. 1,2,3 Soln:	755.7
Imp. 1,2,3 Volume:	336.0
After Rinse:	815.7
Total TS3:	396.0

Impinger #4 Silica Gel	
Initial Wt:	1001.4
Final Wt:	1012.4
4 Gain:	11.0

SAMPLE IDENTIFICATION	16-21656-M26A-
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	3

Box 13

Train Loaded By:	TS
Train Recovered By:	TS
Recovery Witnessed By:	—
Date:	2 May 16

CWTR = 1+2+3:	136.4 ✓
WCBDA= 4:	11.0

ORTECH Environmental

Revision: Jan 16, 2006

Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	21656
Date:	2 May 16
Test No.:	Blank #1
Test Location:	APC #1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a
Probe Rinse Residue

Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Filter

Filter ID:

CONTAINER TS2

Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impingers 1, 2, 3

CONTAINER TS3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	663.0
Initial Wt:	763.9
Final Wt:	763.9
1 Gain:	0
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	653.0
Initial Wt:	~~6~~ 754.0
Final Wt:	754.0
2 Gain:	0
Colour:	Clear

Impinger #3 EMPTY	
Empty Wt:	642.1
Final Wt:	642.1
3 Gain:	0
Colour:	—

CONTAINER TS3 WEIGHTS	
Empty Wt:	418.7
With Imp. 1,2,3 Soln:	620.6
Imp. 1,2,3 Volume:	201.9
After Rinse:	669.4
Total TS3:	250.7

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	779.8
Final Wt:	779.8
4 Gain:	0

SAMPLE IDENTIFICATION	16-21656-M26A
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	Blank #1

Train Loaded By:	TJ
Train Recovered By:	TJ
Recovery Witnessed By:	—
Date:	2 May 16

CWTR = 1+2+3:	0
WCBDA= 4:	0

ORTECH Environmental

Revision: Jan 16, 2006

Method 26A Recovery Sheet

Client : Covanta DYEC

Project No.: 21656

Date: 3 May 16

Test No.: 1

Test Location: APC #2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3	Impinger 4
	Filter ID:		
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a Probe Rinse Residue	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impinger #1 0.1 N H_2SO4	
Empty Wt:	663.0
Initial Wt:	762.9
Final Wt:	882.9
1 Gain:	120.0
Colour:	Clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	653.0
Initial Wt:	753.6
Final Wt:	776.7
2 Gain:	23.1
Colour:	Clear

Impinger #3 EMPTY	
Empty Wt:	642.2
Final Wt:	645.4
3 Gain:	3.2
Colour:	Clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	418.9
With Imp. 1,2,3 Soln:	763.4
Imp. 1,2,3 Volume:	344.5
After Rinse:	806.9
Total TS3:	388.0

Impinger #4 Silica Gel	
Initial Wt:	779.7
Final Wt:	789.9
4 Gain:	10.2

SAMPLE IDENTIFICATION	16-21656-M26A
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	4

Box 13

Train Loaded By:	TS
Train Recovered By:	TS
Recovery Witnessed By:	—
Date:	3 May 16

CWTR = 1+2+3:	146.3
WCBDA= 4:	10.2

ORTECH Environmental

Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 21656
Date: 3 May 16
Test No.: 2
Test Location: #2 APC outlet

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3	Impinger 4
	Filter ID:		
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a Probe Rinse Residue	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Filter	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impinger #1 0.1 N H_2SO4	
Empty Wt:	660.2
Initial Wt:	760.7
Final Wt:	888.3
1 Gain:	127.6
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	672.9
Initial Wt:	772.8
Final Wt:	798.8
2 Gain:	26.0
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	615.3
Final Wt:	618.9
3 Gain:	3.6
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	419.5
With Imp. 1,2,3 Soln:	776.0
Imp. 1,2,3 Volume:	356.5
After Rinse:	818.8
Total TS3:	399.3

Impinger #4 Silica Gel	
Initial Wt:	919.9
Final Wt:	932.7
4 Gain:	12.8

SAMPLE IDENTIFICATION	16-21656-M26A
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	5

Bucket

CWTR = 1+2+3:	157.2 ✓
WCBDA= 4:	12.8

Train Loaded By: TS
Train Recovered By: TS
Recovery Witnessed By: —
Date: 3 May 16.

Revision: Jan 16, 2006

ORTECH Environmental

Method 26A Recovery Sheet

Client : Covanta DYEC

Project No.: 21656

Date: 3 May 16

Test No.: 3

Test Location: APC #2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing	Filter	Impingers 1, 2, 3	Impinger 4
	Filter ID:		
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a Probe Rinse Residue	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Filter	
Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

	Impinger #1 0.1 N H_2SO4	
	Empty Wt:	663.1
	Initial Wt:	766.3
	Final Wt:	894.5
1	Gain:	128.2
	Colour:	clear

	Impinger #2 0.1 N H_2SO4	
	Empty Wt:	682.7
	Initial Wt:	~~7~~ 752.4
	Final Wt:	775.3
2	Gain:	22.9
	Colour:	clear

	Impinger #3 EMPTY	
	Empty Wt:	641.4
	Final Wt:	644.7
3	Gain:	3.3
	Colour:	clear

	Impinger #4 Silica Gel	
	Initial Wt:	789.8
	Final Wt:	799.5
4	Gain:	9.7

SAMPLE IDENTIFICATION	16-21656-M26A
TS1(Probe Rinse-Acetone)	
TS2(Filter)	
TS3(Impinger 1,2,3 Sol'n)	6

CONTAINER TS3 WEIGHTS	
Empty Wt:	417.8
With Imp. 1,2,3 Soln:	771.5
Imp. 1,2,3 Volume:	353.7
After Rinse:	825.7
Total TS3:	407.9

Train Loaded By: TS

Train Recovered By: TS

Recovery Witnessed By:

Date: 3 May 16

CWTR = 1+2+3:	154.4 ✓
WCBDA= 4:	9.7

ORTECH Environmental

Revision: Jan 16, 2006

Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	21656
Date:	3 May 16
Test No.:	Blank #2
Test Location:	APC #2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	
After Acetone Rinse:	
Total TS1:	

MARK FLUID LEVEL

Seal and label container TS1

CONTAINER TS1a
Probe Rinse Residue

Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

Filter

Filter ID:

CONTAINER TS2

Initial Wt:	
Post-Test Wt (1):	
Post-Test Wt (2):	
Post-Test Wt (3):	
Final Wt:	
Gain:	
Colour:	

SEAL CONTAINER TS2

Impingers 1, 2, 3

CONTAINER TS3

	Impinger #1 0.1 N H_2SO4	
	Empty Wt:	664.2
	Initial Wt:	766.4
	Final Wt:	766.4
1	Gain:	—
	Colour:	Clear

	Impinger #2 0.1 N H_2SO4	
	Empty Wt:	653.6
	Initial Wt:	757.0
	Final Wt:	757.0
2	Gain:	—
	Colour:	Clear

	Impinger #3 EMPTY	
	Empty Wt:	643.8
	Final Wt:	643.8
3	Gain:	—
	Colour:	—

CONTAINER TS3 WEIGHTS	
Empty Wt:	419.0
With Imp. 1,2,3 Soln:	624.9
Imp. 1,2,3 Volume:	205.9
After Rinse:	672.9
Total TS3:	253.9

Impinger 4

	Impinger #4 Silica Gel	
	Initial Wt:	789.9
	Final Wt:	789.8
4	Gain:	-0.1

SAMPLE IDENTIFICATION	16-21656-M26A
TS1(Probe Rinse-Acetone)	—
TS2(Filter)	—
TS3(Impinger 1,2,3 Sol'n)	Blank 2

Train Loaded By:	TS
Train Recovered By:	TS
Recovery Witnessed By:	—
Date:	3 May 16

CWTR = 1+2+3:	—
WCBDA= 4:	-0.1

APPENDIX 17

VOST Analytical Reports
(43 pages)

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 21656-J2227
Your Project #: 21656
Site Location: COVANTA

Attention:Chris Belore

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/05/24
Report #: R4002138
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B696111
Received: 2016/05/12, 12:30

Sample Matrix: Stack Sampling Train
Samples Received: 22

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
VOST EPA5041A, 8260C for 0030, 0031	9	N/A	2016/05/13	BRL SOP-00302	EPA5041A, 8260C
VOST EPA5041A, 8260C for 0030, 0031	8	N/A	2016/05/16	BRL SOP-00302	EPA5041A, 8260C
VOST EPA5041A, 8260C for 0030, 0031	5	N/A	2016/05/17	BRL SOP-00302	EPA5041A, 8260C

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
24 May 2016 15:52:56 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==
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.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ445	CIQ464	CIQ465			
Sampling Date		2016/05/10	2016/05/10	2016/05/10			
	UNITS	16-21656-VOST 10A/B FB	16-21656-VOST 30A/B TB	16-21656-VOST 1A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	<0.020	<0.020	0.020	0.020	4499696
Vinyl Chloride	ug	<0.013	<0.013	<0.013	0.013	0.013	4499696
Bromomethane	ug	<0.015	<0.015	<0.015	0.015	0.015	4499696
Trichlorofluoromethane (FREON 11)	ug	<0.010	<0.010	<0.010	0.010	0.010	4499696
Acetone (2-Propanone)	ug	<0.045	<0.045	0.098	0.045	0.025	4499696
1,1-Dichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4499696
Methylene Chloride(Dichloromethane)	ug	<0.019	<0.019	<0.019	0.019	0.020	4499696
trans-1,2-Dichloroethylene	ug	<0.010	<0.010	<0.010	0.010	0.010	4499696
Chloroform	ug	<0.011	<0.011	0.036	0.011	0.011	4499696
1,2-Dichloroethane	ug	<0.0070	<0.0070	<0.0070	0.0070	0.0070	4499696
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	<0.036	<0.036	0.036	0.036	4499696
1,1,1-Trichloroethane	ug	<0.014	<0.014	<0.014	0.014	0.014	4499696
Carbon Tetrachloride	ug	<0.016	<0.016	<0.016	0.016	0.016	4499696
Benzene	ug	<0.0090	<0.0090	0.0430	0.0090	0.0090	4499696
1,1,2-Trichloroethane	ug	<0.016	<0.016	<0.016	0.016	0.016	4499696
1,2-Dichloropropane	ug	<0.011	<0.011	<0.011	0.011	0.011	4499696
Trichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4499696
Bromodichloromethane	ug	<0.011	<0.011	0.037	0.011	0.011	4499696
Dibromochloromethane	ug	<0.0090	<0.0090	0.0185	0.0090	0.0090	4499696
Toluene	ug	<0.014	<0.014	0.057	0.014	0.014	4499696
Ethylene Dibromide	ug	<0.010	<0.010	<0.010	0.010	0.010	4499696
Tetrachloroethylene	ug	<0.018	<0.018	<0.018	0.018	0.018	4499696
Chlorobenzene	ug	<0.011	<0.011	0.012	0.011	0.011	4499696
Ethylbenzene	ug	<0.014	<0.014	<0.014	0.014	0.014	4499696
m / p-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4499696
Styrene	ug	<0.012	<0.012	<0.012	0.012	0.012	4499696
o-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4499696
Bromoform	ug	<0.014	<0.014	<0.014	0.014	0.014	4499696
Surrogate Recovery (%)							
Bromofluorobenzene	%	100	100	101	N/A	N/A	4499696
D10-Ethylbenzene (FS)	%	107	118	90	N/A	N/A	4499696
D4-1,2-Dichloroethane	%	109	112	111	N/A	N/A	4499696
D8-Toluene	%	104	102	103	N/A	N/A	4499696

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

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ466	CIQ467	CIQ468			
Sampling Date		2016/05/10	2016/05/10	2016/05/10			
	UNITS	16-21656-VOST 2A/B	16-21656-VOST 3A/B	16-21656-VOST 4A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	<0.020	<0.020	0.020	0.020	4501300
Vinyl Chloride	ug	<0.013	<0.013	<0.013	0.013	0.013	4501300
Bromomethane	ug	0.015	0.015	<0.015	0.015	0.015	4501300
Trichlorofluoromethane (FREON 11)	ug	<0.010	<0.010	<0.010	0.010	0.010	4501300
Acetone (2-Propanone)	ug	0.060	0.051	0.061	0.045	0.025	4501300
1,1-Dichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4501300
Methylene Chloride(Dichloromethane)	ug	<0.019	<0.019	<0.019	0.019	0.020	4501300
trans-1,2-Dichloroethylene	ug	<0.010	<0.010	<0.010	0.010	0.010	4501300
Chloroform	ug	0.039	0.039	0.039	0.011	0.011	4501300
1,2-Dichloroethane	ug	<0.0070	<0.0070	<0.0070	0.0070	0.0070	4501300
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	<0.036	<0.036	0.036	0.036	4501300
1,1,1-Trichloroethane	ug	<0.014	<0.014	<0.014	0.014	0.014	4501300
Carbon Tetrachloride	ug	<0.016	<0.016	<0.016	0.016	0.016	4501300
Benzene	ug	0.0369	0.0338	0.0324	0.0090	0.0090	4501300
1,1,2-Trichloroethane	ug	<0.016	<0.016	<0.016	0.016	0.016	4501300
1,2-Dichloropropane	ug	<0.011	<0.011	<0.011	0.011	0.011	4501300
Trichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4501300
Bromodichloromethane	ug	0.040	0.041	0.040	0.011	0.011	4501300
Dibromochloromethane	ug	0.0201	0.0202	0.0209	0.0090	0.0090	4501300
Toluene	ug	0.044	0.038	0.038	0.014	0.014	4501300
Ethylene Dibromide	ug	<0.010	<0.010	<0.010	0.010	0.010	4501300
Tetrachloroethylene	ug	<0.018	<0.018	<0.018	0.018	0.018	4501300
Chlorobenzene	ug	0.012	0.012	0.014	0.011	0.011	4501300
Ethylbenzene	ug	<0.014	<0.014	<0.014	0.014	0.014	4501300
m / p-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4501300
Styrene	ug	<0.012	<0.012	<0.012	0.012	0.012	4501300
o-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4501300
Bromoform	ug	<0.014	<0.014	<0.014	0.014	0.014	4501300
Surrogate Recovery (%)							
Bromofluorobenzene	%	98	99	99	N/A	N/A	4501300
D10-Ethylbenzene (FS)	%	103	111	101	N/A	N/A	4501300
D4-1,2-Dichloroethane	%	109	108	110	N/A	N/A	4501300
D8-Toluene	%	104	102	103	N/A	N/A	4501300

RDL = Reportable Detection Limit
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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ469	CIQ470			
Sampling Date		2016/05/10	2016/05/10			
	UNITS	16-21656-VOST 5A/B	16-21656-VOST 6A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	0.152	0.020	0.020	4501300
Vinyl Chloride	ug	<0.013	<0.013	0.013	0.013	4501300
Bromomethane	ug	<0.015	<0.015	0.015	0.015	4501300
Trichlorofluoromethane (FREON 11)	ug	<0.010	<0.010	0.010	0.010	4501300
Acetone (2-Propanone)	ug	0.057	0.054	0.045	0.025	4501300
1,1-Dichloroethylene	ug	<0.011	<0.011	0.011	0.011	4501300
Methylene Chloride(Dichloromethane)	ug	<0.019	<0.019	0.019	0.020	4501300
trans-1,2-Dichloroethylene	ug	<0.010	<0.010	0.010	0.010	4501300
Chloroform	ug	0.042	0.034	0.011	0.011	4501300
1,2-Dichloroethane	ug	<0.0070	<0.0070	0.0070	0.0070	4501300
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	<0.036	0.036	0.036	4501300
1,1,1-Trichloroethane	ug	<0.014	<0.014	0.014	0.014	4501300
Carbon Tetrachloride	ug	<0.016	<0.016	0.016	0.016	4501300
Benzene	ug	0.0320	0.0274	0.0090	0.0090	4501300
1,1,2-Trichloroethane	ug	<0.016	<0.016	0.016	0.016	4501300
1,2-Dichloropropane	ug	<0.011	<0.011	0.011	0.011	4501300
Trichloroethylene	ug	<0.011	<0.011	0.011	0.011	4501300
Bromodichloromethane	ug	0.044	0.037	0.011	0.011	4501300
Dibromochloromethane	ug	0.0226	0.0183	0.0090	0.0090	4501300
Toluene	ug	0.037	0.031	0.014	0.014	4501300
Ethylene Dibromide	ug	<0.010	<0.010	0.010	0.010	4501300
Tetrachloroethylene	ug	<0.018	<0.018	0.018	0.018	4501300
Chlorobenzene	ug	0.013	0.012	0.011	0.011	4501300
Ethylbenzene	ug	<0.014	<0.014	0.014	0.014	4501300
m / p-Xylene	ug	<0.015	<0.015	0.015	0.015	4501300
Styrene	ug	<0.012	<0.012	0.012	0.012	4501300
o-Xylene	ug	<0.015	<0.015	0.015	0.015	4501300
Bromoform	ug	<0.014	<0.014	0.014	0.014	4501300
Surrogate Recovery (%)						
Bromofluorobenzene	%	97	97	N/A	N/A	4501300
D10-Ethylbenzene (FS)	%	89	109	N/A	N/A	4501300
D4-1,2-Dichloroethane	%	109	110	N/A	N/A	4501300
D8-Toluene	%	102	102	N/A	N/A	4501300

RDL = Reportable Detection Limit
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N/A = Not Applicable

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ472		CIQ473			
Sampling Date		2016/05/10		2016/05/10			
	UNITS	16-21656-VOST 7A/B	QC Batch	16-21656-VOST 8A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	0.021	4497101	<0.020	0.020	0.020	4499696
Vinyl Chloride	ug	<0.013	4497101	<0.013	0.013	0.013	4499696
Bromomethane	ug	<0.015	4497101	<0.015	0.015	0.015	4499696
Trichlorofluoromethane (FREON 11)	ug	<0.010	4497101	<0.010	0.010	0.010	4499696
Acetone (2-Propanone)	ug	0.071	4497101	0.063	0.045	0.025	4499696
1,1-Dichloroethylene	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Methylene Chloride(Dichloromethane)	ug	0.093	4497101	0.031	0.019	0.020	4499696
trans-1,2-Dichloroethylene	ug	<0.010	4497101	<0.010	0.010	0.010	4499696
Chloroform	ug	0.041	4497101	0.036	0.011	0.011	4499696
1,2-Dichloroethane	ug	<0.0070	4497101	<0.0070	0.0070	0.0070	4499696
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	4497101	<0.036	0.036	0.036	4499696
1,1,1-Trichloroethane	ug	<0.014	4497101	<0.014	0.014	0.014	4499696
Carbon Tetrachloride	ug	<0.016	4497101	<0.016	0.016	0.016	4499696
Benzene	ug	0.0410	4497101	0.0395	0.0090	0.0090	4499696
1,1,2-Trichloroethane	ug	<0.016	4497101	<0.016	0.016	0.016	4499696
1,2-Dichloropropane	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Trichloroethylene	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Bromodichloromethane	ug	0.040	4497101	0.036	0.011	0.011	4499696
Dibromochloromethane	ug	0.0202	4497101	0.0191	0.0090	0.0090	4499696
Toluene	ug	0.030	4497101	0.038	0.014	0.014	4499696
Ethylene Dibromide	ug	<0.010	4497101	<0.010	0.010	0.010	4499696
Tetrachloroethylene	ug	<0.018	4497101	<0.018	0.018	0.018	4499696
Chlorobenzene	ug	0.013	4497101	0.012	0.011	0.011	4499696
Ethylbenzene	ug	<0.014	4497101	<0.014	0.014	0.014	4499696
m / p-Xylene	ug	<0.015	4497101	<0.015	0.015	0.015	4499696
Styrene	ug	<0.012	4497101	<0.012	0.012	0.012	4499696
o-Xylene	ug	<0.015	4497101	<0.015	0.015	0.015	4499696
Bromoform	ug	<0.014	4497101	<0.014	0.014	0.014	4499696
Surrogate Recovery (%)							
Bromofluorobenzene	%	99	4497101	98	N/A	N/A	4499696
D10-Ethylbenzene (FS)	%	108	4497101	101	N/A	N/A	4499696
D4-1,2-Dichloroethane	%	109	4497101	109	N/A	N/A	4499696
D8-Toluene	%	103	4497101	103	N/A	N/A	4499696

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

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ474		CIQ475			
Sampling Date		2016/05/10		2016/05/04			
	UNITS	16-21656-VOST 9A/B	QC Batch	16-21656-VOST 21A/B FB	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	4499696	<0.020	0.020	0.020	4497101
Vinyl Chloride	ug	<0.013	4499696	<0.013	0.013	0.013	4497101
Bromomethane	ug	<0.015	4499696	<0.015	0.015	0.015	4497101
Trichlorofluoromethane (FREON 11)	ug	0.014	4499696	<0.010	0.010	0.010	4497101
Acetone (2-Propanone)	ug	0.073	4499696	<0.045	0.045	0.025	4497101
1,1-Dichloroethylene	ug	<0.011	4499696	<0.011	0.011	0.011	4497101
Methylene Chloride(Dichloromethane)	ug	<0.019	4499696	<0.019	0.019	0.020	4497101
trans-1,2-Dichloroethylene	ug	<0.010	4499696	<0.010	0.010	0.010	4497101
Chloroform	ug	0.037	4499696	<0.011	0.011	0.011	4497101
1,2-Dichloroethane	ug	<0.0070	4499696	<0.0070	0.0070	0.0070	4497101
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	4499696	<0.036	0.036	0.036	4497101
1,1,1-Trichloroethane	ug	<0.014	4499696	<0.014	0.014	0.014	4497101
Carbon Tetrachloride	ug	<0.016	4499696	<0.016	0.016	0.016	4497101
Benzene	ug	0.0524	4499696	<0.0090	0.0090	0.0090	4497101
1,1,2-Trichloroethane	ug	<0.016	4499696	<0.016	0.016	0.016	4497101
1,2-Dichloropropane	ug	<0.011	4499696	<0.011	0.011	0.011	4497101
Trichloroethylene	ug	<0.011	4499696	<0.011	0.011	0.011	4497101
Bromodichloromethane	ug	0.035	4499696	<0.011	0.011	0.011	4497101
Dibromochloromethane	ug	0.0184	4499696	<0.0090	0.0090	0.0090	4497101
Toluene	ug	0.073	4499696	<0.014	0.014	0.014	4497101
Ethylene Dibromide	ug	<0.010	4499696	<0.010	0.010	0.010	4497101
Tetrachloroethylene	ug	<0.018	4499696	<0.018	0.018	0.018	4497101
Chlorobenzene	ug	0.014	4499696	<0.011	0.011	0.011	4497101
Ethylbenzene	ug	<0.014	4499696	<0.014	0.014	0.014	4497101
m / p-Xylene	ug	<0.015	4499696	<0.015	0.015	0.015	4497101
Styrene	ug	<0.012	4499696	<0.012	0.012	0.012	4497101
o-Xylene	ug	<0.015	4499696	<0.015	0.015	0.015	4497101
Bromoform	ug	<0.014	4499696	<0.014	0.014	0.014	4497101
Surrogate Recovery (%)							
Bromofluorobenzene	%	98	4499696	99	N/A	N/A	4497101
D10-Ethylbenzene (FS)	%	105	4499696	98	N/A	N/A	4497101
D4-1,2-Dichloroethane	%	111	4499696	109	N/A	N/A	4497101
D8-Toluene	%	103	4499696	103	N/A	N/A	4497101

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

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ476	CIQ477	CIQ485			
Sampling Date		2016/05/05	2016/05/04	2016/05/04			
	UNITS	16-21656-VOST 15A/B FB	16-21656-VOST 16A/B	16-21656-VOST 17A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	<0.020	<0.020	0.020	0.020	4497101
Vinyl Chloride	ug	<0.013	<0.013	<0.013	0.013	0.013	4497101
Bromomethane	ug	<0.015	<0.015	<0.015	0.015	0.015	4497101
Trichlorofluoromethane (FREON 11)	ug	<0.010	<0.010	<0.010	0.010	0.010	4497101
Acetone (2-Propanone)	ug	<0.045	0.460	0.139	0.045	0.025	4497101
1,1-Dichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Methylene Chloride(Dichloromethane)	ug	<0.019	<0.019	<0.019	0.019	0.020	4497101
trans-1,2-Dichloroethylene	ug	<0.010	<0.010	<0.010	0.010	0.010	4497101
Chloroform	ug	<0.011	0.025	0.026	0.011	0.011	4497101
1,2-Dichloroethane	ug	<0.0070	<0.0070	<0.0070	0.0070	0.0070	4497101
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	<0.036	<0.036	0.036	0.036	4497101
1,1,1-Trichloroethane	ug	<0.014	<0.014	<0.014	0.014	0.014	4497101
Carbon Tetrachloride	ug	<0.016	<0.016	<0.016	0.016	0.016	4497101
Benzene	ug	<0.0090	0.0251	0.0223	0.0090	0.0090	4497101
1,1,2-Trichloroethane	ug	<0.016	<0.016	<0.016	0.016	0.016	4497101
1,2-Dichloropropane	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Trichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Bromodichloromethane	ug	<0.011	0.024	0.024	0.011	0.011	4497101
Dibromochloromethane	ug	<0.0090	0.0110	0.0109	0.0090	0.0090	4497101
Toluene	ug	<0.014	0.044	0.155	0.014	0.014	4497101
Ethylene Dibromide	ug	<0.010	<0.010	<0.010	0.010	0.010	4497101
Tetrachloroethylene	ug	<0.018	0.072	0.030	0.018	0.018	4497101
Chlorobenzene	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Ethylbenzene	ug	<0.014	0.022	<0.014	0.014	0.014	4497101
m / p-Xylene	ug	<0.015	0.026	<0.015	0.015	0.015	4497101
Styrene	ug	<0.012	0.014	<0.012	0.012	0.012	4497101
o-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4497101
Bromoform	ug	<0.014	<0.014	<0.014	0.014	0.014	4497101
Surrogate Recovery (%)							
Bromofluorobenzene	%	100	97	100	N/A	N/A	4497101
D10-Ethylbenzene (FS)	%	109	132	106	N/A	N/A	4497101
D4-1,2-Dichloroethane	%	110	107	108	N/A	N/A	4497101
D8-Toluene	%	103	102	104	N/A	N/A	4497101

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

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ486	CIQ487	CIQ488			
Sampling Date		2016/05/04	2016/05/05	2016/05/05			
	UNITS	16-21656-VOST 18A/B	16-21656-VOST 22A/B	16-21656-VOST 23A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	0.030	0.023	<0.020	0.020	0.020	4497101
Vinyl Chloride	ug	<0.013	<0.013	<0.013	0.013	0.013	4497101
Bromomethane	ug	<0.015	<0.015	<0.015	0.015	0.015	4497101
Trichlorofluoromethane (FREON 11)	ug	<0.010	<0.010	<0.010	0.010	0.010	4497101
Acetone (2-Propanone)	ug	0.141	0.108	0.068	0.045	0.025	4497101
1,1-Dichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Methylene Chloride(Dichloromethane)	ug	0.027	0.026	<0.019	0.019	0.020	4497101
trans-1,2-Dichloroethylene	ug	<0.010	<0.010	<0.010	0.010	0.010	4497101
Chloroform	ug	0.031	0.027	0.029	0.011	0.011	4497101
1,2-Dichloroethane	ug	<0.0070	<0.0070	<0.0070	0.0070	0.0070	4497101
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	<0.036	<0.036	0.036	0.036	4497101
1,1,1-Trichloroethane	ug	<0.014	<0.014	<0.014	0.014	0.014	4497101
Carbon Tetrachloride	ug	<0.016	<0.016	<0.016	0.016	0.016	4497101
Benzene	ug	0.0234	0.0301	0.0386	0.0090	0.0090	4497101
1,1,2-Trichloroethane	ug	<0.016	<0.016	<0.016	0.016	0.016	4497101
1,2-Dichloropropane	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Trichloroethylene	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Bromodichloromethane	ug	0.029	0.025	0.026	0.011	0.011	4497101
Dibromochloromethane	ug	0.0119	0.0111	0.0113	0.0090	0.0090	4497101
Toluene	ug	0.171	0.027	0.037	0.014	0.014	4497101
Ethylene Dibromide	ug	<0.010	<0.010	<0.010	0.010	0.010	4497101
Tetrachloroethylene	ug	0.020	<0.018	<0.018	0.018	0.018	4497101
Chlorobenzene	ug	<0.011	<0.011	<0.011	0.011	0.011	4497101
Ethylbenzene	ug	<0.014	<0.014	<0.014	0.014	0.014	4497101
m / p-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4497101
Styrene	ug	<0.012	<0.012	<0.012	0.012	0.012	4497101
o-Xylene	ug	<0.015	<0.015	<0.015	0.015	0.015	4497101
Bromoform	ug	<0.014	<0.014	<0.014	0.014	0.014	4497101
Surrogate Recovery (%)							
Bromofluorobenzene	%	98	99	100	N/A	N/A	4497101
D10-Ethylbenzene (FS)	%	123	99	99	N/A	N/A	4497101
D4-1,2-Dichloroethane	%	106	108	107	N/A	N/A	4497101
D8-Toluene	%	103	103	103	N/A	N/A	4497101

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

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ489		CIQ490			
Sampling Date		2016/05/05		2016/05/05			
	UNITS	16-21656-VOST 24A/B	QC Batch	16-21656-VOST 26A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	0.033	4497101	<0.020	0.020	0.020	4499696
Vinyl Chloride	ug	<0.013	4497101	<0.013	0.013	0.013	4499696
Bromomethane	ug	<0.015	4497101	<0.015	0.015	0.015	4499696
Trichlorofluoromethane (FREON 11)	ug	<0.010	4497101	<0.010	0.010	0.010	4499696
Acetone (2-Propanone)	ug	0.074	4497101	0.061	0.045	0.025	4499696
1,1-Dichloroethylene	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Methylene Chloride(Dichloromethane)	ug	<0.019	4497101	<0.019	0.019	0.020	4499696
trans-1,2-Dichloroethylene	ug	<0.010	4497101	<0.010	0.010	0.010	4499696
Chloroform	ug	0.026	4497101	0.025	0.011	0.011	4499696
1,2-Dichloroethane	ug	<0.0070	4497101	<0.0070	0.0070	0.0070	4499696
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	4497101	<0.036	0.036	0.036	4499696
1,1,1-Trichloroethane	ug	<0.014	4497101	<0.014	0.014	0.014	4499696
Carbon Tetrachloride	ug	<0.016	4497101	<0.016	0.016	0.016	4499696
Benzene	ug	0.0320	4497101	0.0236	0.0090	0.0090	4499696
1,1,2-Trichloroethane	ug	<0.016	4497101	<0.016	0.016	0.016	4499696
1,2-Dichloropropane	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Trichloroethylene	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Bromodichloromethane	ug	0.024	4497101	0.023	0.011	0.011	4499696
Dibromochloromethane	ug	0.0099	4497101	0.0103	0.0090	0.0090	4499696
Toluene	ug	0.039	4497101	0.026	0.014	0.014	4499696
Ethylene Dibromide	ug	<0.010	4497101	<0.010	0.010	0.010	4499696
Tetrachloroethylene	ug	<0.018	4497101	0.026	0.018	0.018	4499696
Chlorobenzene	ug	<0.011	4497101	<0.011	0.011	0.011	4499696
Ethylbenzene	ug	<0.014	4497101	<0.014	0.014	0.014	4499696
m / p-Xylene	ug	<0.015	4497101	<0.015	0.015	0.015	4499696
Styrene	ug	<0.012	4497101	<0.012	0.012	0.012	4499696
o-Xylene	ug	<0.015	4497101	<0.015	0.015	0.015	4499696
Bromoform	ug	<0.014	4497101	<0.014	0.014	0.014	4499696
Surrogate Recovery (%)							
Bromofluorobenzene	%	101	4497101	101	N/A	N/A	4499696
D10-Ethylbenzene (FS)	%	102	4497101	110	N/A	N/A	4499696
D4-1,2-Dichloroethane	%	110	4497101	106	N/A	N/A	4499696
D8-Toluene	%	102	4497101	105	N/A	N/A	4499696

RDL = Reportable Detection Limit
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N/A = Not Applicable

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ491	CIQ492			
Sampling Date		2016/05/05	2016/05/05			
	UNITS	16-21656-VOST 27A/B	16-21656-VOST 28A/B	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	<0.020	0.020	0.020	4499696
Vinyl Chloride	ug	<0.013	<0.013	0.013	0.013	4499696
Bromomethane	ug	<0.015	<0.015	0.015	0.015	4499696
Trichlorofluoromethane (FREON 11)	ug	<0.010	<0.010	0.010	0.010	4499696
Acetone (2-Propanone)	ug	0.062	0.046	0.045	0.025	4499696
1,1-Dichloroethylene	ug	<0.011	<0.011	0.011	0.011	4499696
Methylene Chloride(Dichloromethane)	ug	<0.019	<0.019	0.019	0.020	4499696
trans-1,2-Dichloroethylene	ug	<0.010	<0.010	0.010	0.010	4499696
Chloroform	ug	0.028	0.023	0.011	0.011	4499696
1,2-Dichloroethane	ug	<0.0070	<0.0070	0.0070	0.0070	4499696
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	<0.036	0.036	0.036	4499696
1,1,1-Trichloroethane	ug	<0.014	<0.014	0.014	0.014	4499696
Carbon Tetrachloride	ug	<0.016	<0.016	0.016	0.016	4499696
Benzene	ug	0.0223	0.0239	0.0090	0.0090	4499696
1,1,2-Trichloroethane	ug	<0.016	<0.016	0.016	0.016	4499696
1,2-Dichloropropane	ug	<0.011	<0.011	0.011	0.011	4499696
Trichloroethylene	ug	<0.011	<0.011	0.011	0.011	4499696
Bromodichloromethane	ug	0.024	0.021	0.011	0.011	4499696
Dibromochloromethane	ug	0.0116	<0.0090	0.0090	0.0090	4499696
Toluene	ug	0.028	0.026	0.014	0.014	4499696
Ethylene Dibromide	ug	<0.010	<0.010	0.010	0.010	4499696
Tetrachloroethylene	ug	0.018	<0.018	0.018	0.018	4499696
Chlorobenzene	ug	<0.011	<0.011	0.011	0.011	4499696
Ethylbenzene	ug	<0.014	<0.014	0.014	0.014	4499696
m / p-Xylene	ug	<0.015	<0.015	0.015	0.015	4499696
Styrene	ug	<0.012	<0.012	0.012	0.012	4499696
o-Xylene	ug	<0.015	<0.015	0.015	0.015	4499696
Bromoform	ug	<0.014	<0.014	0.014	0.014	4499696
Surrogate Recovery (%)						
Bromofluorobenzene	%	99	98	N/A	N/A	4499696
D10-Ethylbenzene (FS)	%	112	109	N/A	N/A	4499696
D4-1,2-Dichloroethane	%	109	110	N/A	N/A	4499696
D8-Toluene	%	103	103	N/A	N/A	4499696

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

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Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ445 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 10A/B FB **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

Maxxam ID: CIQ464 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 30A/B TB **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

Maxxam ID: CIQ465 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 1A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

Maxxam ID: CIQ466 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 2A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4501300	N/A	2016/05/17	Yujie Yan

Maxxam ID: CIQ467 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 3A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4501300	N/A	2016/05/17	Yujie Yan

Maxxam ID: CIQ468 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 4A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4501300	N/A	2016/05/17	Yujie Yan

Maxxam ID: CIQ469 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 5A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4501300	N/A	2016/05/17	Yujie Yan

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Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ470 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 6A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4501300	N/A	2016/05/17	Yujie Yan

Maxxam ID: CIQ472 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 7A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ473 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 8A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

Maxxam ID: CIQ474 **Collected:** 2016/05/10
Sample ID: 16-21656-VOST 9A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

Maxxam ID: CIQ475 **Collected:** 2016/05/04
Sample ID: 16-21656-VOST 21A/B FB **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ476 **Collected:** 2016/05/05
Sample ID: 16-21656-VOST 15A/B FB **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ477 **Collected:** 2016/05/04
Sample ID: 16-21656-VOST 16A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ485 **Collected:** 2016/05/04
Sample ID: 16-21656-VOST 17A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ486 **Collected:** 2016/05/04
Sample ID: 16-21656-VOST 18A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ487 **Collected:** 2016/05/05
Sample ID: 16-21656-VOST 22A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ488 **Collected:** 2016/05/05
Sample ID: 16-21656-VOST 23A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ489 **Collected:** 2016/05/05
Sample ID: 16-21656-VOST 24A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4497101	N/A	2016/05/13	Yujie Yan

Maxxam ID: CIQ490 **Collected:** 2016/05/05
Sample ID: 16-21656-VOST 26A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

Maxxam ID: CIQ491 **Collected:** 2016/05/05
Sample ID: 16-21656-VOST 27A/B **Shipped:**
Matrix: Stack Sampling Train **Received:** 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ492
Sample ID: 16-21656-VOST 28A/B
Matrix: Stack Sampling Train

Collected: 2016/05/05
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4499696	N/A	2016/05/16	Yujie Yan

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GENERAL COMMENTS

Report revised to include results for chlorobenzene and 1,1,2-trichloroethane. **Results relate only to the items tested.**

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4497101	YYA	Spiked Blank	Bromofluorobenzene	2016/05/13		99	%	43 - 131
			D10-Ethylbenzene (FS)	2016/05/13		98	%	47 - 157
			D4-1,2-Dichloroethane	2016/05/13		98	%	64 - 133
			D8-Toluene	2016/05/13		101	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2016/05/13		134	%	50 - 150
			Vinyl Chloride	2016/05/13		106	%	50 - 150
			Bromomethane	2016/05/13		108	%	50 - 150
			Trichlorofluoromethane (FREON 11)	2016/05/13		104	%	50 - 150
			Acetone (2-Propanone)	2016/05/13		83	%	50 - 150
			1,1-Dichloroethylene	2016/05/13		106	%	50 - 150
			Methylene Chloride(Dichloromethane)	2016/05/13		105	%	50 - 150
			trans-1,2-Dichloroethylene	2016/05/13		112	%	50 - 150
			Chloroform	2016/05/13		101	%	50 - 150
			1,2-Dichloroethane	2016/05/13		102	%	50 - 150
			Methyl Ethyl Ketone (2-Butanone)	2016/05/13		111	%	50 - 150
			1,1,1-Trichloroethane	2016/05/13		100	%	50 - 150
			Carbon Tetrachloride	2016/05/13		101	%	50 - 150
			Benzene	2016/05/13		100	%	50 - 150
			1,1,2-Trichloroethane	2016/05/13		107	%	50 - 150
			1,2-Dichloropropane	2016/05/13		102	%	50 - 150
			Trichloroethylene	2016/05/13		105	%	50 - 150
			Bromodichloromethane	2016/05/13		102	%	50 - 150
			Dibromochloromethane	2016/05/13		105	%	50 - 150
			Toluene	2016/05/13		103	%	50 - 150
			Ethylene Dibromide	2016/05/13		106	%	50 - 150
			Tetrachloroethylene	2016/05/13		106	%	50 - 150
			Chlorobenzene	2016/05/13		102	%	50 - 150
			Ethylbenzene	2016/05/13		102	%	50 - 150
			m / p-Xylene	2016/05/13		103	%	50 - 150
			Styrene	2016/05/13		102	%	50 - 150
			o-Xylene	2016/05/13		103	%	50 - 150
			Bromoform	2016/05/13		111	%	50 - 150
4497101	YYA	Method Blank	Bromofluorobenzene	2016/05/13		99	%	43 - 131
			D10-Ethylbenzene (FS)	2016/05/13		105	%	47 - 157
			D4-1,2-Dichloroethane	2016/05/13		106	%	64 - 133
			D8-Toluene	2016/05/13		104	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2016/05/13	<0.020		ug	
			Vinyl Chloride	2016/05/13	<0.013		ug	
			Bromomethane	2016/05/13	<0.015		ug	
			Trichlorofluoromethane (FREON 11)	2016/05/13	<0.010		ug	
			Acetone (2-Propanone)	2016/05/13	<0.045		ug	
			1,1-Dichloroethylene	2016/05/13	<0.011		ug	
			Methylene Chloride(Dichloromethane)	2016/05/13	<0.019		ug	
			trans-1,2-Dichloroethylene	2016/05/13	<0.010		ug	
			Chloroform	2016/05/13	<0.011		ug	
			1,2-Dichloroethane	2016/05/13	<0.0070		ug	
			Methyl Ethyl Ketone (2-Butanone)	2016/05/13	<0.036		ug	
			1,1,1-Trichloroethane	2016/05/13	<0.014		ug	
			Carbon Tetrachloride	2016/05/13	<0.016		ug	
			Benzene	2016/05/13	<0.0090		ug	
			1,1,2-Trichloroethane	2016/05/13	<0.016		ug	
			1,2-Dichloropropane	2016/05/13	<0.011		ug	

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Trichloroethylene	2016/05/13	<0.011		ug	
			Bromodichloromethane	2016/05/13	<0.011		ug	
			Dibromochloromethane	2016/05/13	<0.0090		ug	
			Toluene	2016/05/13	<0.014		ug	
			Ethylene Dibromide	2016/05/13	<0.010		ug	
			Tetrachloroethylene	2016/05/13	<0.018		ug	
			Chlorobenzene	2016/05/13	<0.011		ug	
			Ethylbenzene	2016/05/13	<0.014		ug	
			m / p-Xylene	2016/05/13	<0.015		ug	
			Styrene	2016/05/13	<0.012		ug	
			o-Xylene	2016/05/13	<0.015		ug	
			Bromoform	2016/05/13	<0.014		ug	
4499696	YYA	Spiked Blank	Bromofluorobenzene	2016/05/16		99	%	43 - 131
			D10-Ethylbenzene (FS)	2016/05/16		93	%	47 - 157
			D4-1,2-Dichloroethane	2016/05/16		100	%	64 - 133
			D8-Toluene	2016/05/16		101	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2016/05/16		120	%	50 - 150
			Vinyl Chloride	2016/05/16		99	%	50 - 150
			Bromomethane	2016/05/16		102	%	50 - 150
			Trichlorofluoromethane (FREON 11)	2016/05/16		99	%	50 - 150
			Acetone (2-Propanone)	2016/05/16		78	%	50 - 150
			1,1-Dichloroethylene	2016/05/16		100	%	50 - 150
			Methylene Chloride(Dichloromethane)	2016/05/16		97	%	50 - 150
			trans-1,2-Dichloroethylene	2016/05/16		105	%	50 - 150
			Chloroform	2016/05/16		95	%	50 - 150
			1,2-Dichloroethane	2016/05/16		96	%	50 - 150
			Methyl Ethyl Ketone (2-Butanone)	2016/05/16		105	%	50 - 150
			1,1,1-Trichloroethane	2016/05/16		95	%	50 - 150
			Carbon Tetrachloride	2016/05/16		94	%	50 - 150
			Benzene	2016/05/16		94	%	50 - 150
			1,1,2-Trichloroethane	2016/05/16		99	%	50 - 150
			1,2-Dichloropropane	2016/05/16		96	%	50 - 150
			Trichloroethylene	2016/05/16		97	%	50 - 150
			Bromodichloromethane	2016/05/16		97	%	50 - 150
			Dibromochloromethane	2016/05/16		98	%	50 - 150
			Toluene	2016/05/16		96	%	50 - 150
			Ethylene Dibromide	2016/05/16		100	%	50 - 150
			Tetrachloroethylene	2016/05/16		98	%	50 - 150
			Chlorobenzene	2016/05/16		96	%	50 - 150
			Ethylbenzene	2016/05/16		96	%	50 - 150
			m / p-Xylene	2016/05/16		96	%	50 - 150
			Styrene	2016/05/16		95	%	50 - 150
			o-Xylene	2016/05/16		97	%	50 - 150
			Bromoform	2016/05/16		106	%	50 - 150
4499696	YYA	Method Blank	Bromofluorobenzene	2016/05/16		98	%	43 - 131
			D10-Ethylbenzene (FS)	2016/05/16		94	%	47 - 157
			D4-1,2-Dichloroethane	2016/05/16		106	%	64 - 133
			D8-Toluene	2016/05/16		103	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2016/05/16	<0.020		ug	
			Vinyl Chloride	2016/05/16	<0.013		ug	
			Bromomethane	2016/05/16	<0.015		ug	
			Trichlorofluoromethane (FREON 11)	2016/05/16	<0.010		ug	

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Acetone (2-Propanone)	2016/05/16	<0.045		ug	
			1,1-Dichloroethylene	2016/05/16	<0.011		ug	
			Methylene Chloride(Dichloromethane)	2016/05/16	<0.019		ug	
			trans-1,2-Dichloroethylene	2016/05/16	<0.010		ug	
			Chloroform	2016/05/16	<0.011		ug	
			1,2-Dichloroethane	2016/05/16	<0.0070		ug	
			Methyl Ethyl Ketone (2-Butanone)	2016/05/16	<0.036		ug	
			1,1,1-Trichloroethane	2016/05/16	<0.014		ug	
			Carbon Tetrachloride	2016/05/16	<0.016		ug	
			Benzene	2016/05/16	<0.0090		ug	
			1,1,2-Trichloroethane	2016/05/16	<0.016		ug	
			1,2-Dichloropropane	2016/05/16	<0.011		ug	
			Trichloroethylene	2016/05/16	<0.011		ug	
			Bromodichloromethane	2016/05/16	<0.011		ug	
			Dibromochloromethane	2016/05/16	<0.0090		ug	
			Toluene	2016/05/16	<0.014		ug	
			Ethylene Dibromide	2016/05/16	<0.010		ug	
			Tetrachloroethylene	2016/05/16	<0.018		ug	
			Chlorobenzene	2016/05/16	<0.011		ug	
			Ethylbenzene	2016/05/16	<0.014		ug	
			m / p-Xylene	2016/05/16	<0.015		ug	
			Styrene	2016/05/16	<0.012		ug	
			o-Xylene	2016/05/16	<0.015		ug	
			Bromoform	2016/05/16	<0.014		ug	
4501300	YYA	Spiked Blank	Bromofluorobenzene	2016/05/17		100	%	43 - 131
			D10-Ethylbenzene (FS)	2016/05/17		99	%	47 - 157
			D4-1,2-Dichloroethane	2016/05/17		101	%	64 - 133
			D8-Toluene	2016/05/17		100	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2016/05/17		133	%	50 - 150
			Vinyl Chloride	2016/05/17		108	%	50 - 150
			Bromomethane	2016/05/17		112	%	50 - 150
			Trichlorofluoromethane (FREON 11)	2016/05/17		112	%	50 - 150
			Acetone (2-Propanone)	2016/05/17		93	%	50 - 150
			1,1-Dichloroethylene	2016/05/17		111	%	50 - 150
			Methylene Chloride(Dichloromethane)	2016/05/17		109	%	50 - 150
			trans-1,2-Dichloroethylene	2016/05/17		118	%	50 - 150
			Chloroform	2016/05/17		104	%	50 - 150
			1,2-Dichloroethane	2016/05/17		106	%	50 - 150
			Methyl Ethyl Ketone (2-Butanone)	2016/05/17		118	%	50 - 150
			1,1,1-Trichloroethane	2016/05/17		104	%	50 - 150
			Carbon Tetrachloride	2016/05/17		105	%	50 - 150
			Benzene	2016/05/17		101	%	50 - 150
			1,1,2-Trichloroethane	2016/05/17		106	%	50 - 150
			1,2-Dichloropropane	2016/05/17		102	%	50 - 150
			Trichloroethylene	2016/05/17		103	%	50 - 150
			Bromodichloromethane	2016/05/17		105	%	50 - 150
			Dibromochloromethane	2016/05/17		107	%	50 - 150
			Toluene	2016/05/17		102	%	50 - 150
			Ethylene Dibromide	2016/05/17		107	%	50 - 150
			Tetrachloroethylene	2016/05/17		104	%	50 - 150
			Chlorobenzene	2016/05/17		103	%	50 - 150
			Ethylbenzene	2016/05/17		103	%	50 - 150

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Maxxam Job #: B696111
Report Date: 2016/05/24

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			m / p-Xylene	2016/05/17		104	%	50 - 150
			Styrene	2016/05/17		102	%	50 - 150
			o-Xylene	2016/05/17		104	%	50 - 150
			Bromoform	2016/05/17		112	%	50 - 150
4501300	YYA	Method Blank	Bromofluorobenzene	2016/05/17		99	%	43 - 131
			D10-Ethylbenzene (FS)	2016/05/17		97	%	47 - 157
			D4-1,2-Dichloroethane	2016/05/17		107	%	64 - 133
			D8-Toluene	2016/05/17		103	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2016/05/17	<0.020		ug	
			Vinyl Chloride	2016/05/17	<0.013		ug	
			Bromomethane	2016/05/17	<0.015		ug	
			Trichlorofluoromethane (FREON 11)	2016/05/17	<0.010		ug	
			Acetone (2-Propanone)	2016/05/17	<0.045		ug	
			1,1-Dichloroethylene	2016/05/17	<0.011		ug	
			Methylene Chloride(Dichloromethane)	2016/05/17	<0.019		ug	
			trans-1,2-Dichloroethylene	2016/05/17	<0.010		ug	
			Chloroform	2016/05/17	<0.011		ug	
			1,2-Dichloroethane	2016/05/17	<0.0070		ug	
			Methyl Ethyl Ketone (2-Butanone)	2016/05/17	<0.036		ug	
			1,1,1-Trichloroethane	2016/05/17	<0.014		ug	
			Carbon Tetrachloride	2016/05/17	<0.016		ug	
			Benzene	2016/05/17	<0.0090		ug	
			1,1,2-Trichloroethane	2016/05/17	<0.016		ug	
			1,2-Dichloropropane	2016/05/17	<0.011		ug	
			Trichloroethylene	2016/05/17	<0.011		ug	
			Bromodichloromethane	2016/05/17	<0.011		ug	
			Dibromochloromethane	2016/05/17	<0.0090		ug	
			Toluene	2016/05/17	<0.014		ug	
			Ethylene Dibromide	2016/05/17	<0.010		ug	
			Tetrachloroethylene	2016/05/17	<0.018		ug	
			Chlorobenzene	2016/05/17	<0.011		ug	
			Ethylbenzene	2016/05/17	<0.014		ug	
			m / p-Xylene	2016/05/17	<0.015		ug	
			Styrene	2016/05/17	<0.012		ug	
			o-Xylene	2016/05/17	<0.015		ug	
			Bromoform	2016/05/17	<0.014		ug	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

VALIDATION SIGNATURE PAGE

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

Maureen Smith

Maureen Smith, Supervisor, Volatiles

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.

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: Method Blank

Field ID#: Method Blank

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ445

Field ID#: 16-21656-VOST 10A/B FB

Concentration Units
ug

Number of TICs found:_____0_____

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ464

Field ID#: 16-21656-VOST 30A/B TB

Concentration Units
ug

Number of TICs found:_____0_____

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Maxxam Analytical

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ465

Field ID#: 16-21656-VOST 1A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ466

Field ID#: 16-21656-VOST 2A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ467

Field ID#: 16-21656-VOST 3A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ468

Field ID#: 16-21656-VOST 4A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ469

Field ID#: 16-21656-VOST 5A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ470

Field ID#: 16-21656-VOST 6A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ472

Field ID#: 16-21656-VOST 7A/B

Concentration Units
ug

Number of TICs found:_____0_____

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ473

Field ID#: 16-21656-VOST 8A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ474

Field ID#: 16-21656-VOST 9A/B

Concentration Units
ug

Number of TICs found:_____0_____

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ475

Field ID#: 16-21656-VOST 21A/B FB

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ476

Field ID#: 16-21656-VOST 15A/B FB

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ477

Field ID#: 16-21656-VOST 16A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ485

Field ID#: 16-21656-VOST 17A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ486

Field ID#: 16-21656-VOST 18A/B

Concentration Units
ug

Number of TICs found:_____0_____

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

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Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ487

Field ID#: 16-21656-VOST 22A/B

Concentration Units
ug

Number of TICs found:_____0_____

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ488

Field ID#: 16-21656-VOST 23A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

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Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ489

Field ID#: 16-21656-VOST 24A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ490

Field ID#: 16-21656-VOST 26A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ491

Field ID#: 16-21656-VOST 27A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: CIQ492

Field ID#: 16-21656-VOST 28A/B

Number of TICs found:_____0_____

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.025ug			
2.		Isopropylbenzene < 0.025ug			
3.		1,3,5-Trimethylbenzene < 0.025 ug			
4.		Trichlorotrifluoroethane < 0.025ug			

APPENDIX 18

Aldehydes Recovery Data Sheets
(8 page)

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	1
Test Location:	APC #1
Test Date:	MAY 9, 2016

Impingers 1, 2, 3 & 4	

Sample ID:	16-21656-M430-1

Impinger 1 (15 ml DNPH)	
Empty Mass:	101.5
Initial Mass:	115.9
Final Mass:	119.9
Gain:	4.0 ✓

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	127.0
Mass with impingers:	157.1
With DNPH rinse:	171.2
With Hexane rinse:	183.7
Total sample:	56.7 ✓

Impinger 2 (15 ml DNPH)	
Empty Mass:	86.1
Initial Mass:	99.4
Final Mass:	99.4
Gain:	0.0 ✓

Impinger 3 (Empty)	
Initial Mass:	92.7
Final Mass:	92.8
Gain:	0.1 ✓

Impinger 4 (Silica Gel)	
Initial Mass:	113.9
Final Mass:	114.1
Gain:	0.2 ✓

Box 3

Total Moisture Gain:	4.3 ✓

Train Loaded By:	DM
Train Recovered By:	DM
Recovery Witnessed By:	—
Date:	MAY 9, 2016

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	2
Test Location:	APC 1
Test Date:	MAY 9, 2016

Impingers 1, 2, 3 & 4

Sample ID: 16-21656-M430-2

Impinger 1 (15 ml DNPH)	
Empty Mass:	89.1
Initial Mass:	102.8
Final Mass:	107.1
Gain:	4.3 ✓

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	126.8
Mass with impingers:	156.4
With DNPH rinse:	179.4
With Hexane rinse:	199.4
Total sample:	72.6

Impinger 2 (15 ml DNPH)	
Empty Mass:	90.8
Initial Mass:	103.8
Final Mass:	103.8 ✓
Gain:	0.0

Impinger 3 (Empty)	
Initial Mass:	103.7
Final Mass:	103.7
Gain:	0.0 ✓

Impinger 4 (Silica Gel)	
Initial Mass:	126.6
Final Mass:	126.7
Gain:	0.1 ✓

Total Moisture Gain: 4.4 ✓

Train Loaded By:	[illegible]
Train Recovered By:	[illegible]
Recovery Witnessed By:	
Date:	MAY 9, 2016

Box 2

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	3
Test Location:	APC 1
Test Date:	MAY 9 2016

Impingers 1, 2, 3 & 4	

Sample ID:	16-21656-M430-3

Impinger 1 (15 ml DNPH)	
Empty Mass:	101.9
Initial Mass:	116.7
Final Mass:	119.9
Gain:	3.2 ✓

Imp. 1, 2 and 3 plus rinsings	
Colour:	Yellow
Bottle empty:	127.4
Mass with impingers:	155.5
With DNPH rinse:	178.5
With Hexane rinse:	196.4
Total sample:	69.0 ✓

Impinger 2 (15 ml DNPH)	
Empty Mass:	86.4
Initial Mass:	98.1
Final Mass:	97.9
Gain:	-0.2 ✓

Impinger 3 (Empty)	
Initial Mass:	93.0
Final Mass:	93.0
Gain:	0 ✓

Impinger 4 (Silica Gel)	
Initial Mass:	114.1
Final Mass:	114.7
Gain:	0.6 ✓

Total Moisture Gain:	3.6 ✓

Train Loaded By:	DW
Train Recovered By:	DW
Recovery Witnessed By:	
Date:	MAY 9 2016

Box 3

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	BLANK
Test Location:	APC #~~2~~ 1
Test Date:	MAY ~~8~~ 9 2016

Impingers 1, 2, 3 & 4	

Impinger 1 (15 ml DNPH)	
Empty Mass:	101.4
Initial Mass:	114.4
Final Mass:	114.4
Gain:	–

Impinger 2 (15 ml DNPH)	
Empty Mass:	86.2
Initial Mass:	100.1
Final Mass:	100.1
Gain:	–

Impinger 3 (Empty)	
Initial Mass:	92.7
Final Mass:	92.7
Gain:	–

Impinger 4 (Silica Gel)	
Initial Mass:	113.9
Final Mass:	113.9
Gain:	–

Sample ID:	

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	126.3
Mass with impingers:	153.2
With DNPH rinse:	177.7
With Hexane rinse:	192.2
Total sample:	65.9 ✓

Total Moisture Gain:	–

Box 3

Train Loaded By:	[signature]
Train Recovered By:	[signature]
Recovery Witnessed By:	–
Date:	MAY ~~8~~ 9 2016

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	1
Test Location:	UNIT 2
Test Date:	MAY 6, 2016

Impingers 1, 2, 3 & 4

Impinger 1 (15 ml DNPH)	
Empty Mass:	101.8
Initial Mass:	113.6
Final Mass:	116.9
Gain:	3.3

Impinger 2 (15 ml DNPH)	
Empty Mass:	86.1
Initial Mass:	98.3
Final Mass:	97.9
Gain:	-0.4

Impinger 3 (Empty)	
Initial Mass:	92.7
Final Mass:	92.8
Gain:	0.1

Impinger 4 (Silica Gel)	
Initial Mass:	112.3
Final Mass:	113.3
Gain:	1.0

Sample ID:	4

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	127.7
Mass with impingers:	154.0
With DNPH rinse:	167.6
With Hexane rinse:	179.9
Total sample:	52.2

Box 3

Total Moisture Gain:	4.0

Train Loaded By:	[illegible]
Train Recovered By:	[illegible]
Recovery Witnessed By:	—
Date:	MAY 6, 2016

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	2
Test Location:	UNIT 2
Test Date:	MAY 6, 2016

Impingers 1, 2, 3 & 4

Sample ID:	5

Impinger 1 (15 ml DNPH)	
Empty Mass:	89.7
Initial Mass:	99.2
Final Mass:	102.8
Gain:	3.6

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	127.4
Mass with impingers:	149.9
With DNPH rinse:	160.7
With Hexane rinse:	175.4
Total sample:	48.0

Impinger 2 (15 ml DNPH)	
Empty Mass:	91.4
Initial Mass:	101.3
Final Mass:	100.8
Gain:	-0.5

Impinger 3 (Empty)	
Initial Mass:	103.6
Final Mass:	103.6
Gain:	0.0

Impinger 4 (Silica Gel)	
Initial Mass:	125.4
Final Mass:	126.7
Gain:	1.3

Box 2

Total Moisture Gain:	4.4

Train Loaded By:	[signature]
Train Recovered By:	[signature]
Recovery Witnessed By:	
Date:	MAY 6, 2016

Method 430 Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	21656
Test No.:	3
Test Location:	UNIT 2
Test Date:	MAY 6, 2016

Impingers 1, 2, 3 & 4

Sample ID: 16-21656-M430-6

Impinger 1 (15 ml DNPH)	
Empty Mass:	101.9
Initial Mass:	116.0
Final Mass:	119.5
Gain:	3.5

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	127.5
Mass with impingers:	155.0
With DNPH rinse:	173.5
With Hexane rinse:	189.5
Total sample:	62.0

Impinger 2 (15 ml DNPH)	
Empty Mass:	86.5
Initial Mass:	97.6
Final Mass:	97.3
Gain:	-0.3

Impinger 3 (Empty)	
Initial Mass:	93.1
Final Mass:	92.9
Gain:	-0.2

Box 3

Impinger 4 (Silica Gel)	
Initial Mass:	113.3
Final Mass:	114.1
Gain:	0.8

Total Moisture Gain:	3.8

Train Loaded By:	[signature]
Train Recovered By:	[signature]
Recovery Witnessed By:	
Date:	MAY 6, 2016

Method 430 Train Recovery Data Sheet

Client:	**Covanta DYEC**
Project No.:	**21656**
Test No.:	BLANK
Test Location:	UNIT 2
Test Date:	MAY 6, 2016

Impingers 1, 2, 3 & 4

Sample ID: 16-21656-M430-7

Impinger 1 (15 ml DNPH)	
Empty Mass:	89.5
Initial Mass:	98.8
Final Mass:	98.8
Gain:	–

Imp. 1, 2 and 3 plus rinsings	
Colour:	YELLOW
Bottle empty:	127.6
Mass with impingers:	146.4
With DNPH rinse:	163.6
With Hexane rinse:	180.0
Total sample:	52.4

Impinger 2 (15 ml DNPH)	
Empty Mass:	91.3
Initial Mass:	100.6
Final Mass:	100.6
Gain:	–

Impinger 3 (Empty)	
Initial Mass:	103.6
Final Mass:	103.6
Gain:	–

Box 2

Impinger 4 (Silica Gel)	
Initial Mass:	125.4
Final Mass:	125.4
Gain:	–

Total Moisture Gain: –

Train Loaded By:	[signature]
Train Recovered By:	[signature]
Recovery Witnessed By:	–
Date:	MAY 6, 2016

APPENDIX 19

Aldehydes Analytical Reports
(7 pages)

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 21656-J2227
Your Project #: 21656
Site Location: COVANTA

Attention:Chris Belore

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/05/19
Report #: R3997957
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B696182
Received: 2016/05/12, 12:30

Sample Matrix: Stack Sampling Train
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Aldehydes + Ketones in Air	9	2016/05/13	2016/05/16	BRL SOP-00229	EPA 8315/M0011 m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
19 May 2016 16:43:56 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==
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Maxxam
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Maxxam Job #: B696182
Report Date: 2016/05/19

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

CARBONYL COMPOUNDS BY HPLC (STACK SAMPLING TRAIN)

Maxxam ID		CIQ742	CIQ743	CIQ744	CIQ745			
Sampling Date		2016/05/09	2016/05/09	2016/05/09	2016/05/09			
	UNITS	16-21656-M430 BLANK	16-21656-M430 -1	16-21656-M430 -2	16-21656-M430 -3	RDL	MDL	QC Batch
Formaldehyde (Methanal)	ug/Tot.	0.6	2.2	1.8	1.3	0.2	0.1	4497045
Acetaldehyde (Ethanal)	ug/Tot.	<2	2	2	<2	2	0.4	4497045
Acrolein	ug/Tot.	<2	<2	<2	<2	2	0.4	4497045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CIQ746	CIQ747	CIQ748	CIQ749			
Sampling Date		2016/05/06	2016/05/06	2016/05/06	2016/05/06			
	UNITS	16-21656-M430 -7	16-21656-M430 -4	16-21656-M430 -5	16-21656-M430 -6	RDL	MDL	QC Batch
Formaldehyde (Methanal)	ug/Tot.	0.3	0.9	0.8	0.7	0.2	0.1	4497045
Acetaldehyde (Ethanal)	ug/Tot.	<2	<2	<2	<2	2	0.4	4497045
Acrolein	ug/Tot.	<2	<2	<2	<2	2	0.4	4497045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CIQ750			
Sampling Date					
	UNITS	16-21656-M430 -8	RDL	MDL	QC Batch
Formaldehyde (Methanal)	ug/Tot.	9.6	0.2	0.1	4497045
Acetaldehyde (Ethanal)	ug/Tot.	9	2	0.4	4497045
Acrolein	ug/Tot.	3	2	0.4	4497045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam
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Maxxam Job #: B696182
Report Date: 2016/05/19

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ742
Sample ID: 16-21656-M430 BLANK
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ743
Sample ID: 16-21656-M430 -1
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ744
Sample ID: 16-21656-M430 -2
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ745
Sample ID: 16-21656-M430 -3
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ746
Sample ID: 16-21656-M430 -7
Matrix: Stack Sampling Train

Collected: 2016/05/06
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ747
Sample ID: 16-21656-M430 -4
Matrix: Stack Sampling Train

Collected: 2016/05/06
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ748
Sample ID: 16-21656-M430 -5
Matrix: Stack Sampling Train

Collected: 2016/05/06
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

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Maxxam Job #: B696182
Report Date: 2016/05/19

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ749
Sample ID: 16-21656-M430 -6
Matrix: Stack Sampling Train

Collected: 2016/05/06
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

Maxxam ID: CIQ750
Sample ID: 16-21656-M430 -8
Matrix: Stack Sampling Train

Collected:
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Aldehydes + Ketones in Air	LC/UV	4497045	2016/05/13	2016/05/16	Dennis Boodram

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Maxxam Job #: B696182
Report Date: 2016/05/19

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

GENERAL COMMENTS

BLANK SPIKE: ACROLEIN RECOVERY
The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

Sample CIQ750-01 : Recovery for Trip Spike: Formaldehyde 95.6% ; Acetaldehyde 93.0% ; Acrolein 28.8%
Samples have been corrected for desorption efficiencies if average percent recoveries are less than 80% (does not apply to gravimetric and inorganic analysis).

Results relate only to the items tested.

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Maxxam
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Maxxam Job #: B696182
Report Date: 2016/05/19

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4497045	DEO	Spiked Blank	Formaldehyde (Methanal)	2016/05/16		97	%	N/A
			Acetaldehyde (Ethanal)	2016/05/16		90	%	N/A
			Acrolein	2016/05/16		41	%	N/A
4497045	DEO	Spiked Blank DUP	Formaldehyde (Methanal)	2016/05/16		101	%	N/A
			Acetaldehyde (Ethanal)	2016/05/16		93	%	N/A
			Acrolein	2016/05/16		23	%	N/A
4497045	DEO	RPD	Formaldehyde (Methanal)	2016/05/16	3.1		%	30
			Acetaldehyde (Ethanal)	2016/05/16	2.9		%	30
			Acrolein	2016/05/16	55 (1)		%	30
4497045	DEO	Method Blank	Formaldehyde (Methanal)	2016/05/16	<0.2		ug/Tot.	
			Acetaldehyde (Ethanal)	2016/05/16	<2		ug/Tot.	
			Acrolein	2016/05/16	<2		ug/Tot.	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam
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Maxxam Job #: B696182
Report Date: 2016/05/19

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VALIDATION SIGNATURE PAGE

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

Karen Nicol

Karen Nicol, Supervisor, Semi-Volatiles

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APPENDIX 20

SVOC and VOST Proof Data
(43 pages)

Maxxam
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Your P.O. #: 21656-J2227
Your Project #: 21656
Site#: MEDIA PREP
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE

Attention:Dan Turton

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/04/26
Report #: R3973234
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B672731
Received: 2016/04/13, 12:53

Sample Matrix: Air Sampling Media
Samples Received: 17

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Chlorobenzenes in MM5 Trains (EPA M0010)	3	2016/04/17	2016/04/18	BRL SOP-00202	In house (M0010)
Chlorobenzenes in MM5 Trains (EPA M0010)	1	2016/04/19	2016/04/22	BRL SOP-00202	In house (M0010)
Chlorophenols in MM5 Trains (EPA M0010)	3	2016/04/16	2016/04/18	BRL SOP-00204	In house (M0010)
Chlorophenols in MM5 Trains (EPA M0010)	1	2016/04/19	2016/04/22	BRL SOP-00204	In house (M0010)
Dioxins/Furans in Air (Method 23)	3	2016/04/16	2016/04/18	BRL SOP-00404	EPA M23/23A m
Dioxins/Furans in Air (Method 23)	1	2016/04/16	2016/04/23	BRL SOP-00404	EPA M23/23A m
PAH's in MM5 SamplingTrains (CARB429mod)	3	2016/04/17	2016/04/18	BRL SOP-00201	CARB429(ARBM1,M2)mod
PAH's in MM5 SamplingTrains (CARB429mod)	1	2016/04/19	2016/04/23	BRL SOP-00201	CARB429(ARBM1,M2)mod
Particulates/Filter (M5/315/NJATM1/M201)	12	N/A	2016/04/18	BRL SOP-00109	EPA 5/315/NJATM1 m
PCBs in a Sampling Train (1668Amod)	1	2016/04/20	2016/04/23	BRL SOP-00408	EPA 1668A m
PCBs in a Sampling Train (1668Amod)	3	2016/04/26	2016/04/18	BRL SOP-00408	EPA 1668A m
VOST EPA5041A, 8260C for 0030, 0031	1	N/A	2016/04/26	BRL SOP-00302	EPA5041A, 8260C

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
26 Apr 2016 16:56:49 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769

==

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEI796							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF O - R	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng	<0.0030	0.0030	0.10	N/A	0.00010	0.00000030	N/A	4465289
344'5-TetraCB-(81)	ng	<0.0031	0.0031	0.10	N/A	0.00030	0.00000093	N/A	4465289
233'44'-PentaCB-(105)	ng	<0.0028	0.0028	0.10	N/A	0.000030	0.000000084	N/A	4465289
2344'5-PentaCB-(114)	ng	<0.0027	0.0027	0.10	N/A	0.000030	0.000000081	N/A	4465289
23'44'5-PentaCB-(118)	ng	<0.0070 (1)	0.0070	0.10	N/A	0.000030	0.00000021	N/A	4465289
23'44'5'-PentaCB-(123)	ng	<0.0031	0.0031	0.10	N/A	0.000030	0.000000093	N/A	4465289
33'44'5-PentaCB-(126)	ng	<0.0028	0.0028	0.10	N/A	0.10	0.00028	N/A	4465289
HexaCB-(156)+(157)	ng	<0.0041	0.0041	0.20	N/A	0.000030	0.00000012	N/A	4465289
23'44'55'-HexaCB-(167)	ng	<0.0044	0.0044	0.10	N/A	0.000030	0.00000013	N/A	4465289
33'44'55'-HexaCB-(169)	ng	<0.0043	0.0043	0.10	N/A	0.030	0.00013	N/A	4465289
233'44'55'-HeptaCB-(189)	ng	<0.0027	0.0027	0.10	N/A	0.000030	0.000000081	N/A	4465289
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	N/A	0.00041	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5-HexaCB-(156)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5'-HexaCB-(157)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'-PentaCB-(105)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'55'-HexaCB-(167)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2344'5-PentaCB-(114)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'5-PentaCB-(118)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2'344'5-PentaCB-(123)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'55'-HexaCB-(169)	%	50	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'5-PentaCB-(126)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'-TetraCB-(77)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-344'5-TetraCB-(81)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4465289

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam
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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEI797							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF S - V	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng	<0.0029	0.0029	0.10	N/A	0.00010	0.00000029	N/A	4465289
344'5-TetraCB-(81)	ng	<0.0029	0.0029	0.10	N/A	0.00030	0.00000087	N/A	4465289
233'44'-PentaCB-(105)	ng	<0.0029	0.0029	0.10	N/A	0.000030	0.000000087	N/A	4465289
2344'5-PentaCB-(114)	ng	<0.0028	0.0028	0.10	N/A	0.000030	0.000000084	N/A	4465289
23'44'5-PentaCB-(118)	ng	<0.0094	0.0094	0.10	N/A	0.000030	0.00000028	N/A	4465289
23'44'5'-PentaCB-(123)	ng	<0.0031	0.0031	0.10	N/A	0.000030	0.000000093	N/A	4465289
33'44'5-PentaCB-(126)	ng	<0.0028	0.0028	0.10	N/A	0.10	0.00028	N/A	4465289
HexaCB-(156)+(157)	ng	<0.0022	0.0022	0.20	N/A	0.000030	0.000000066	N/A	4465289
23'44'55'-HexaCB-(167)	ng	<0.0024	0.0024	0.10	N/A	0.000030	0.000000072	N/A	4465289
33'44'55'-HexaCB-(169)	ng	<0.0023	0.0023	0.10	N/A	0.030	0.000069	N/A	4465289
233'44'55'-HeptaCB-(189)	ng	<0.0024	0.0024	0.10	N/A	0.000030	0.000000072	N/A	4465289
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	N/A	0.00035	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5-HexaCB-(156)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5'-HexaCB-(157)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'-PentaCB-(105)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'55'-HexaCB-(167)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2344'5-PentaCB-(114)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'5-PentaCB-(118)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2'344'5-PentaCB-(123)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'55'-HexaCB-(169)	%	44	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'5-PentaCB-(126)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'-TetraCB-(77)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-344'5-TetraCB-(81)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	4465289

EDL = Estimated Detection Limit
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N/A = Not Applicable

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEI798							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF W - Z	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng	<0.0024	0.0024	0.10	N/A	0.00010	0.00000024	N/A	4465289
344'5-TetraCB-(81)	ng	<0.0025	0.0025	0.10	N/A	0.00030	0.00000075	N/A	4465289
233'44'-PentaCB-(105)	ng	<0.0054 (1)	0.0054	0.10	N/A	0.000030	0.00000016	N/A	4465289
2344'5-PentaCB-(114)	ng	<0.0021	0.0021	0.10	N/A	0.000030	0.000000063	N/A	4465289
23'44'5-PentaCB-(118)	ng	0.017	0.0021	0.10	N/A	0.000030	0.00000051	N/A	4465289
23'44'5'-PentaCB-(123)	ng	<0.0024	0.0024	0.10	N/A	0.000030	0.000000072	N/A	4465289
33'44'5-PentaCB-(126)	ng	<0.0021	0.0021	0.10	N/A	0.10	0.00021	N/A	4465289
HexaCB-(156)+(157)	ng	<0.0018	0.0018	0.20	N/A	0.000030	0.000000054	N/A	4465289
23'44'55'-HexaCB-(167)	ng	<0.0020	0.0020	0.10	N/A	0.000030	0.000000060	N/A	4465289
33'44'55'-HexaCB-(169)	ng	<0.0019	0.0019	0.10	N/A	0.030	0.000057	N/A	4465289
22'33'44'5-HeptaCB-(170)	ng	<0.0040	0.0040	0.10	N/A	N/A	N/A	N/A	4465289
22'344'55'-HeptaCB-(180)	ng	<0.0037	0.0037	0.10	N/A	N/A	N/A	N/A	4465289
233'44'55'-HeptaCB-(189)	ng	<0.0031	0.0031	0.10	N/A	0.000030	0.000000093	N/A	4465289
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	N/A	0.00027	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5-HexaCB-(156)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5'-HexaCB-(157)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'-PentaCB-(105)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'55'-HexaCB-(167)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2344'5-PentaCB-(114)	%	62	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'5-PentaCB-(118)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2'344'5-PentaCB-(123)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'55'-HexaCB-(169)	%	42	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'5-PentaCB-(126)	%	62	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'-TetraCB-(77)	%	61	N/A	N/A	N/A	N/A	N/A	N/A	4465289

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEI798							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF W - Z	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-344'5-TetraCB-(81)	%	61	N/A	N/A	N/A	N/A	N/A	N/A	4465289

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEI799							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	RESIN PROOF	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng	<0.022	0.022	0.10	N/A	0.00010	0.0000022	N/A	4465289
344'5-TetraCB-(81)	ng	<0.022	0.022	0.10	N/A	0.00030	0.0000066	N/A	4465289
233'44'-PentaCB-(105)	ng	<0.0088	0.0088	0.10	N/A	0.000030	0.00000026	N/A	4465289
2344'5-PentaCB-(114)	ng	<0.0085	0.0085	0.10	N/A	0.000030	0.00000026	N/A	4465289
23'44'5-PentaCB-(118)	ng	<0.0087	0.0087	0.10	N/A	0.000030	0.00000026	N/A	4465289
23'44'5'-PentaCB-(123)	ng	<0.0097	0.0097	0.10	N/A	0.000030	0.00000029	N/A	4465289
33'44'5-PentaCB-(126)	ng	<0.0086	0.0086	0.10	N/A	0.10	0.00086	N/A	4465289
HexaCB-(156)+(157)	ng	<0.0032	0.0032	0.20	N/A	0.000030	0.000000096	N/A	4465289
23'44'55'-HexaCB-(167)	ng	<0.0035	0.0035	0.10	N/A	0.000030	0.00000011	N/A	4465289
33'44'55'-HexaCB-(169)	ng	<0.0035	0.0035	0.10	N/A	0.030	0.00011	N/A	4465289
22'33'44'5-HeptaCB-(170)	ng	<0.011	0.011	0.10	N/A	N/A	N/A	N/A	4465289
22'344'55'-HeptaCB-(180)	ng	<0.0093	0.0093	0.10	N/A	N/A	N/A	N/A	4465289
233'44'55'-HeptaCB-(189)	ng	<0.0063	0.0063	0.10	N/A	0.000030	0.00000019	N/A	4465289
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	N/A	0.00098	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5-HexaCB-(156)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'5'-HexaCB-(157)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-233'44'-PentaCB-(105)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'55'-HexaCB-(167)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2344'5-PentaCB-(114)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-23'44'5-PentaCB-(118)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-2'344'5-PentaCB-(123)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'55'-HexaCB-(169)	%	61	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'5-PentaCB-(126)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-33'44'-TetraCB-(77)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4465289
C13-344'5-TetraCB-(81)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4465289

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

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ORTECH Environmental
Client Project #: 21656
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Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEJ067						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	727	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CEJ068						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	747	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

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ORTECH Environmental
Client Project #: 21656
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Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEJ069						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	760	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CEJ070						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	747	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEJ071						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -5	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	804	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CEJ072						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -6	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	764	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

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ORTECH Environmental
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Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEJ073						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -7	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	719	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CEJ617						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -8	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	785	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

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Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEJ618						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -9	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	750	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

Maxxam ID		CEJ619						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -10	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	792	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

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Your P.O. #: 21656-J2227

RESULTS OF ANALYSES OF AIR SAMPLING MEDIA

Maxxam ID		CEJ620						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -11	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	781	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		CEJ621						
Sampling Date		2016/04/13 14:40			TOXIC EQUIVALENCY		# of	
	UNITS	113MM QUARTZ TARED -12	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Front Half Initial Weight	mg	707	0.30	N/A	N/A	N/A	N/A	4461806
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

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Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

SEMI-VOLATILE ORGANICS BY GC-MS (AIR SAMPLING MEDIA)

Maxxam ID		CEI796	CEI797	CEI798			
Sampling Date		2016/04/13 14:40	2016/04/13 14:40	2016/04/13 14:40			
	UNITS	TRAIN PROOF O - R	TRAIN PROOF S - V	TRAIN PROOF W - Z	RDL	MDL	QC Batch
1-Methylnaphthalene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
1-Methylphenanthrene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
2-Chloronaphthalene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
2-Methylanthracene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
2-Methylnaphthalene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
3-Methylcholanthrene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
7,12-Dimethylbenzo(a)anthracene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
9,10-Dimethylanthracene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
Acenaphthene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Acenaphthylene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Anthracene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Benzo(a)anthracene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Benzo(a)fluorene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
Benzo(a)pyrene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Benzo(b)Anthracene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Benzo(b)fluoranthene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Benzo(b)fluorene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Benzo(e)pyrene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Benzo(g,h,i)perylene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Benzo(k)fluoranthene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Biphenyl	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Chrysene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Coronene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
Dibenz(a,h)anthracene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Dibenzo(a,c) anthracene + Picene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Dibenzo(a,e)pyrene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
Fluoranthene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Fluorene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Indeno(1,2,3-cd)pyrene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
m-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Naphthalene	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
o-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Perylene	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
Phenanthrene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (AIR SAMPLING MEDIA)

Maxxam ID		CEI796	CEI797	CEI798			
Sampling Date		2016/04/13 14:40	2016/04/13 14:40	2016/04/13 14:40			
	UNITS	TRAIN PROOF O - R	TRAIN PROOF S - V	TRAIN PROOF W - Z	RDL	MDL	QC Batch
p-Terphenyl	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Pyrene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
Quinoline	ug	<0.20	<0.20	<0.20	0.20	0.050	4461402
Tetralin	ug	<0.10	<0.10	<0.10	0.10	0.050	4461402
Triphenylene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461402
1,2,3,4-Tetrachlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,2,3,5+1,2,4,5-Tetrachlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,2,3-Trichlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,2,4-Trichlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,2-Dichlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,3,5-Trichlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,3-Dichlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
1,4-Dichlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
Hexachlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
Pentachlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.010	4461399
2,3,4,5-Tetrachlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,3,4,6-Tetrachlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,3,4-Trichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,3,5,6-Tetrachlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,3,5-Trichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,3,6-Trichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,3-Dichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,4 + 2,5-Dichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,4,5-Trichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,4,6-Trichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2,6-Dichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
2-Chlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
3,4,5-Trichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
3,4-Dichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
3,5-Dichlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
3-Chlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
4-Chlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393
Pentachlorophenol	ug	<0.050	<0.050	<0.050	0.050	0.040	4461393

RDL = Reportable Detection Limit
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SEMI-VOLATILE ORGANICS BY GC-MS (AIR SAMPLING MEDIA)

Maxxam ID		CEI796	CEI797	CEI798			
Sampling Date		2016/04/13 14:40	2016/04/13 14:40	2016/04/13 14:40			
	UNITS	TRAIN PROOF O - R	TRAIN PROOF S - V	TRAIN PROOF W - Z	RDL	MDL	QC Batch
Surrogate Recovery (%)							
13C6-Hexachlorobenzene	%	88	87	98	N/A	N/A	4461399
2H3-1,2,4-Trichlorobenzene	%	81	78	92	N/A	N/A	4461399
2H4-1,3-Dichlorobenzene	%	80	78	85	N/A	N/A	4461399
D3-2,4-Dichlorophenol	%	102	102	103	N/A	N/A	4461393
D6-Pentachlorophenol	%	104	101	105	N/A	N/A	4461393
D10-2-Methylnaphthalene	%	94	88	92	N/A	N/A	4461402
D10-Fluoranthene	%	92	90	102	N/A	N/A	4461402
D10-Phenanthrene	%	98	100	104	N/A	N/A	4461402
D12-Benzo(a)anthracene	%	94	92	98	N/A	N/A	4461402
D12-Benzo(a)pyrene	%	100	100	104	N/A	N/A	4461402
D12-Benzo(b)fluoranthene	%	98	98	102	N/A	N/A	4461402
D12-Benzo(ghi)perylene	%	100	102	108	N/A	N/A	4461402
D12-Benzo(k)fluoranthene	%	108	112	112	N/A	N/A	4461402
D12-Chrysene	%	112	114	108	N/A	N/A	4461402
D12-Indeno(1,2,3-cd)pyrene	%	96	94	102	N/A	N/A	4461402
D12-Perylene	%	102	104	104	N/A	N/A	4461402
D14-Dibenzo(a,h)anthracene	%	96	94	104	N/A	N/A	4461402
D8-Acenaphthylene	%	98	98	100	N/A	N/A	4461402
D8-Naphthalene	%	98	98	94	N/A	N/A	4461402

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

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

SEMI-VOLATILE ORGANICS BY GC-MS (AIR SAMPLING MEDIA)

Maxxam ID		CEI799			
Sampling Date		2016/04/13 14:40			
	UNITS	RESIN PROOF	RDL	MDL	QC Batch
1-Methylnaphthalene	ug	<0.10	0.10	0.050	4465263
1-Methylphenanthrene	ug	<0.10	0.10	0.050	4465263
2-Chloronaphthalene	ug	<0.10	0.10	0.050	4465263
2-Methylanthracene	ug	<0.10	0.10	0.050	4465263
2-Methylnaphthalene	ug	<0.050	0.050	0.010	4465263
3-Methylcholanthrene	ug	<0.20	0.20	0.050	4465263
7,12-Dimethylbenzo(a)anthracene	ug	<0.20	0.20	0.050	4465263
9,10-Dimethylanthracene	ug	<0.20	0.20	0.050	4465263
Acenaphthene	ug	<0.050	0.050	0.010	4465263
Acenaphthylene	ug	<0.050	0.050	0.010	4465263
Anthracene	ug	<0.050	0.050	0.010	4465263
Benzo(a)anthracene	ug	<0.050	0.050	0.010	4465263
Benzo(a)fluorene	ug	<0.20	0.20	0.050	4465263
Benzo(a)pyrene	ug	<0.050	0.050	0.010	4465263
Benzo(b)Anthracene	ug	<0.050	0.050	0.010	4465263
Benzo(b)fluoranthene	ug	<0.050	0.050	0.010	4465263
Benzo(b)fluorene	ug	<0.10	0.10	0.050	4465263
Benzo(e)pyrene	ug	<0.10	0.10	0.050	4465263
Benzo(g,h,i)perylene	ug	<0.050	0.050	0.010	4465263
Benzo(k)fluoranthene	ug	<0.050	0.050	0.010	4465263
Biphenyl	ug	<0.10	0.10	0.050	4465263
Chrysene	ug	<0.050	0.050	0.010	4465263
Coronene	ug	<0.20	0.20	0.050	4465263
Dibenz(a,h)anthracene	ug	<0.050	0.050	0.010	4465263
Dibenzo(a,c) anthracene + Picene	ug	<0.050	0.050	0.010	4465263
Dibenzo(a,e)pyrene	ug	<0.20	0.20	0.050	4465263
Fluoranthene	ug	<0.050	0.050	0.010	4465263
Fluorene	ug	<0.050	0.050	0.010	4465263
Indeno(1,2,3-cd)pyrene	ug	<0.050	0.050	0.010	4465263
m-Terphenyl	ug	<0.10	0.10	0.050	4465263
Naphthalene	ug	<0.10	0.10	0.050	4465263
o-Terphenyl	ug	<0.10	0.10	0.050	4465263
Perylene	ug	<0.20	0.20	0.050	4465263
Phenanthrene	ug	<0.050	0.050	0.010	4465263

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

SEMI-VOLATILE ORGANICS BY GC-MS (AIR SAMPLING MEDIA)

Maxxam ID		CEI799			
Sampling Date		2016/04/13 14:40			
	UNITS	RESIN PROOF	RDL	MDL	QC Batch
p-Terphenyl	ug	<0.10	0.10	0.050	4465263
Pyrene	ug	<0.050	0.050	0.010	4465263
Quinoline	ug	<0.20	0.20	0.050	4465263
Tetralin	ug	<0.10	0.10	0.050	4465263
Triphenylene	ug	<0.050	0.050	0.010	4465263
1,2,3,4-Tetrachlorobenzene	ug	<0.050	0.050	0.010	4465257
1,2,3,5+1,2,4,5-Tetrachlorobenzene	ug	<0.050	0.050	0.010	4465257
1,2,3-Trichlorobenzene	ug	<0.050	0.050	0.010	4465257
1,2,4-Trichlorobenzene	ug	<0.050	0.050	0.010	4465257
1,2-Dichlorobenzene	ug	<0.050	0.050	0.010	4465257
1,3,5-Trichlorobenzene	ug	<0.050	0.050	0.010	4465257
1,3-Dichlorobenzene	ug	<0.050	0.050	0.010	4465257
1,4-Dichlorobenzene	ug	<0.050	0.050	0.010	4465257
Hexachlorobenzene	ug	<0.050	0.050	0.010	4465257
Pentachlorobenzene	ug	<0.050	0.050	0.010	4465257
2,3,4,5-Tetrachlorophenol	ug	<0.050	0.050	0.040	4465254
2,3,4,6-Tetrachlorophenol	ug	<0.050	0.050	0.040	4465254
2,3,4-Trichlorophenol	ug	<0.050	0.050	0.040	4465254
2,3,5,6-Tetrachlorophenol	ug	<0.050	0.050	0.040	4465254
2,3,5-Trichlorophenol	ug	<0.050	0.050	0.040	4465254
2,3,6-Trichlorophenol	ug	<0.050	0.050	0.040	4465254
2,3-Dichlorophenol	ug	<0.050	0.050	0.040	4465254
2,4 + 2,5-Dichlorophenol	ug	<0.050	0.050	0.040	4465254
2,4,5-Trichlorophenol	ug	<0.050	0.050	0.040	4465254
2,4,6-Trichlorophenol	ug	<0.050	0.050	0.040	4465254
2,6-Dichlorophenol	ug	<0.050	0.050	0.040	4465254
2-Chlorophenol	ug	<0.050	0.050	0.040	4465254
3,4,5-Trichlorophenol	ug	<0.050	0.050	0.040	4465254
3,4-Dichlorophenol	ug	<0.050	0.050	0.040	4465254
3,5-Dichlorophenol	ug	<0.050	0.050	0.040	4465254
3-Chlorophenol	ug	<0.050	0.050	0.040	4465254
4-Chlorophenol	ug	<0.050	0.050	0.040	4465254
Pentachlorophenol	ug	<0.050	0.050	0.040	4465254

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (AIR SAMPLING MEDIA)

Maxxam ID		CEI799			
Sampling Date		2016/04/13 14:40			
	UNITS	RESIN PROOF	RDL	MDL	QC Batch
Surrogate Recovery (%)					
13C6-Hexachlorobenzene	%	109	N/A	N/A	4465257
2H3-1,2,4-Trichlorobenzene	%	112	N/A	N/A	4465257
2H4-1,3-Dichlorobenzene	%	102	N/A	N/A	4465257
D3-2,4-Dichlorophenol	%	104	N/A	N/A	4465254
D6-Pentachlorophenol	%	109	N/A	N/A	4465254
D10-2-Methylnaphthalene	%	84	N/A	N/A	4465263
D10-Fluoranthene	%	96	N/A	N/A	4465263
D10-Phenanthrene	%	86	N/A	N/A	4465263
D12-Benzo(a)anthracene	%	98	N/A	N/A	4465263
D12-Benzo(a)pyrene	%	94	N/A	N/A	4465263
D12-Benzo(b)fluoranthene	%	94	N/A	N/A	4465263
D12-Benzo(ghi)perylene	%	100	N/A	N/A	4465263
D12-Benzo(k)fluoranthene	%	100	N/A	N/A	4465263
D12-Chrysene	%	94	N/A	N/A	4465263
D12-Indeno(1,2,3-cd)pyrene	%	100	N/A	N/A	4465263
D12-Perylene	%	92	N/A	N/A	4465263
D14-Dibenzo(a,h)anthracene	%	98	N/A	N/A	4465263
D8-Acenaphthylene	%	86	N/A	N/A	4465263
D8-Naphthalene	%	82	N/A	N/A	4465263

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

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

VOLATILE ORGANICS BY GC/MS (AIR SAMPLING MEDIA)

Maxxam ID		CEJ057			
Sampling Date		2016/04/13 14:40			
	UNITS	VOST PROOF 1 - 15	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.020	0.020	0.020	4472740
Chloromethane	ug	<0.015	0.015	0.015	4472740
Vinyl Chloride	ug	<0.013	0.013	0.013	4472740
Bromomethane	ug	<0.015	0.015	0.015	4472740
Chloroethane	ug	<0.0090	0.0090	0.0090	4472740
Trichlorofluoromethane (FREON 11)	ug	<0.010	0.010	0.010	4472740
Acetone (2-Propanone)	ug	<0.045	0.045	0.025	4472740
1,1-Dichloroethylene	ug	<0.011	0.011	0.011	4472740
Iodomethane	ug	<0.015	0.015	0.015	4472740
Carbon Disulfide	ug	<0.026	0.026	0.026	4472740
Methylene Chloride(Dichloromethane)	ug	<0.019	0.019	0.020	4472740
1,1-Dichloroethane	ug	<0.012	0.012	0.012	4472740
trans-1,2-Dichloroethylene	ug	<0.010	0.010	0.010	4472740
cis-1,2-Dichloroethylene	ug	<0.010	0.010	0.010	4472740
Chloroform	ug	<0.011	0.011	0.011	4472740
1,2-Dichloroethane	ug	<0.0070	0.0070	0.0070	4472740
Methyl Ethyl Ketone (2-Butanone)	ug	<0.036	0.036	0.036	4472740
1,1,1-Trichloroethane	ug	<0.014	0.014	0.014	4472740
Carbon Tetrachloride	ug	<0.016	0.016	0.016	4472740
Benzene	ug	<0.0090	0.0090	0.0090	4472740
1,1,2-Trichloroethane	ug	<0.016	0.016	0.016	4472740
1,2-Dichloropropane	ug	<0.011	0.011	0.011	4472740
Trichloroethylene	ug	<0.011	0.011	0.011	4472740
Dibromomethane	ug	<0.010	0.010	0.010	4472740
Bromodichloromethane	ug	<0.011	0.011	0.011	4472740
cis-1,3-Dichloropropene	ug	<0.010	0.010	0.010	4472740
trans-1,3-Dichloropropene	ug	<0.0070	0.0070	0.0070	4472740
Dibromochloromethane	ug	<0.0090	0.0090	0.0090	4472740
Methyl Isobutyl Ketone	ug	<0.019	0.019	0.019	4472740
Methyl Butyl Ketone (2-Hexanone)	ug	<0.031	0.031	0.031	4472740
Toluene	ug	<0.014	0.014	0.014	4472740
Ethylene Dibromide	ug	<0.010	0.010	0.010	4472740
Tetrachloroethylene	ug	<0.018	0.018	0.018	4472740
Chlorobenzene	ug	<0.011	0.011	0.011	4472740
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

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VOLATILE ORGANICS BY GC/MS (AIR SAMPLING MEDIA)

Maxxam ID		CEJ057			
Sampling Date		2016/04/13 14:40			
	UNITS	VOST PROOF 1 - 15	RDL	MDL	QC Batch
1,1,1,2-Tetrachloroethane	ug	<0.010	0.010	0.010	4472740
Ethylbenzene	ug	<0.014	0.014	0.014	4472740
m / p-Xylene	ug	<0.015	0.015	0.015	4472740
Styrene	ug	<0.012	0.012	0.012	4472740
o-Xylene	ug	<0.015	0.015	0.015	4472740
Bromoform	ug	<0.014	0.014	0.014	4472740
1,1,2,2-Tetrachloroethane	ug	<0.014	0.014	0.014	4472740
1,2,3-Trichloropropane	ug	<0.015	0.015	0.015	4472740
1,3-Dichlorobenzene	ug	<0.020	0.020	0.020	4472740
1,4-Dichlorobenzene	ug	<0.020	0.020	0.020	4472740
1,2-Dichlorobenzene	ug	<0.020	0.020	0.020	4472740
Surrogate Recovery (%)					
Bromofluorobenzene	%	100	N/A	N/A	4472740
D10-Ethylbenzene (FS)	%	93	N/A	N/A	4472740
D4-1,2-Dichloroethane	%	109	N/A	N/A	4472740
D8-Toluene	%	105	N/A	N/A	4472740

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

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI796							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF O - R	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4461316
1,2,3,7,8-Penta CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4461316
1,2,3,4,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,6,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8,9-Hexa CDD *	pg	<0.98	0.98	10	2.0	0.100	0.0980	N/A	4461316
1,2,3,4,6,7,8-Hepta CDD *	pg	<1.0	1.0	10	3.0	0.0100	0.0100	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDD *	pg	<1.0	1.0	100	3.0	0.000300	0.000300	N/A	4461316
Total Tetra CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Penta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hexa CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Hepta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
2,3,7,8-Tetra CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,7,8-Penta CDF **	pg	<1.1	1.1	10	2.0	0.0300	0.0330	N/A	4461316
2,3,4,7,8-Penta CDF **	pg	<1.1	1.1	10	2.0	0.300	0.330	N/A	4461316
1,2,3,4,7,8-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,6,7,8-Hexa CDF **	pg	<0.98	0.98	10	2.0	0.100	0.0980	N/A	4461316
2,3,4,6,7,8-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8,9-Hexa CDF **	pg	<1.2	1.2	10	2.0	0.100	0.120	N/A	4461316
1,2,3,4,6,7,8-Hepta CDF **	pg	<0.71	0.71	10	3.0	0.0100	0.00710	N/A	4461316
1,2,3,4,7,8,9-Hepta CDF **	pg	<0.87	0.87	10	2.0	0.0100	0.00870	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDF **	pg	<0.48	0.48	100	5.0	0.000300	0.000144	N/A	4461316
Total Tetra CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Penta CDF **	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Hexa CDF **	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Hepta CDF **	pg	<0.78	0.78	10	N/A	N/A	N/A	0	4461316
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	3.25	N/A	N/A

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI796							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF O - R	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-1234678 HeptaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDD *	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDF **	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDD *	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDF **	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123789 HexaCDF **	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDD *	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDF **	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-Octachlorodibenzo-p-Dioxin	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4461316

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI797							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF S - V	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4461316
1,2,3,7,8-Penta CDD *	pg	<1.1	1.1	10	2.0	1.00	1.10	N/A	4461316
1,2,3,4,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,6,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8,9-Hexa CDD *	pg	<0.97	0.97	10	2.0	0.100	0.0970	N/A	4461316
1,2,3,4,6,7,8-Hepta CDD *	pg	<1.1	1.1	10	3.0	0.0100	0.0110	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDD *	pg	<1.1	1.1	100	3.0	0.000300	0.000330	N/A	4461316
Total Tetra CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Penta CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Hexa CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hepta CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
2,3,7,8-Tetra CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,7,8-Penta CDF **	pg	<1.0	1.0	10	2.0	0.0300	0.0300	N/A	4461316
2,3,4,7,8-Penta CDF **	pg	<1.0	1.0	10	2.0	0.300	0.300	N/A	4461316
1,2,3,4,7,8-Hexa CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,6,7,8-Hexa CDF **	pg	<0.94	0.94	10	2.0	0.100	0.0940	N/A	4461316
2,3,4,6,7,8-Hexa CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,7,8,9-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,4,6,7,8-Hepta CDF **	pg	<0.96	0.96	10	3.0	0.0100	0.00960	N/A	4461316
1,2,3,4,7,8,9-Hepta CDF **	pg	<1.2	1.2	10	2.0	0.0100	0.0120	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDF **	pg	<0.43	0.43	100	5.0	0.000300	0.000129	N/A	4461316
Total Tetra CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Penta CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hexa CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hepta CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	3.28	N/A	N/A

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI797							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF S - V	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-1234678 HeptaCDF **	%	130	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDD *	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDD *	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDF **	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123789 HexaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDD *	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDF **	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-Octachlorodibenzo-p-Dioxin	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4461316

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI798							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF W - Z	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4461316
1,2,3,7,8-Penta CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4461316
1,2,3,4,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,6,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8,9-Hexa CDD *	pg	<0.98	0.98	10	2.0	0.100	0.0980	N/A	4461316
1,2,3,4,6,7,8-Hepta CDD *	pg	<1.0	1.0	10	3.0	0.0100	0.0100	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDD *	pg	<1.1	1.1	100	3.0	0.000300	0.000330	N/A	4461316
Total Tetra CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Penta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hexa CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Hepta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
2,3,7,8-Tetra CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,7,8-Penta CDF **	pg	<1.1	1.1	10	2.0	0.0300	0.0330	N/A	4461316
2,3,4,7,8-Penta CDF **	pg	<1.1	1.1	10	2.0	0.300	0.330	N/A	4461316
1,2,3,4,7,8-Hexa CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,6,7,8-Hexa CDF **	pg	<0.94	0.94	10	2.0	0.100	0.0940	N/A	4461316
2,3,4,6,7,8-Hexa CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4461316
1,2,3,7,8,9-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,4,6,7,8-Hepta CDF **	pg	<0.93	0.93	10	3.0	0.0100	0.00930	N/A	4461316
1,2,3,4,7,8,9-Hepta CDF **	pg	<1.1	1.1	10	2.0	0.0100	0.0110	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDF **	pg	<0.53	0.53	100	5.0	0.000300	0.000159	N/A	4461316
Total Tetra CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Penta CDF **	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Hexa CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hepta CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	3.22	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI798							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF W - Z	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-1234678 HeptaCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDD *	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDF **	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDD *	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDF **	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123789 HexaCDF **	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDD *	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDF **	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-Octachlorodibenzo-p-Dioxin	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4461316

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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Your P.O. #: 21656-J2227

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI798							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF W - Z Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<1.1	1.1	10	2.0	1.00	1.10	N/A	4461316
1,2,3,7,8-Penta CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4461316
1,2,3,4,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,6,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8,9-Hexa CDD *	pg	<0.95	0.95	10	2.0	0.100	0.0950	N/A	4461316
1,2,3,4,6,7,8-Hepta CDD *	pg	<1.1	1.1	10	3.0	0.0100	0.0110	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDD *	pg	<1.1	1.1	100	3.0	0.000300	0.000330	N/A	4461316
Total Tetra CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Penta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4461316
Total Hexa CDD *	pg	<1.1 (1)	1.1	10	N/A	N/A	N/A	0	4461316
Total Hepta CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
2,3,7,8-Tetra CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8-Penta CDF **	pg	<0.99	0.99	10	2.0	0.0300	0.0297	N/A	4461316
2,3,4,7,8-Penta CDF **	pg	<0.99	0.99	10	2.0	0.300	0.297	N/A	4461316
1,2,3,4,7,8-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,6,7,8-Hexa CDF **	pg	<0.98	0.98	10	2.0	0.100	0.0980	N/A	4461316
2,3,4,6,7,8-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4461316
1,2,3,7,8,9-Hexa CDF **	pg	<1.2	1.2	10	2.0	0.100	0.120	N/A	4461316
1,2,3,4,6,7,8-Hepta CDF **	pg	<0.60	0.60	10	3.0	0.0100	0.00600	N/A	4461316
1,2,3,4,7,8,9-Hepta CDF **	pg	<0.73	0.73	10	2.0	0.0100	0.00730	N/A	4461316
1,2,3,4,6,7,8,9-Octa CDF **	pg	<0.32	0.32	100	5.0	0.000300	0.0000960	N/A	4461316
Total Tetra CDF **	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316
Total Penta CDF **	pg	<0.99	0.99	10	N/A	N/A	N/A	0	4461316
Total Hexa CDF **	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4461316

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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ORTECH Environmental
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Your P.O. #: 21656-J2227

DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI798							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	TRAIN PROOF W - Z Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	<0.66	0.66	10	N/A	N/A	N/A	0	4461316
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	3.31	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-1234678 HeptaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDD *	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123678 HexaCDF **	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDD *	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-12378 PentaCDF **	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-123789 HexaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDD *	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-2378 TetraCDF **	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4461316
C13-Octachlorodibenzo-p-Dioxin	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4461316

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin

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DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI799							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	RESIN PROOF	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<1.1	1.1	10	2.0	1.00	1.10	N/A	4464946
1,2,3,7,8-Penta CDD *	pg	<1.0	1.0	10	2.0	1.00	1.00	N/A	4464946
1,2,3,4,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4464946
1,2,3,6,7,8-Hexa CDD *	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4464946
1,2,3,7,8,9-Hexa CDD *	pg	<0.94	0.94	10	2.0	0.100	0.0940	N/A	4464946
1,2,3,4,6,7,8-Hepta CDD *	pg	<1.0	1.0	10	3.0	0.0100	0.0100	N/A	4464946
1,2,3,4,6,7,8,9-Octa CDD *	pg	2.2	1.0	100	3.0	0.000300	0.000660	N/A	4464946
Total Tetra CDD *	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4464946
Total Penta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4464946
Total Hexa CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4464946
Total Hepta CDD *	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4464946
2,3,7,8-Tetra CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4464946
1,2,3,7,8-Penta CDF **	pg	<1.0	1.0	10	2.0	0.0300	0.0300	N/A	4464946
2,3,4,7,8-Penta CDF **	pg	<1.0	1.0	10	2.0	0.300	0.300	N/A	4464946
1,2,3,4,7,8-Hexa CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4464946
1,2,3,6,7,8-Hexa CDF **	pg	<0.94	0.94	10	2.0	0.100	0.0940	N/A	4464946
2,3,4,6,7,8-Hexa CDF **	pg	<1.0	1.0	10	2.0	0.100	0.100	N/A	4464946
1,2,3,7,8,9-Hexa CDF **	pg	<1.1	1.1	10	2.0	0.100	0.110	N/A	4464946
1,2,3,4,6,7,8-Hepta CDF **	pg	<0.97	0.97	10	3.0	0.0100	0.00970	N/A	4464946
1,2,3,4,7,8,9-Hepta CDF **	pg	<1.2	1.2	10	2.0	0.0100	0.0120	N/A	4464946
1,2,3,4,6,7,8,9-Octa CDF **	pg	<0.97	0.97	100	5.0	0.000300	0.000291	N/A	4464946
Total Tetra CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4464946
Total Penta CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4464946
Total Hexa CDF **	pg	<1.0	1.0	10	N/A	N/A	N/A	0	4464946
Total Hepta CDF **	pg	<1.1	1.1	10	N/A	N/A	N/A	0	4464946
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	3.28	N/A	N/A

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
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* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
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DIOXINS AND FURANS BY HRMS (AIR SAMPLING MEDIA)

Maxxam ID		CEI799							
Sampling Date		2016/04/13 14:40				TOXIC EQUIVALENCY		# of	
	UNITS	RESIN PROOF	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-1234678 HeptaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-123678 HexaCDD *	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-123678 HexaCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-12378 PentaCDD *	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-12378 PentaCDF **	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-123789 HexaCDF **	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-2378 TetraCDD *	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-2378 TetraCDF **	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4464946
C13-Octachlorodibenzo-p-Dioxin	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4464946

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CEI796
Sample ID: TRAIN PROOF O - R
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4461399	2016/04/17	2016/04/18	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4461393	2016/04/16	2016/04/18	Lidija Tomic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4461316	2016/04/16	2016/04/18	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4461402	2016/04/17	2016/04/18	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4465289	2016/04/26	2016/04/18	Cathy Xu

Maxxam ID: CEI797
Sample ID: TRAIN PROOF S - V
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4461399	2016/04/17	2016/04/18	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4461393	2016/04/16	2016/04/18	Lidija Tomic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4461316	2016/04/16	2016/04/18	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4461402	2016/04/17	2016/04/18	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4465289	2016/04/26	2016/04/18	Cathy Xu

Maxxam ID: CEI798
Sample ID: TRAIN PROOF W - Z
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4461399	2016/04/17	2016/04/18	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4461393	2016/04/16	2016/04/18	Lidija Tomic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4461316	2016/04/16	2016/04/18	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4461402	2016/04/17	2016/04/18	Lidija Tomic
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4465289	2016/04/26	2016/04/18	Cathy Xu

Maxxam ID: CEI798 Dup
Sample ID: TRAIN PROOF W - Z
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Air (Method 23)	HRMS/MS	4461316	2016/04/16	2016/04/18	Owen Cosby

Maxxam ID: CEI799
Sample ID: RESIN PROOF
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chlorobenzenes in MM5 Trains (EPA M0010)	GC/MS	4465257	2016/04/19	2016/04/22	Lidija Tomic
Chlorophenols in MM5 Trains (EPA M0010)	GC/MS	4465254	2016/04/19	2016/04/22	Lidija Tomic
Dioxins/Furans in Air (Method 23)	HRMS/MS	4464946	2016/04/16	2016/04/23	Owen Cosby
PAH's in MM5 SamplingTrains (CARB429mod)	GC/MS	4465263	2016/04/19	2016/04/23	Lidija Tomic

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CEI799
Sample ID: RESIN PROOF
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4465289	2016/04/20	2016/04/23	Cathy Xu

Maxxam ID: CEJ057
Sample ID: VOST PROOF 1 - 15
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260C for 0030, 0031	GC/MS	4472740	N/A	2016/04/26	Yujie Yan

Maxxam ID: CEJ067
Sample ID: 113MM QUARTZ TARED -1
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ068
Sample ID: 113MM QUARTZ TARED -2
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ069
Sample ID: 113MM QUARTZ TARED -3
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ070
Sample ID: 113MM QUARTZ TARED -4
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ071
Sample ID: 113MM QUARTZ TARED -5
Matrix: Air Sampling Media

Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

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Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CEJ072
Sample ID: 113MM QUARTZ TARED -6
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ073
Sample ID: 113MM QUARTZ TARED -7
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ617
Sample ID: 113MM QUARTZ TARED -8
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ618
Sample ID: 113MM QUARTZ TARED -9
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ619
Sample ID: 113MM QUARTZ TARED -10
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ620
Sample ID: 113MM QUARTZ TARED -11
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

Maxxam ID: CEJ621
Sample ID: 113MM QUARTZ TARED -12
Matrix: Air Sampling Media
Collected: 2016/04/13
Shipped:
Received: 2016/04/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particulates/Filter (M5/315/NJATM1/M201)	BAL	4461806	N/A	2016/04/18	Brenda Moore

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GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4461316	OBC	RPD - Sample/Sample Dup	2,3,7,8-Tetra CDD	2016/04/18	NC		%	20
			1,2,3,7,8-Penta CDD	2016/04/18	NC		%	20
			1,2,3,4,7,8-Hexa CDD	2016/04/18	NC		%	20
			1,2,3,6,7,8-Hexa CDD	2016/04/18	NC		%	20
			1,2,3,7,8,9-Hexa CDD	2016/04/18	NC		%	20
			1,2,3,4,6,7,8-Hepta CDD	2016/04/18	NC		%	20
			1,2,3,4,6,7,8,9-Octa CDD	2016/04/18	NC		%	20
			Total Tetra CDD	2016/04/18	NC		%	20
			Total Penta CDD	2016/04/18	NC		%	20
			Total Hexa CDD	2016/04/18	NC (1)		%	20
			Total Hepta CDD	2016/04/18	NC		%	20
			2,3,7,8-Tetra CDF	2016/04/18	NC		%	20
			1,2,3,7,8-Penta CDF	2016/04/18	NC		%	20
			2,3,4,7,8-Penta CDF	2016/04/18	NC		%	20
			1,2,3,4,7,8-Hexa CDF	2016/04/18	NC		%	20
			1,2,3,6,7,8-Hexa CDF	2016/04/18	NC		%	20
			2,3,4,6,7,8-Hexa CDF	2016/04/18	NC		%	20
			1,2,3,7,8,9-Hexa CDF	2016/04/18	NC		%	20
			1,2,3,4,6,7,8-Hepta CDF	2016/04/18	NC		%	20
			1,2,3,4,7,8,9-Hepta CDF	2016/04/18	NC		%	20
			1,2,3,4,6,7,8,9-Octa CDF	2016/04/18	NC		%	20
			Total Tetra CDF	2016/04/18	NC		%	20
			Total Penta CDF	2016/04/18	NC		%	20
			Total Hexa CDF	2016/04/18	NC		%	20
			Total Hepta CDF	2016/04/18	NC		%	20

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B672731
Report Date: 2016/04/26

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA, DURHAM-YORK ENERGY CENTRE, COURICE
Your P.O. #: 21656-J2227

VALIDATION SIGNATURE PAGE

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

Ann-Marie Stern, Senior Analyst

Karen Nicol

Karen Nicol, Supervisor, Semi-Volatiles

Maureen Smith

Maureen Smith, Supervisor, Volatiles

Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

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Your Project #: COVANTA PROBE PROOF

Attention:CHRIS BELORE

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/06/10
Report #: R4023699
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6B1801
Received: 2016/06/02, 12:30

Sample Matrix: Stack Sampling Train
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Air (Method 23)	1	2016/06/04	2016/06/07	BRL SOP-00404	EPA M23/23A m
PCBs in a Sampling Train (1668Amod)	1	2016/06/04	2016/06/08	BRL SOP-00408	EPA 1668A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
12 Jun 2016 19:54:21 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==
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Maxxam Job #: B6B1801
Report Date: 2016/06/10

ORTECH Environmental
Client Project #: COVANTA PROBE PROOF

EPA M23 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CLQ637							
Sampling Date		2016/05/02				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-PROBE-001	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<3.7	3.7	30	6.0	1.00	3.70	N/A	4525694
1,2,3,7,8-Penta CDD *	pg	<3.5	3.5	30	6.0	1.00	3.50	N/A	4525694
1,2,3,4,7,8-Hexa CDD *	pg	<4.6	4.6	30	6.0	0.100	0.460	N/A	4525694
1,2,3,6,7,8-Hexa CDD *	pg	<4.7	4.7	30	6.0	0.100	0.470	N/A	4525694
1,2,3,7,8,9-Hexa CDD *	pg	<4.2	4.2	30	6.0	0.100	0.420	N/A	4525694
1,2,3,4,6,7,8-Hepta CDD *	pg	14.3	3.2	30	9.0	0.0100	0.143	N/A	4525694
1,2,3,4,6,7,8,9-Octa CDD *	pg	29.5	3.1	300	9.0	0.000300	0.00885	N/A	4525694
Total Tetra CDD *	pg	<3.7	3.7	30	N/A	N/A	N/A	0	4525694
Total Penta CDD *	pg	<3.5	3.5	30	N/A	N/A	N/A	0	4525694
Total Hexa CDD *	pg	<4.5	4.5	30	N/A	N/A	N/A	0	4525694
Total Hepta CDD *	pg	25.3	3.2	30	N/A	N/A	N/A	2	4525694
2,3,7,8-Tetra CDF **	pg	<3.1	3.1	30	6.0	0.100	0.310	N/A	4525694
1,2,3,7,8-Penta CDF **	pg	<2.8	2.8	30	6.0	0.0300	0.0840	N/A	4525694
2,3,4,7,8-Penta CDF **	pg	<2.8	2.8	30	6.0	0.300	0.840	N/A	4525694
1,2,3,4,7,8-Hexa CDF **	pg	<5.0	5.0	30	6.0	0.100	0.500	N/A	4525694
1,2,3,6,7,8-Hexa CDF **	pg	<4.6	4.6	30	6.0	0.100	0.460	N/A	4525694
2,3,4,6,7,8-Hexa CDF **	pg	<5.0	5.0	30	6.0	0.100	0.500	N/A	4525694
1,2,3,7,8,9-Hexa CDF **	pg	<5.4	5.4	30	6.0	0.100	0.540	N/A	4525694
1,2,3,4,6,7,8-Hepta CDF **	pg	<3.0	3.0	30	9.0	0.0100	0.0300	N/A	4525694
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.6	3.6	30	6.0	0.0100	0.0360	N/A	4525694
1,2,3,4,6,7,8,9-Octa CDF **	pg	<4.6	4.6	300	15	0.000300	0.00138	N/A	4525694
Total Tetra CDF **	pg	<3.1	3.1	30	N/A	N/A	N/A	0	4525694
Total Penta CDF **	pg	<2.8	2.8	30	N/A	N/A	N/A	0	4525694
Total Hexa CDF **	pg	<5.0	5.0	30	N/A	N/A	N/A	0	4525694
Total Hepta CDF **	pg	<3.3	3.3	30	N/A	N/A	N/A	0	4525694
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	12.0	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-1234678 HeptaCDF **	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-123678 HexaCDD *	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-123678 HexaCDF **	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4525694

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B6B1801
Report Date: 2016/06/10

ORTECH Environmental
Client Project #: COVANTA PROBE PROOF

EPA M23 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CLQ637							
Sampling Date		2016/05/02				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-PROBE-001	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-12378 PentaCDD *	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-12378 PentaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-123789 HexaCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-2378 TetraCDD *	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-2378 TetraCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4525694
C13-Octachlorodibenzo-p-Dioxin	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4525694

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6B1801
Report Date: 2016/06/10

ORTECH Environmental
Client Project #: COVANTA PROBE PROOF

RESULTS OF ANALYSES OF STACK SAMPLING TRAIN

Maxxam ID		CLQ637							
Sampling Date		2016/05/02				TOXIC EQUIVALENCY		# of	
	UNITS	16-21656-PROBE-001	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng	<0.010	0.010	0.10	N/A	0.00010	0.0000010	N/A	4525696
344'5-TetraCB-(81)	ng	<0.011	0.011	0.10	N/A	0.00030	0.0000033	N/A	4525696
233'44'-PentaCB-(105)	ng	<0.024	0.024	0.10	N/A	0.000030	0.00000072	N/A	4525696
2344'5-PentaCB-(114)	ng	<0.023	0.023	0.10	N/A	0.000030	0.00000069	N/A	4525696
23'44'5-PentaCB-(118)	ng	0.077	0.024	0.10	N/A	0.000030	0.0000023	N/A	4525696
23'44'5'-PentaCB-(123)	ng	<0.026	0.026	0.10	N/A	0.000030	0.00000078	N/A	4525696
33'44'5-PentaCB-(126)	ng	<0.024	0.024	0.10	N/A	0.10	0.0024	N/A	4525696
HexaCB-(156)+(157)	ng	<0.012	0.012	0.20	N/A	0.000030	0.00000036	N/A	4525696
23'44'55'-HexaCB-(167)	ng	<0.013	0.013	0.10	N/A	0.000030	0.00000039	N/A	4525696
33'44'55'-HexaCB-(169)	ng	<0.013	0.013	0.10	N/A	0.030	0.00039	N/A	4525696
233'44'55'-HeptaCB-(189)	ng	<0.0078	0.0078	0.10	N/A	0.000030	0.00000023	N/A	4525696
TOTAL TOXIC EQUIVALENCY	ng	N/A	N/A	N/A	N/A	N/A	0.0028	N/A	N/A
Surrogate Recovery (%)									
C13-233'44'55'-HeptaCB-(189)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-233'44'5-HexaCB-(156)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-233'44'5'-HexaCB-(157)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-233'44'-PentaCB-(105)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-23'44'55'-HexaCB-(167)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-2344'5-PentaCB-(114)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-23'44'5-PentaCB-(118)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-2'344'5-PentaCB-(123)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-33'44'55'-HexaCB-(169)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-33'44'5-PentaCB-(126)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-33'44'-TetraCB-(77)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4525696
C13-344'5-TetraCB-(81)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4525696

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6B1801
Report Date: 2016/06/10

ORTECH Environmental
Client Project #: COVANTA PROBE PROOF

TEST SUMMARY

Maxxam ID: CLQ637
Sample ID: 16-21656-PROBE-001
Matrix: Stack Sampling Train

Collected: 2016/05/02
Shipped:
Received: 2016/06/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Air (Method 23)	HRMS/MS	4525694	2016/06/04	2016/06/07	Owen Cosby
PCBs in a Sampling Train (1668Amod)	HRMS/MS	4525696	2016/06/04	2016/06/08	Cathy Xu

GENERAL COMMENTS

Results relate only to the items tested.

VALIDATION SIGNATURE PAGE

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

Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

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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APPENDIX 21

ORTECH Equipment Calibration Data
(15 pages)

ORTECH Environmental
Pitot Tube Calibration

Date	February 8, 2016
Probe/Pitot ID	S2
MII Number	B03762
Calibrated Against	B02911
Cp standard	0.99948
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Environmental
Calibrated By	Dan Turton
Signature	
Reviewed/Accepted By	

$$Cp = Cpstd \ * \sqrt{\frac{Pstd}{Ps}}$$

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H_2O Pstd	Velocity Head S-Type Pitot in. H_2O Ps	S-Type Pitot Coefficient Cp_s	Deviation From The Mean
With Nozzle	7.88	0.150	0.210	0.845	0.0041
(0.25")	9.43	0.215	0.303	0.842	0.0013
	11.68	0.330	0.475	0.833	0.0075
	14.52	0.510	0.710	0.847	0.0065
	16.14	0.630	0.900	0.836	0.0044
			Mean	0.841	0.0048

Without Nozzle	7.47	0.135	0.190	0.842	0.0050
	9.32	0.210	0.295	0.843	0.0042
	11.41	0.315	0.440	0.846	0.0018
	14.09	0.480	0.660	0.852	0.0049
	16.01	0.620	0.850	0.854	0.0061
			Mean	0.847	0.0044

Note: Pitots must always be used in the orientation that they are calibrated in (marked F for front and B for back).

Acceptance Criteria:
The Cp of Standard Pitots must be in the range of 0.99 ±0.01.
For Stausscheibe (S-Type) Pitots refer to the measurement criteria as specified in Method 2 of the MOE Source Testing Code. If the pitot meets these measurement requirements it is assigned a Cp of 0.84. Otherwise, calculate the absolute differences between the average pitot tube coefficient and the coefficient obtained for each of the wind tunnel settings. The average of these differences must not exceed 0.01. Otherwise, the calibration must be repeated. (Environment Canada Reference Method EPS 1/RM/8, Section 6).

ORTECH Environmental
Pitot Tube Calibration

Date	February 8, 2016
Probe/Pitot ID	S3
MII Number	B03763
Calibrated Against	B02911
Cp standard	0.99948
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Environmental
Calibrated By	Dan Turton
Signature	
Reviewed/Accepted By	

$$Cp = Cpstd * \sqrt{\frac{Pstd}{Ps}}$$

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H_2O Pstd	Velocity Head S-Type Pitot in. H_2O Ps	S-Type Pitot Coefficient Cp_s	Deviation From The Mean
With Nozzle	7.33	0.130	0.182	0.845	0.0032
(0.25")	9.09	0.200	0.287	0.834	0.0071
	11.32	0.310	0.440	0.839	0.0026
	13.79	0.460	0.650	0.841	0.0007
	16.01	0.620	0.860	0.849	0.0071
			Mean	0.841	0.0041

Without Nozzle	7.33	0.130	0.180	0.849	0.0021
	9.21	0.205	0.290	0.840	0.0070
	11.32	0.310	0.430	0.849	0.0013
	13.87	0.465	0.650	0.845	0.0020
	15.75	0.600	0.824	0.853	0.0056
			Mean	0.847	0.0036

Note: Pitots must always be used in the orientation that they are calibrated in (marked F for front and B for back).

Acceptance Criteria:
The Cp of Standard Pitots must be in the range of 0.99 ±0.01.
For Stausscheibe (S-Type) Pitots refer to the measurement criteria as specified in Method 2 of the MOE Source Testing Code. If the pitot meets these measurement requirements it is assigned a Cp of 0.84. Otherwise, calculate the absolute differences between the average pitot tube coefficient and the coefficient obtained for each of the wind tunnel settings. The average of these differences must not exceed 0.01. Otherwise, the calibration must be repeated. (Environment Canada Reference Method EPS 1/RM/8, Section 6).

ORTECH Environmental
Pitot Tube Calibration

Date	February 9, 2016
Probe/Pitot ID	S6
MII Number	B03767
Calibrated Against	B02911
Cp standard	0.99948
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Environmental
Calibrated By	Dan Turton
Signature	DT
Reviewed/Accepted By	D Og

$$Cp = Cpstd * \sqrt{\frac{Pstd}{Ps}}$$

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H_2O Pstd	Velocity Head S-Type Pitot in. H_2O Ps	S-Type Pitot Coefficient Cp_s	Deviation From The Mean
With Nozzle	7.47	0.135	0.187	0.849	0.0017
(0.25")	9.54	0.220	0.310	0.842	0.0056
	11.68	0.330	0.460	0.847	0.0010
	14.38	0.500	0.690	0.851	0.0033
	15.88	0.610	0.845	0.849	0.0016
			Mean	0.848	0.0026

Without Nozzle	7.61	0.140	0.197	0.843	0.0022
	9.43	0.215	0.305	0.839	0.0056
	11.68	0.330	0.467	0.840	0.0046
	14.09	0.480	0.660	0.852	0.0076
	16.39	0.650	0.900	0.849	0.0047
			Mean	0.845	0.0049

Note: Pitots must always be used in the orientation that they are calibrated in (marked F for front and B for back).

Acceptance Criteria:
The Cp of Standard Pitots must be in the range of 0.99 ±0.01.
For Stausscheibe (S-Type) Pitots refer to the measurement criteria as specified in Method 2 of the MOE Source Testing Code. If the pitot meets these measurement requirements it is assigned a Cp of 0.84. Otherwise, calculate the absolute differences between the average pitot tube coefficient and the coefficient obtained for each of the wind tunnel settings. The average of these differences must not exceed 0.01. Otherwise, the calibration must be repeated. (Environment Canada Reference Method EPS 1/RM/8, Section 6).

ORTECH Environmental
Dry Gas Meter Calibration Data

Calibration Procedure	03 - J004
Meter Number	Team 2
Date	January 4, 2016
Barometric Pressure	29.97
System Leak Check	< .001 cfm @ 26 "Hg

MII NUMBERS	
DGM	COE 20092
Gasometer	A01463
Barometer	COE20028

Calibrated By	Mike Traynor
Signature	
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

$$DGMCF = \frac{Vstd\ ft^3}{Vdgm\ ft^3} \quad \frac{Tdgm\ ^oF+460}{Tstd\ ^oF+460} \quad \frac{Pbar\ (in.\ Hg)}{(Pbar\ in.\ Hg+DGMPressure/13.6)}$$

Gasometer Reading cm			Gasometer Volume	Gasometer Temperature	DGM Reading ft^3		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration Factor	Time
Initial	Final	cm	ft^3	^oC	Initial	Final	ft^3	^oF	in. H_2O	^oF		min.
84.20	22.10	62.10	2.921	22.0	413.530	416.500	2.970	70.5	0.75	68	0.980	6
83.70	20.00	63.70	2.996	22.0	416.510	419.530	3.020	70	0.75	69	0.987	6
83.40	19.90	63.50	2.987	22.0	419.530	422.550	3.020	70.5	0.75	70	0.985	6
84.10	21.50	62.60	2.945	22.0	422.690	425.685	2.995	72	1.8	70	0.980	4
84.30	19.90	64.40	3.029	22.0	425.685	428.775	3.090	72	1.9	70	0.977	4
84.70	21.00	63.70	2.996	22.0	428.775	431.850	3.075	72	1.9	70	0.971	4
84.60	19.50	65.10	3.062	22.0	431.972	435.065	3.093	72	3.4	70	0.983	3
85.10	21.20	63.90	3.006	22.0	435.065	438.115	3.050	72	3.4	70	0.978	3
84.40	19.90	64.50	3.034	22.0	438.115	441.185	3.070	72	3.4	70	0.981	3

DGMCF AVERAGE 0.980

BEFORE 0.985

Acceptance Criteria:
Individual values of DGM calibration factor must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05, otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

ORTECH Environmental
Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Team 2
MII	COE 20092
Date	January 4, 2016
Calibrated By	Mike Traynor
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32	NA	0.0
70	70		0.0
100	100		0.0
200	200		0.0
250	250		0.0
300	300		0.0
400	400		0.0
500	499		0.2
600	600		0.0
700	700		0.0
800	799		0.1
900	899		0.1
1000	999		0.1
1100	1099		0.1
1200	1200		0.0
1250	1249		0.1

$$\% \text{ Difference} = \frac{(\text{micromite - after adjustment reading})}{\text{micromite}} \times 100$$

Acceptance Criteria:
Trendicator display must read within ± 1.5% of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use. (MOE Source Testing Code, Version #2, Method 5)

ORTECH Environmental
Manometer Calibration Data

Date	January 4, 2016	Calibrated By	Mike Traynor
Manometer Number	Team 2	Signature	
Manometer MII Number	COE 20092	Reviewed/Accepted By	
Calibrated Against	Omega HHP		
MII Number	B02679		
Calibration Procedure	03 - J010		

<u>Front Leg</u>

Manometer Scale	Manometer Reading "H_2O		Reference Manometer Reading	Percent Difference
"H_20	Before Adjustment	After Adjustment	"H_2O	%
	0.260	NA	0.264	1.5
0-1.0	0.570		0.577	1.2
	0.950		0.970	2.1
	1.70		1.71	0.6
1.0-10.0	5.40		5.44	0.7
	8.70		8.70	0.0

Percent Difference = (Ref. Manometer - Instrument Reading) x 100
Ref. Manometer

Acceptance Criteria:
The manometer being calibrated must be within ± 5.0% of the Standard value at each reading. Otherwise, the manometer must be repaired and/or adjusted as necessary and recalibrated prior to use. Manometers must be capable of measuring velocity pressure to within 0.005 "H_2O on the 0 to 1 inch scale, and 0.05 "H_2O on the 1 to 10 inch scales.
(Environment Canada Reference Method 1/RM/8, Section 2)

ORTECH Environmental
Dry Gas Meter Calibration Data

Calibration Procedure	03 - J004
Meter Number	Team 4
Date	February 24, 2016
Barometric Pressure	29.50
System Leak Check	< 0.001 cfm @ 29 "Hg

MII NUMBERS	
DGM	COE 20090
Gasometer	A01463
Barometer	COE20028

Calibrated By	J. Grollman
signature	
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

$$DGMCF = \frac{Vstd\ ft^3}{Vdgm\ ft^3} \quad \frac{Tdgm\ ^{\circ}F+460}{Tstd\ ^{\circ}F+460} \quad \frac{Pbar\ (in.\ Hg)}{(Pbar\ in.\ Hg+DGMPressure/13.6)}$$

Gasometer Reading cm			Gasometer Volume	Gasometer Temperature	DGM Reading ft^3		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration Factor	Time
Initial	Final	cm	ft^3	°C	Initial	Final	ft^3	°F	in. H_2O	°F		min.
88.10	22.30	65.80	3.095	21.0	968.036	971.147	3.111	70	0.8	69	0.993	6
86.90	22.50	64.40	3.029	21.0	971.147	974.236	3.089	70	0.8	70	0.979	6
88.10	23.50	64.60	3.039	21.0	974.236	977.324	3.088	70.5	0.8	70	0.983	6
86.30	14.20	72.10	3.392	21.0	977.324	980.775	3.451	70.5	1.9	70	0.979	4.5
84.70	21.30	63.40	2.982	21.0	983.245	986.261	3.016	70	1.8	70	0.985	4
88.30	24.00	64.30	3.025	21.0	986.261	989.303	3.042	70	1.8	70	0.990	4
83.00	16.20	66.80	3.142	21.0	989.509	992.675	3.166	67	3.5	67	0.979	3
86.00	20.30	65.70	3.090	21.0	992.675	995.784	3.109	67	3.4	67	0.980	3
87.10	21.90	65.20	3.067	21.0	995.784	998.863	3.079	68	3.4	68	0.984	3

DGMCF AVERAGE	0.984
BEFORE	0.989

Acceptance Criteria:
Individual values of DGM calibration factor must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05, otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

ORTECH Environmental

Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	OMEGA OP 116.
MII	COE 20090
Date	February 24, 2016
Calibrated By	J. Grollman
Signature	
Reviewed and Accepted By	D. [illegible]

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference (%)
	Before Adjustment (°F)	After Adjustment (°F)	
32	37	32	0.0
70		70	0.0
100		100	0.0
200		200	0.0
250		251	-0.4
300		301	-0.3
400		399	0.3
500		499	0.2
600		600	0.0
700		701	-0.1
800		801	-0.1
900		901	-0.1
1000		1001	-0.1
1100		1102	-0.2
1200		1201	-0.1
1250		1251	-0.1

$$\% \text{ Difference} = \frac{(\text{micromite - after adjustment reading})}{\text{micromite}} \times 100$$

Acceptance Criteria:
Trendicator display must read within ± 1.5% of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use. (MOE Source Testing Code, Version #2, Method 5)

ORTECH Environmental
Manometer Calibration Data

Date	February 24, 2016	Calibrated By	J. Grollman
Manometer Number	Team 4	Signature	
Manometer MII Number	COE 20090	Reviewed/Accepted By	
Calibrated Against	Omega HHP		
MII Number	B02679		
Calibration Procedure	03 - J010		

Front Leg

Manometer Scale "H_20	Manometer Reading "H_2O Before Adjustment	Manometer Reading "H_2O After Adjustment	Reference Manometer Reading "H_2O	Percent Difference %
	0.250	NA	0.254	1.6
0-1.0	0.530		0.530	0.0
	0.850		0.850	0.0
	1.80		1.800	0.0
1.0-10.0	5.10		5.110	0.2
	8.20		8.220	0.2

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer - Instrument Reading})}{\text{Ref. Manometer}} \times 100$$

Acceptance Criteria:
The manometer being calibrated must be within ± 5.0% of the Standard value at each reading. Otherwise, the manometer must be repaired and/or adjusted as necessary and recalibrated prior to use. Manometers must be capable of measuring velocity pressure to within 0.005 "H_2O on the 0 to 1 inch scale, and 0.05 "H_2O on the 1 to 10 inch scales. (Environment Canada Reference Method 1/RM/8, Section 2)

ORTECH Environmental

Dry Gas Meter Calibration Data

Calibration Procedure	03-J004
Meter Number	Vost 4
Date	April 14, 2016
Barometric Pressure	30.03
System Leak Check	NDL @ 19" Hg

MII NUMBERS	
DGM	A11542
Gasometer	A01463
Barometer	COE 20028

Calibrated By	Thomas Timar
Signature	
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

$$DGMCF = \frac{Vstd\ ft^3}{Vdgm\ ft^3} \quad \frac{Tdgm\ ^oF+460}{Tstd\ ^oF+460} \quad \frac{Pbar\ (in.\ Hg)}{(Pbar\ in.\ Hg+DGMPressure/13.6)}$$

Gasometer Reading cm			Gasometer Volume	Gasometer Temperature	DGM Reading L		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration Factor	Time	Flow Rate
Initial	Final	cm	ft^3	°C	Initial	Final	ft^3	°C	in. H_2O	°C		min.	lpm
74.20	42.30	31.90	1.501	22.5	8664.28	8706.90	1.505	26.0	2.6	26.0	1.002	20	2.1
71.70	38.70	33.00	1.552	22.5	8706.90	8751.65	1.580	30.0	2.7	30.0	1.001	20	2.2
68.90	27.50	41.40	1.947	22.5	8796.31	8852.73	1.992	29.0	2.5	29.0	0.993	26	2.2
79.20	54.10	25.10	1.181	22.5	8886.00	8921.00	1.236	30.0	1.0	30.0	0.977	34	1.0
84.80	62.40	22.40	1.054	22.5	8921.00	8951.97	1.094	32.0	1.0	32.0	0.992	30	1.0
84.80	62.10	22.70	1.068	22.5	8984.08	9015.36	1.105	32.0	1.0	32.0	0.995	31	1.0
79.60	57.80	21.80	1.025	22.5	9018.66	9048.90	1.068	30.0	0.5	30.0	0.983	40	0.8
80.50	67.40	13.10	0.616	22.5	9115.92	9134.18	0.645	28.0	0.4	28.0	0.972	25	0.7
83.90	67.30	16.60	0.781	22.5	9136.13	9158.74	0.798	29.0	0.4	29.0	0.998	32	0.7

Acceptance Criteria:
Individual values of DGM calibration factor must be within ± 1.5% of the average value. If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05, otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use. (Environment Canada Reference Method EPS 1/RM/8, Section 6)

DGMCF AVERAGE	
2Lpm	0.999
1Lpm	0.988
0.5Lpm	0.985

ORTECH Environmental
Trendicator Calibration

Calibration Procedure	03-J005
Trendicator Type	Nutech
MII	A11542
Date	April 14, 2016
Calibrated By	Thomas Timar
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	Tredicator Display Value		Percent Difference
	Before Adjustment (°C)	After Adjustment (°C)	(%)
0	0	N/A	0.0
10	10		0.0
20	20		0.0
50	50		0.0
75	75		0.0
100	100		0.0
125	125		0.0
150	151		-0.7
200	200		0.0
300	300		0.0
400	400		0.0
500	500		0.0
600	601		-0.2

$$\% \text{ Difference} = \frac{(\text{micromite - after adjustment reading})}{\text{micromite}} \times 100$$

Acceptance Criteria:
Trendicator display must read within ± 1.5% of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use. (MOE Source Testing Code, Version #2, Method 5)

ORTECH Environmental
Dry Gas Meter Calibration Data

Calibration Procedure	03 - J004
Meter Number	Team 1
Date	March 3, 2016
Barometric Pressure	29.80
System Leak Check	< .001 cfm @ 23 "Hg

MII NUMBERS	
DGM	COE 20094
Gasometer	A01463
Barometer	COE 20028

Calibrated By	D Turton
Signature	
Reviewed and Accepted By	CHRIS KELOBE

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

$$DGMCF = \frac{Vstd\ ft^3}{Vdgm\ ft^3} \quad \frac{Tdgm\ ^{\circ}F+460}{Tstd\ ^{\circ}F+460} \quad \frac{Pbar\ (in.\ Hg)}{(Pbar\ in.\ Hg+DGMPressure/13.6)}$$

Gasometer Reading cm			Gasometer Volume	Gasometer Temperature	DGM Reading ft^3		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration	Time
Initial	Final	cm	ft^3	°C	Initial	Final	ft^3	°F	in. H_2O	°F	Factor	min.
88.40	23.70	64.70	3.043	21.5	8.000	11.050	3.050	65.5	0.75	64	0.986	6
88.00	21.90	66.10	3.109	21.0	11.050	14.170	3.120	66.5	0.75	65	0.989	6
88.00	23.60	64.40	3.029	21.0	14.170	17.240	3.070	67	0.75	66	0.980	6
87.50	25.40	62.10	2.921	21.0	17.430	20.380	2.950	67.5	1.8	66	0.982	4
87.90	26.00	61.90	2.912	21.0	20.380	23.300	2.920	67.5	1.8	66	0.988	4
87.50	25.30	62.20	2.926	21.0	23.300	26.260	2.960	67.5	1.8	66	0.980	4
87.00	25.90	61.10	2.874	21.0	26.435	29.344	2.909	68	3.2	67	0.977	3
88.30	25.20	63.10	2.968	21.0	29.540	32.525	2.985	68	3.3	67	0.983	3
87.80	23.80	64.00	3.011	21.0	32.882	35.900	3.018	68	3.4	67	0.986	3

DGMCF AVERAGE: 0.983

BEFORE: n/a

Acceptance Criteria:
Individual values of DGM calibration factor must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05, otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

ORTECH Environmental
Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Team 1
MII	COE 20094
Date	3-Mar-16
Calibrated By	D Turton
Signature	
Reviewed and Accepted By	CHRIS BELORE

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32	N/A	0.0
70	69		1.4
100	99		1.0
200	200		0.0
250	251		-0.4
300	301		-0.3
400	400		0.0
500	500		0.0
600	601		-0.2
700	700		0.0
800	800		0.0
900	900		0.0
1000	1001		-0.1
1100	1100		0.0
1200	1200		0.0
1250	1250		0.0

% Difference = (micromite - after adjustment reading) x 100 / micromite

Acceptance Criteria:
Trendicator display must read within ± 1.5% of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use.
(MOE Source Testing Code, Version #2, Method 5)

ORTECH Environmental
Manometer Calibration Data

Date	March 3, 2016	Calibrated By	D.Turton
Manometer Number	Team 1	Signature	
Manometer MII Number	COE 20094	Reviewed/Accepted By	CHRIS RHODES
Calibrated Against	Omega HHP		
MII Number	B02679		
Calibration Procedure	03 - J010		

Front Leg

Manometer Scale "H_2O	Manometer Reading "H_2O Before Adjustment	Manometer Reading "H_2O After Adjustment	Reference Manometer Reading "H_2O	Percent Difference %
	0.340	NA	0.352	3.4
0-1.0	0.700		0.710	1.4
	0.925		0.930	0.5
	2.50	NA	2.49	-0.4
1.0-10.0	4.45		4.45	0.0
	7.75		7.71	-0.5

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer - Instrument Reading})}{\text{Ref. Manometer}} \times 100$$

Acceptance Criteria:
The manometer being calibrated must be within ± 5.0% of the Standard value at each reading. Otherwise, the manometer must be repaired and/or adjusted as necessary and recalibrated prior to use. Manometers must be capable of measuring velocity pressure to within 0.005 "H_2O on the 0 to 1 inch scale, and 0.05 "H_2O on the 1 to 10 inch scales.
(Environment Canada Reference Method 1/RM/8, Section 2)

TRANSCAT CANADA
Trust in every measure

SUPPLEMENTAL REPORT

CALIBRATION LAB DATA AS FOUND / AS LEFT

Customer: ORTECH ENVIRONMENTAL

PO Number: 20000-J2219

Certificate/SO Number: 9-Q0C9H-80-1

Manufacturer:	Marathon Tool Company	Service Type:	R5
Model Number:	CO030150		
Description:	Digital Caliper		
Serial Number:	NONE	Calibration Date:	Feb 08, 2016
ID:	CAN-22136	Due Date:	Feb 08, 2017
		Calibration Procedure:	5-AC42617-0

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	TUR
Function Check							
Parallelism			P	P	P		
Length Measure							
Outside Length	0.0000in	±(0.0005 in)	-0.0005	0.0005	0.0000 in		
	1.5000in	±(0.0005 in)	1.4995	1.5005	1.5000 in		
	3.0000in	±(0.0005 in)	2.9995	3.0005	2.9995 in		
	4.5000in	±(0.0005 in)	4.4995	4.5005	4.4995 in		
	6.0000in	±(0.0005 in)	5.9995	6.0005	5.9995 in		
Inside Length	1.0000in	±(0.0005 in)	0.9995	1.0005	1.0000 in		
Depth	1.0000in	±(0.0005 in)	0.9995	1.0005	1.0000 in		
Step	1.0000in	±(0.0005 in)	0.9995	1.0005	1.0005 in		
Function Check							
Inch to mm conversion			P	P	P		

As Found and As Left Data recorded on February 08, 2016

Temperature: 68.8°F / 20.4°C   Relative Humidity: 34%   Temp/RH Asset LEM-0003

Asset	Manufacturer	Model	Description	Cal Date	Due Date	Traceability Numbers
M004	Coventry Gauge Ltd	C-84	Gage Block Set, 84 pcs.	Aug 27, 2015	Aug 27, 2016	9-&M004-3-1
M457	Starrett Tru-Stone Tech. Div.	80942	Granite Surface Plate	Dec 30, 2015	Dec 31, 2016	9-&M457-4-1

Field not applicable. (P = Pass, F = Fail)

APPENDIX 22

Particulate and Metals Test Emission Calculations at the Boiler No. 1 BH Outlet (12 pages)

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 1 BH Outlet
Test No.:	1 - Metals & Particulate
Date:	May 2, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.983
NOZZLE DIAMETER	6.45 mm
DRY REF GAS VOLUME SAMPLED	3.427 m^3
AVGERGE ISOKINETICITY	100.9 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	142.6 °C
AVERAGE GAS MOISTURE BY VOLUME	16.2 %
AVERAGE GAS VELOCITY	16.49 m/s
BAROMETRIC PRESSURE (Station)	100.711 Kpa
STATIC PRESSURE	-2.316 Kpa
ABSOLUTE GAS PRESSURE	98.395 Kpa
OXYGEN CONCENTRATION	7.46 %
CARBON DIOXIDE CONCENTRATION	11.69 %
CARBON MONOXIDE CONCENTRATION	16.2 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.36 m^3/s
DRY REF GAS FLOWRATE	14.22 Rm^3/s
DRY ADJ GAS FLOWRATE	19.31 Rm^3/s
WET REF GAS FLOWRATE	16.97 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	3.1 mg
	-FILTER	1.3 mg
	-TOTAL	4.4 mg
DRY REF GAS VOLUME SAMPLED		3.427 m^3
PARTICULATE CONC. - ACTUAL		0.750 mg/m^3
PARTICULATE CONC. - DRY REF		1.284 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.946 mg/m^4
PARTICULATE CONC. - WET REF		1.077 mg/m^3
PARTICULATE EMISSION RATE		0.01826 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Metals & Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	1.3
DGMCF	0.983	**Probe (mg)**	3.1
Barometric Pressure	29.74 "Hg	**CWTR (g)**	465.7
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	20.1
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.6 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.46
CO2%	11.69
COppm	16.2

Measured H2O
16.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	66.16	0.69	279	68	78	78	1.8	3.0		17.23	
	2.5	68.29	0.75	287	52	79	78	1.7	3.0		18.06	118.4
	5	70.10	0.79	288	49	79	78	1.8	3.0		18.54	96.9
2	7.5	71.93	0.75	289	47	79	79	1.8	3.0		18.08	95.5
	10	73.78	0.73	289	45	79	79	1.8	3.0		17.84	99.1
	12.5	75.63	0.79	290	44	80	79	1.9	3.0		18.57	100.4
3	15	77.51	0.66	292	44	80	79	1.65	3.0		16.99	98.1
	17.5	79.29	0.68	292	43	80	79	1.7	3.0		17.25	101.7
	20	81.05	0.74	292	43	80	79	1.8	3.0		18.00	99.1
4	22.5	82.89	0.66	292	43	80	79	1.7	3.0		16.99	99.3
	25	84.67	0.63	291	43	80	79	1.6	3.0		16.59	101.7
	27.5	86.42	0.72	291	43	81	79	1.8	3.0		17.74	102.3
5	30	88.25	0.67	291	43	80	79	1.7	3.0		17.11	100.0
	32.5	90.05	0.64	291	43	81	79	1.7	3.0		16.72	102.0
	35	91.84	0.69	291	43	81	79	1.7	3.0		17.37	103.7
6	37.5	93.62	0.71	292	43	81	79	1.7	3.0		17.63	99.3
	40	95.40	0.64	293	44	81	80	1.7	3.0		16.75	98.0
	42.5	97.18	0.7	294	43	81	80	1.8	3.0		17.53	103.2
7	45	99.00	0.68	295	43	81	80	1.75	3.0		17.28	101.0
	47.5	100.79	0.66	295	43	82	80	1.7	3.0		17.03	100.8
	50	102.58	0.64	296	43	82	80	1.7	3.0		16.78	102.2
8	52.5	104.36	0.67	296	44	82	80	1.7	3.0		17.17	103.3
	55	106.14	0.65	296	44	82	80	1.7	3.0		16.91	100.9
	57.5	107.90	0.69	296	43	82	80	1.8	3.0		17.42	101.3
9	60	109.71	0.67	295	43	82	80	1.8	3.0		17.16	101.2
	62.5	111.53	0.65	294	43	82	80	1.7	3.0		16.89	103.2
	65	113.31	0.65	293	43	82	80	1.7	3.0		16.88	102.3
10	67.5	115.08	0.59	292	43	82	80	1.5	3.0		16.07	101.7
	70	116.79	0.6	292	43	82	80	1.5	3.0		16.20	103.0
	72.5	118.48	0.6	293	43	82	81	1.5	3.0		16.21	101.0
11	75	120.18	0.5	293	44	82	81	1.2	3.0		14.80	101.5

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Metals & Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	1.3
DGMCF	0.983	**Probe (mg)**	3.1
Barometric Pressure	29.74 "Hg	**CWTR (g)**	465.7
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	20.1
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.6 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.46
CO2%	11.69
COppm	16.2

Measured H2O
16.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Temperatures: Imp. Out °F	Temperatures: DGM Out °F	Temperatures: DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	77.5	121.75	0.54	292	44	83	81	1.2	3.0		15.37	**102.6**
	80	123.28	0.5	292	44	82	81	1.2	3.0		14.79	**96.1**
12	82.5	124.81	0.5	291	44	82	81	1.2	3.0		14.78	**100.0**
	85	126.35	0.58	291	44	83	81	1.4	3.0		15.92	**100.5**
	87.5	128.00	0.55	290	44	83	81	1.3	3.0		15.49	**100.0**
	90	129.60								0.6		99.5
1	0	130.20	0.72	283	63	82	81	1.9	3.5		17.64	
	2.5	132.10	0.77	288	54	82	81	1.9	3.5		18.31	**103.0**
	5	134.00	0.74	288	48	82	82	1.85	3.5		17.95	**99.9**
2	7.5	135.88	0.7	287	47	83	82	1.75	3.5		17.44	**100.8**
	10	137.68	0.68	287	46	83	82	1.75	3.5		17.19	**99.0**
	12.5	139.51	0.74	286	46	83	82	1.85	3.5		17.92	**102.1**
3	15	141.40	0.67	286	46	83	82	1.7	3.5		17.05	**101.1**
	17.5	143.17	0.66	285	46	83	82	1.7	3.5		16.92	**99.4**
	20	144.95	0.72	285	46	83	82	1.8	3.0		17.67	**100.7**
4	22.5	146.79	0.69	285	46	83	82	1.8	3.0		17.30	**99.7**
	25	148.63	0.64	286	46	83	82	1.6	3.0		16.67	**101.8**
	27.5	150.38	0.68	286	47	83	82	1.7	3.0		17.18	**100.6**
5	30	152.15	0.65	285	47	84	82	1.7	3.0		16.79	**98.7**
	32.5	153.92	0.63	285	48	83	82	1.7	3.0		16.53	**100.8**
	35	155.67	0.6	285	49	84	83	1.6	3.0		16.13	**101.3**
6	37.5	157.40	0.63	285	48	84	83	1.5	3.0		16.53	**102.4**
	40	159.10	0.61	286	50	84	83	1.5	3.0		16.27	**98.2**
	42.5	160.79	0.58	286	50	84	83	1.5	3.0		15.87	**99.3**
7	45	162.50	0.63	287	50	84	83	1.6	3.0		16.55	**103.0**
	47.5	164.21	0.59	286	50	84	83	1.6	3.0		16.00	**98.9**
	50	165.93	0.59	286	49	84	83	1.5	3.0		16.00	**102.7**
8	52.5	167.63	0.59	286	48	84	83	1.5	3.0		16.00	**101.5**
	55	169.30	0.59	286	48	84	83	1.5	3.0		16.00	**99.7**
	57.5	171.00	0.59	286	48	85	83	1.5	3.0		16.00	**101.5**
9	60	172.67	0.55	286	47	85	83	1.4	3.0		15.45	**99.6**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Metals & Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	1.3
DGMCF	0.983	**Probe (mg)**	3.1
Barometric Pressure	29.74 "Hg	**CWTR (g)**	465.7
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	20.1
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.6 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.46
CO2%	11.69
COppm	16.2

Measured H2O
16.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	62.5	174.30	0.64	285	47	85	83	1.6	3.0		16.66	**100.7**
	65	176.04	0.56	284	47	85	83	1.4	3.0		15.57	**99.6**
10	67.5	177.69	0.42	285	47	84	83	1	3.0		13.49	**100.9**
	70	179.13	0.41	284	47	84	83	1	3.0		13.32	**101.7**
	72.5	180.52	0.41	284	47	85	83	1	3.0		13.32	**99.3**
11	75	181.91	0.54	285	47	85	83	1.3	3.0		15.30	**99.2**
	77.5	183.42	0.54	285	47	85	83	1.5	3.0		15.30	**94.1**
	80	185.10	0.53	284	47	85	83	1.4	3.0		15.15	**104.7**
12	82.5	186.75	0.45	284	48	85	83	1.1	3.0		13.96	**103.7**
	85	188.25	0.45	284	48	85	83	1.1	3.0		13.96	**102.2**
	87.5	189.72	0.43	285	48	85	83	1.1	3.0		13.65	**100.2**
	90	191.14										**99.1**

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 1 BH Outlet
Test No.:	2 - Metals & Particulate
Date:	May 2, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.983
NOZZLE DIAMETER	6.45 mm
DRY REF GAS VOLUME SAMPLED	3.513 m^3
AVGERGE ISOKINETICITY	100.0 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	141.3 °C
AVERAGE GAS MOISTURE BY VOLUME	15.3 %
AVERAGE GAS VELOCITY	16.82 m/s
BAROMETRIC PRESSURE (Station)	100.677 Kpa
STATIC PRESSURE	-2.316 Kpa
ABSOLUTE GAS PRESSURE	98.362 Kpa
OXYGEN CONCENTRATION	7.75 %
CARBON DIOXIDE CONCENTRATION	11.24 %
CARBON MONOXIDE CONCENTRATION	16.9 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.86 m^3/s
DRY REF GAS FLOWRATE	14.71 Rm^3/s
DRY ADJ GAS FLOWRATE	19.54 Rm^3/s
WET REF GAS FLOWRATE	17.37 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	1.9 mg
	-FILTER	1.2 mg
	-TOTAL	3.1 mg
DRY REF GAS VOLUME SAMPLED		3.513 m^3
PARTICULATE CONC. - ACTUAL		0.522 mg/m^3
PARTICULATE CONC. - DRY REF		0.882 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.664 mg/m^4
PARTICULATE CONC. - WET REF		0.748 mg/m^3
PARTICULATE EMISSION RATE		0.01298 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)
Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant: Covanta - DYEC
Test No.: 2 - Metals & Particulate
Date: May 2, 2016

Plant Location: Courtice, ON
Test Location: Boiler No. 1 BH Outlet
Operator: AN

Pitot Factor	0.841	**Filter (mg)**	1.2
DGMCF	0.983	**Probe (mg)**	1.9
Barometric Pressure	29.73 "Hg	**CWTR (g)**	446
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	19.5
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.75 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.75
CO2%	11.24
COppm	16.9

Measured H2O
15.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	91.78	0.75	280	75	84	83	2	3.0		17.96	
	2.5	93.70	0.75	285	65	84	83	1.9	3.0		18.02	**100.4**
	5	95.63	0.71	286	60	84	83	1.8	3.0		17.54	**101.3**
2	7.5	97.46	0.73	285	59	84	83	1.9	3.0		17.77	**98.7**
	10	99.33	0.74	285	58	83	83	1.9	3.0		17.90	**99.5**
	12.5	101.23	0.74	285	58	83	84	1.9	3.0		17.90	**100.5**
3	15	103.10	0.68	284	59	84	83	1.75	3.0		17.14	**98.8**
	17.5	104.92	0.67	284	58	84	83	1.7	3.0		17.02	**100.2**
	20	106.73	0.68	284	59	84	83	1.7	3.0		17.14	**100.4**
4	22.5	108.55	0.61	284	60	83	83	1.5	3.0		16.24	**100.2**
	25	110.23	0.63	283	58	84	83	1.6	3.0		16.49	**97.7**
	27.5	111.88	0.68	284	56	84	83	1.7	3.0		17.14	**94.3**
5	30	113.76	0.72	284	54	84	83	1.9	3.0		17.64	**103.5**
	32.5	115.63	0.71	284	53	84	83	1.9	3.0		17.52	**100.1**
	35	117.50	0.68	286	56	86	86	1.7	3.0		17.17	**100.8**
6	37.5	119.35	0.6	285	53	85	84	1.6	3.0		16.11	**101.5**
	40	121.10	0.6	285	53	85	84	1.6	3.0		16.11	**102.4**
	42.5	122.79	0.61	286	55	84	83	1.6	3.0		16.26	**98.9**
7	45	124.54	0.55	285	53	84	83	1.45	3.0		15.43	**101.8**
	47.5	126.24	0.57	285	53	84	83	1.45	3.0		15.71	**104.1**
	50	127.87	0.56	285	50	84	83	1.45	3.0		15.57	**98.0**
8	52.5	129.56	0.57	285	50	84	83	1.5	3.0		15.71	**102.5**
	55	131.22	0.6	284	50	84	83	1.5	3.0		16.10	**99.8**
	57.5	132.92	0.6	284	50	84	83	1.5	3.0		16.10	**99.6**
9	60	134.58	0.59	284	49	85	83	1.6	3.0		15.97	**97.2**
	62.5	136.30	0.58	284	49	85	84	1.5	3.0		15.83	**101.5**
	65	138.01	0.59	284	49	84	83	1.5	3.0		15.97	**101.7**
10	67.5	139.70	0.55	284	49	85	83	1.4	3.0		15.42	**99.8**
	70	141.32	0.5	284	49	84	83	1.3	3.0		14.70	**99.0**
	72.5	142.89	0.53	284	50	85	84	1.35	3.0		15.14	**100.7**
11	75	144.47	0.48	283	50	85	84	1.3	3.0		14.39	**98.2**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Metals & Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	1.2
DGMCF	0.983	**Probe (mg)**	1.9
Barometric Pressure	29.73 "Hg	**CWTR (g)**	446
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	19.5
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.75 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.75
CO2%	11.24
COppm	16.9

Measured H2O
15.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	77.5	146.05	0.5	283	50	85	84	1.3	3.0		14.69	**103.2**
	80	147.65	0.48	283	51	85	84	1.2	3.0		14.39	**102.4**
12	82.5	149.17	0.5	283	51	85	84	1.3	3.0		14.69	**99.2**
	85	150.73	0.5	283	51	85	84	1.3	3.0		14.69	**99.8**
	87.5	152.28	0.53	283	51	85	84	1.3	3.0		15.12	**99.2**
	90	153.85								0.75		**97.5**
1	0	154.60	0.81	280	65	84	83	2.1	3.5		18.66	
	2.5	156.59	0.85	284	55	84	83	2.1	3.5		19.17	**100.2**
	5	158.63	0.83	285	49	84	84	2.1	3.5		18.95	**100.5**
2	7.5	160.64	0.83	286	49	84	84	2.1	3.5		18.97	**100.2**
	10	162.65	0.74	286	47	84	84	1.9	3.5		17.91	**100.3**
	12.5	164.55	0.75	286	47	84	84	1.9	3.5		18.03	**100.3**
3	15	166.45	0.78	287	47	83	83	1.9	3.5		18.40	**99.7**
	17.5	168.38	0.84	288	48	84	83	2.1	4.0		19.11	**99.5**
	20	170.37	0.85	288	47	84	84	2.1	4.0		19.22	**98.9**
4	22.5	172.38	0.81	288	47	84	84	2.1	4.0		18.76	**99.2**
	25	174.33	0.8	290	48	84	83	2.1	4.0		18.67	**98.6**
	27.5	176.36	0.8	290	49	83	83	2.1	4.0		18.67	**103.5**
5	30	178.35	0.8	292	49	84	83	2.1	4.0		18.69	**101.6**
	32.5	180.36	0.75	293	49	84	83	1.95	4.0		18.11	**102.7**
	35	182.28	0.74	293	49	84	83	1.95	4.0		17.99	**101.3**
6	37.5	184.20	0.73	293	50	84	83	1.95	4.0		17.87	**102.0**
	40	186.08	0.64	293	51	84	83	1.6	3.5		16.73	**100.5**
	42.5	187.87	0.65	293	51	84	83	1.6	3.5		16.86	**102.2**
7	45	189.63	0.69	292	51	84	83	1.7	3.5		17.36	**99.7**
	47.5	191.41	0.67	291	51	84	83	1.7	3.5		17.10	**97.8**
	50	193.19	0.67	290	50	84	83	1.7	3.5		17.09	**99.2**
8	52.5	195.00	0.68	290	51	84	83	1.7	3.5		17.21	**100.8**
	55	196.78	0.68	289	51	84	83	1.7	3.5		17.20	**98.4**
	57.5	198.57	0.68	289	51	84	83	1.7	3.5		17.20	**98.9**
9	60	200.38	0.68	289	52	84	83	1.7	3.5		17.20	**100.0**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Metals & Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	1.2
DGMCF	0.983	**Probe (mg)**	1.9
Barometric Pressure	29.73 "Hg	**CWTR (g)**	446
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	19.5
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.75 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.75
CO2%	11.24
COppm	16.9

Measured H2O
15.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	62.5	202.17	0.68	288	50	84	83	1.7	3.5		17.19	**98.9**
	65	203.97	0.68	288	49	84	83	1.7	3.5		17.19	**99.3**
10	67.5	205.78	0.61	288	48	84	83	1.5	3.5		16.28	**99.9**
	70	207.47	0.61	289	48	84	83	1.5	3.5		16.29	**98.4**
	72.5	209.16	0.61	287	51	86	85	1.5	3.5		16.27	**98.5**
11	75	210.84	0.6	287	47	84	83	1.5	3.5		16.14	**97.4**
	77.5	212.52	0.55	287	47	84	83	1.4	3.5		15.45	**98.6**
	80	214.16	0.57	286	48	84	83	1.4	3.5		15.72	**100.5**
12	82.5	215.80	0.56	286	48	84	83	1.4	3.5		15.58	**98.7**
	85	217.43	0.5	285	48	84	83	1.2	3.0		14.71	**98.9**
	87.5	218.98	0.5	285	49	84	83	1.2	3.0		14.71	**99.4**
	90	220.51										**98.2**

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, Ontario
Test Location:	Boiler No. 1 BH Outlet
Test No.:	3 - Metals and Particulate
Date:	May 4, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.983
NOZZLE DIAMETER	6.43 mm
DRY REF GAS VOLUME SAMPLED	3.321 m^3
AVGERGE ISOKINETICITY	100.6 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	142.6 °C
AVERAGE GAS MOISTURE BY VOLUME	15.6 %
AVERAGE GAS VELOCITY	16.30 m/s
BAROMETRIC PRESSURE (Station)	99.695 Kpa
STATIC PRESSURE	-3.038 Kpa
ABSOLUTE GAS PRESSURE	96.657 Kpa
OXYGEN CONCENTRATION	7.09 %
CARBON DIOXIDE CONCENTRATION	11.73 %
CARBON MONOXIDE CONCENTRATION	19.4 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.09 m^3/s
DRY REF GAS FLOWRATE	13.90 Rm^3/s
DRY ADJ GAS FLOWRATE	19.39 Rm^3/s
WET REF GAS FLOWRATE	16.48 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0.9 mg
	-FILTER	0.3 mg
	-TOTAL	1.2 mg
DRY REF GAS VOLUME SAMPLED		3.321 m^3
PARTICULATE CONC. - ACTUAL		0.209 mg/m^3
PARTICULATE CONC. - DRY REF		0.361 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.259 mg/m^4
PARTICULATE CONC. - WET REF		0.305 mg/m^3
PARTICULATE EMISSION RATE		0.00502 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - Metals and Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 4, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.983	**Probe (mg)**	0.9
Barometric Pressure	29.44 "Hg	**CWTR (g)**	432.6
Static Pressure	-12.200 "H_2O	**WCBDA (g)**	19.4
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.58 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.09
CO2%	11.73
COppm	19.4

Measured H2O
15.6 %

				Temperatures								
Point	Time	DGM Reading	ΔP "H2O	Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	85.76	0.59	285	78	84	83	1.5	3.0		16.12	
	2.5	87.53	0.72	292	59	85	84	1.9	3.5		17.89	**105.6**
	5	89.37	0.75	292	55	85	84	1.95	3.5		18.26	**99.8**
2	7.5	91.24	0.79	292	54	84	84	2.05	3.5		18.74	**99.4**
	10	93.17	0.76	293	51	84	84	2	3.5		18.39	**100.0**
	12.5	95.10	0.77	293	51	84	84	2	3.5		18.51	**102.0**
3	15	97.04	0.71	293	50	84	84	1.85	3.5		17.78	**101.9**
	17.5	98.90	0.73	293	49	85	84	1.9	3.5		18.03	**101.7**
	20	100.76	0.71	293	50	85	84	1.8	3.5		17.78	**100.2**
4	22.5	102.60	0.7	292	50	85	84	1.75	3.5		17.64	**100.5**
	25	104.44	0.64	292	49	85	84	1.6	3.0		16.87	**101.1**
	27.5	106.18	0.69	291	49	85	84	1.8	3.0		17.50	**100.0**
5	30	108.03	0.64	290	49	85	84	1.6	3.0		16.84	**102.4**
	32.5	109.78	0.61	290	50	85	84	1.55	3.0		16.45	**100.4**
	35	111.48	0.67	290	50	85	84	1.7	3.0		17.24	**99.9**
6	37.5	113.26	0.68	291	50	85	84	1.7	3.0		17.37	**99.9**
	40	115.06	0.65	291	50	86	84	1.7	3.0		16.99	**100.3**
	42.5	116.84	0.61	292	50	86	84	1.55	3.0		16.47	**101.4**
7	45	118.57	0.57	291	50	86	84	1.4	3.0		15.91	**101.7**
	47.5	120.23	0.54	292	50	85	84	1.3	3.0		15.49	**100.9**
	50	121.80	0.55	293	50	86	84	1.4	3.0		15.65	**98.1**
8	52.5	123.44	0.63	294	50	86	85	1.6	3.0		16.76	**101.6**
	55	125.16	0.6	294	49	86	85	1.5	3.0		16.35	**99.6**
	57.5	126.85	0.58	294	49	86	85	1.4	3.0		16.08	**100.2**
9	60	128.47	0.61	293	49	86	85	1.5	3.0		16.48	**97.7**
	62.5	130.17	0.61	292	49	87	85	1.5	3.0		16.47	**99.9**
	65	131.85	0.65	292	50	87	85	1.65	3.0		17.00	**98.6**
10	67.5	133.62	0.61	290	50	87	85	1.6	3.0		16.45	**100.7**
	70	135.36	0.58	288	50	87	85	1.5	3.0		16.01	**102.0**
	72.5	137.04	0.58	287	50	87	85	1.5	3.0		16.00	**100.8**
11	75	138.70	0.49	287	51	87	85	1.2	3.0		14.71	**99.6**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - Metals and Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 4, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.983	**Probe (mg)**	0.9
Barometric Pressure	29.44 "Hg	**CWTR (g)**	432.6
Static Pressure	-12.200 "H_2O	**WCBDA (g)**	19.4
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.58 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.09
CO2%	11.73
COppm	19.4

Measured H2O
15.6 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	77.5	140.25	0.5	287	52	86	85	1.25	3.0		14.86	**101.1**
	80	141.79	0.51	286	52	87	85	1.3	3.0		15.00	**99.5**
12	82.5	143.38	0.51	286	52	87	85	1.3	3.0		15.00	**101.6**
	85	144.93	0.44	285	52	87	85	1.05	3.0		13.92	**99.0**
	87.5	146.39	0.43	285	52	87	86	1.05	3.0		13.76	**100.3**
	90	147.84								0.58		**100.7**
1	0	148.42	0.6	285	68	87	86	1.6	3.0		16.26	
	2.5	150.19	0.67	289	57	87	86	1.7	3.0		17.22	**104.2**
	5	151.99	0.65	289	54	87	86	1.65	3.0		16.96	**100.5**
2	7.5	153.77	0.69	288	54	87	86	1.75	3.0		17.47	**100.9**
	10	155.57	0.67	287	53	87	86	1.75	3.0		17.20	**99.0**
	12.5	157.39	0.64	287	53	87	86	1.6	3.0		16.81	**101.5**
3	15	159.16	0.64	286	53	87	86	1.6	3.0		16.80	**101.0**
	17.5	160.92	0.64	286	52	87	86	1.6	3.0		16.80	**100.4**
	20	162.67	0.62	286	51	87	86	1.6	3.0		16.54	**99.8**
4	22.5	164.41	0.61	286	51	88	86	1.55	3.0		16.40	**100.8**
	25	166.14	0.61	286	51	88	86	1.55	3.0		16.40	**100.9**
	27.5	167.85	0.6	286	50	88	86	1.55	3.0		16.27	**99.8**
5	30	169.54	0.59	286	50	88	86	1.55	3.0		16.13	**99.4**
	32.5	171.27	0.59	288	50	87	87	1.55	3.0		16.15	**102.6**
	35	172.96	0.58	288	50	87	86	1.55	3.0		16.01	**100.4**
6	37.5	174.65	0.53	289	50	88	86	1.35	3.0		15.32	**101.4**
	40	176.27	0.52	289	50	88	87	1.3	3.0		15.17	**101.6**
	42.5	177.87	0.52	289	50	88	87	1.3	3.0		15.17	**101.2**
7	45	179.47	0.54	289	50	88	87	1.4	3.0		15.46	**101.2**
	47.5	181.07	0.53	289	51	88	87	1.4	3.0		15.32	**99.3**
	50	182.69	0.54	289	51	88	87	1.4	3.0		15.46	**101.5**
8	52.5	184.32	0.57	288	51	88	87	1.45	3.0		15.88	**101.2**
	55	185.97	0.56	288	51	88	87	1.45	3.0		15.74	**99.6**
	57.5	187.65	0.56	288	52	88	87	1.4	3.0		15.74	**102.3**
9	60	189.29	0.6	287	52	88	87	1.55	3.0		16.28	**99.9**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - Metals and Particulate	**Test Location:**	Boiler No. 1 BH Outlet
Date:	May 4, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.983	**Probe (mg)**	0.9
Barometric Pressure	29.44 "Hg	**CWTR (g)**	432.6
Static Pressure	-12.200 "H_2O	**WCBDA (g)**	19.4
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.58 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.09
CO2%	11.73
COppm	19.4

Measured H2O
15.6 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	62.5	191.00	0.6	287	51	88	87	1.55	3.0		16.28	**100.6**
	65	192.70	0.59	287	51	88	87	1.55	3.0		16.14	**100.0**
10	67.5	194.43	0.59	286	51	88	87	1.5	3.0		16.13	**102.6**
	70	196.12	0.57	285	51	88	87	1.45	3.0		15.84	**100.2**
	72.5	197.79	0.57	285	51	88	87	1.45	3.0		15.84	**100.6**
11	75	199.45	0.53	285	51	88	87	1.3	3.0		15.28	**100.0**
	77.5	201.04	0.57	284	52	88	87	1.45	3.0		15.83	**99.3**
	80	202.70	0.57	285	51	88	87	1.45	3.0		15.84	**100.0**
12	82.5	204.37	0.51	285	51	88	87	1.3	3.0		14.99	**100.6**
	85	205.92	0.51	284	52	88	87	1.3	3.0		14.98	**98.7**
	87.5	207.50	0.5	285	52	88	87	1.3	3.0		14.84	**100.5**
	90	209.08										**101.6**

APPENDIX 23

Particle Size Distribution Test Emission Calculations at the Boiler No. 1 BH Outlet (6 pages)

EPA Draft Method - $PM_{2.5}$ Calculations

Date:	May 3, 2016
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	Test 1
Test Location:	Unit No. 1 BH Outlet

Project No.:	21656
Operator:	DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.47
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.983
Pitot Factor	0.846
Barometric Pressure (" Hg)	29.63
Static Pressure ("H_2O)	-12.10
Oxygen Content (%)	7.4
Carbon Dioxide Content (%)	11.6
Carbon Monoxide Content (PPM)	12.4
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1773

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.36 Rft^3/min*	10.3 l/min*
Cyclone Qs_{actual}	0.63 ft^3/min	17.9 l/min
Stack Gas Sampling Parameters		
V_{ms}	43.6 Rft^3*	1.234 Rm^3*
Average Cyclone I Cut Diameter		9.73 µm
Average Cyclone IV Cut Diameter		2.17 µm
Average Isokineticity		103.3 %
Stack Gas Physical Parameters		
B_{ws}	16.8 % v/v	
Average m	213.7 (dimensionless)	
M_d	30.15 lbs/lbs mole	
M_w	28.11 lbs/lbs mole	
Average T_s	286 °F	141 °C
Average U_s	59.6 ft/s	18.17 m/s
Stack Area	15.87 ft^2	1.474 m^2
Actual Q_s	56762 ACFM	26.79 m^3/s
Wet Reference Q_s	39248 SCFM*	18.52 Rm^3/s*
Dry Reference Q_s	32671 SCFM*	15.42 Rm^3/s*
Summary of Particulate Emission Rates		
	Dry Ref. Conc.	**Emission Rate**
Total Part. (a)	2.11 mg/Rm^3*	0.0325 g/s
Total Part. (b)	15.2 mg/Rm^3*	0.2349 g/s
$PM_{2.5}$ Part. (a)	1.30 mg/Rm^3*	0.01999 g/s
$PM_{2.5}$ Part. (b)	14.4 mg/Rm^3*	0.2224 g/s
Cond. Part.	13.1 mg/Rm^3*	0.2024 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	491.2	672.4	764.5	973.9	
final volume or weight (ml or mg)	663.7	670.4	761.0	989.7	
gain in volume or weight (ml or mg)	172.5	-2.0	-3.5	15.8	
				TOTAL	182.8

Particulate Weight Gains	>10mm	>2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	<0.5	0.5	<0.5	1.1	16.2

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 3, 2016	Plant: DYEC	Test No.: Test 1	Project No.: 21656
Client: Covanta	Location: Courtice, Ontario	Test location: Unit No. 1 BH Outlet	Operator: DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	DR ("H_2O)	Desired cfm	Stack Temp (°F)	Meter Temp Outlet (°F)	Meter Temp Inlet (°F)	Meter Pressure DH ("H_2O)	Pump Vacuum Gauge ("Hg)	Stack Gas Velocity (ft/s)	Cyclone I Cut Diam. (mm)	Cyclone IV Cut Diam. (mm)	ISO (%)
1	1	0.00	10.50	23.24	0.83	0.35	282	80	79	0.45	3.0	63.0	9.55	2.10	99.5
	2	10.50	10.25	27.28	0.80	0.35	284	80	79	0.45	3.0	62.0	9.63	2.13	100.3
	3	20.75	10.00	31.18	0.72	0.35	284	80	79	0.45	3.0	58.8	9.69	2.15	104.8
	4	30.75	9.50	34.95	0.69	0.35	288	80	79	0.45	3.0	57.7	9.76	2.18	106.4
	5	40.25	9.00	38.50	0.75	0.35	288	80	79	0.45	3.0	60.2	9.59	2.12	104.7
	6	49.25	9.00	41.95	0.70	0.35	287	80	79	0.45	3.0	58.1	10.44	2.45	96.0
		58.25		45.01											
2	1	0.00	11.25	45.01	0.75	0.35	284	80	79	0.45	3.0	60.0	9.57	2.10	104.6
	2	11.25	11.25	49.33	0.81	0.35	287	81	80	0.45	3.0	62.5	9.75	2.18	98.3
	3	22.50	10.50	53.55	0.69	0.35	287	80	80	0.45	3.0	57.7	9.70	2.16	107.2
	4	33.00	10.00	57.51	0.68	0.35	287	81	80	0.45	3.0	57.3	9.73	2.17	107.5
	5	43.00	9.25	61.27	0.70	0.35	287	81	80	0.45	3.0	58.1	9.83	2.21	104.5
	6	52.25	9.00	64.70	0.75	0.35	287	81	80	0.45	3.0	60.1	9.50	2.08	105.9
		61.25		68.20											
Averages					**0.74**		**286**	**80**		**0.45**		**59.6**	**9.73**	**2.17**	**103.3**

EPA Draft Method - $PM_{2.5}$ Calculations

Date:	May 3, 2016
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	Test 2
Test Location:	Unit No. 1 BH Outlet

Project No.: 21656
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.47
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.983
Pitot Factor	0.846
Barometric Pressure (" Hg)	29.58
Static Pressure ("H_2O)	-12.10
Oxygen Content (%)	6.8
Carbon Dioxide Content (%)	12.2
Carbon Monoxide Content (PPM)	21.4
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1773

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.36 Rft^3/min*	10.2 l/min*
Cyclone Qs_{actual}	0.62 ft^3/min	17.6 l/min
Stack Gas Sampling Parameters		
V_{ms}	43.2 Rft^3*	1.225 Rm^3*
Average Cyclone I Cut Diameter		9.86 µm
Average Cyclone IV Cut Diameter		2.22 µm
Average Isokineticity		109.1 %
Stack Gas Physical Parameters		
B_{ws}	15.8 % v/v	
Average m	213.8 (dimensionless)	
M_d	30.22 lbs/lbs mole	
M_w	28.29 lbs/lbs mole	
Average T_s	285 °F	140 °C
Average U_s	55.4 ft/s	16.88 m/s
Stack Area	15.87 ft^2	1.474 m^2
Actual Q_s	52729 ACFM	24.89 m^3/s
Wet Reference Q_s	36453 SCFM*	17.20 Rm^3/s*
Dry Reference Q_s	30687 SCFM*	14.48 Rm^3/s*
Summary of Particulate Emission Rates		
	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.31 mg/Rm^3*	0.0189 g/s
Total Part. (b)	15.2 mg/Rm^3*	0.2200 g/s
$PM_{2.5}$ Part. (a)	0.41 mg/Rm^3*	0.00591 g/s
$PM_{2.5}$ Part. (b)	14.3 mg/Rm^3*	0.2070 g/s
Cond. Part.	13.9 mg/Rm^3*	0.2011 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	476.3	564.1	782.0	907.1	
final volume or weight (ml or mg)	646.0	561.5	770.0	921.3	
gain in volume or weight (ml or mg)	169.7	-2.6	-12.0	14.2	
				TOTAL	169.3

Particulate Weight Gains	>10mm	>2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.6	<0.5	<0.5	0.0	17.0

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 3, 2016	**Plant:** DYEC	**Test No.:** Test 2	**Project No.:** 21656
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** Unit No. 1 BH Outlet	**Operator:** DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	DR ("H_2O)	Desired cfm	Stack Temp (°F)	Meter Temp Outlet (°F)	Meter Temp Inlet (°F)	Meter Pressure DH ("H_2O)	Pump Vacuum Gauge ("Hg)	Stack Gas Velocity (ft/s)	Cyclone I Cut Diam. (mm)	Cyclone IV Cut Diam. (mm)	ISO (%)
1	1	0.00	10.50	68.96	0.80	0.35	280	80	79	0.45	3.0	61.7	9.62	2.12	100.3
	2	10.50	10.50	73.00	0.67	0.35	283	80	79	0.45	3.0	56.6	9.70	2.15	108.7
	3	21.00	9.75	77.00	0.58	0.35	283	80	79	0.45	3.0	52.6	9.92	2.24	113.2
	4	30.75	9.75	80.60	0.57	0.35	281	80	79	0.45	3.0	52.1	9.72	2.16	117.2
	5	40.50	10.00	84.30	0.58	0.35	283	80	79	0.45	3.0	52.6	9.72	2.16	116.5
	6	50.50	9.75	88.10	0.56	0.35	280	80	79	0.45	3.0	51.6	10.52	2.47	105.7
		60.25		91.41											
2	1	0.00	10.00	91.41	0.77	0.35	283	80	79	0.45	3.0	60.6	9.44	2.05	105.4
	2	10.00	10.50	95.37	0.72	0.35	289	80	80	0.45	3.0	58.9	10.02	2.28	100.7
	3	20.50	9.75	99.20	0.65	0.35	291	81	80	0.45	3.0	56.0	9.97	2.26	107.0
	4	30.25	9.50	102.79	0.58	0.35	291	81	80	0.45	3.0	52.9	9.98	2.27	113.1
	5	39.75	9.75	106.28	0.62	0.35	287	82	81	0.45	3.0	54.5	10.05	2.29	107.9
	6	49.50	10.00	109.83	0.62	0.35	287	82	81	0.45	3.0	54.5	9.70	2.15	113.5
		59.50		113.66											
Averages					**0.64**		**285**	**80**		**0.45**		**55.4**	**9.86**	**2.22**	**109.1**

EPA Draft Method - $PM_{2.5}$ Calculations

Date:	May 3, 2016
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	Test 3
Test Location:	Unit No. 1 BH Outlet

Project No.: 21656
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.47
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.983
Pitot Factor	0.846
Barometric Pressure (" Hg)	29.54
Static Pressure ("H_2O)	-12.10
Oxygen Content (%)	7.2
Carbon Dioxide Content (%)	11.8
Carbon Monoxide Content (PPM)	23.3
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1773

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.36 Rft^3/min*	10.1 l/min*
Cyclone Qs_{actual}	0.62 ft^3/min	17.6 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.8 Rft^3*	1.213 Rm^3*
Average Cyclone I Cut Diameter		9.87 µm
Average Cyclone IV Cut Diameter		2.22 µm
Average Isokineticity		107.5 %
Stack Gas Physical Parameters		
B_{ws}	16.3 % v/v	
Average m	214.1 (dimensionless)	
M_d	30.18 lbs/lbs mole	
M_w	28.19 lbs/lbs mole	
Average T_s	287 °F	141 °C
Average U_s	56.4 ft/s	17.18 m/s
Stack Area	15.87 ft^2	1.474 m^2
Actual Q_s	53658 ACFM	25.32 m^3/s
Wet Reference Q_s	36953 SCFM*	17.44 Rm^3/s*
Dry Reference Q_s	30916 SCFM*	14.59 Rm^3/s*
Summary of Particulate Emission Rates		
	Dry Ref. Conc.	Emission Rate
Total Part. (a)	2.47 mg/Rm^3*	0.0361 g/s
Total Part. (b)	13.6 mg/Rm^3*	0.1984 g/s
$PM_{2.5}$ Part. (a)	1.40 mg/Rm^3*	0.02045 g/s
$PM_{2.5}$ Part. (b)	12.5 mg/Rm^3*	0.1828 g/s
Cond. Part.	11.1 mg/Rm^3*	0.1624 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	491.3	671.2	759.1	994.8	
final volume or weight (ml or mg)	655.8	670.6	758.6	1005.7	
gain in volume or weight (ml or mg)	164.5	-0.6	-0.5	10.9	
				TOTAL	**174.3**

Particulate Weight Gains	>10mm	>2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	<0.5	0.8	<0.5	1.2	13.5

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 3, 2016	Plant: DYEC	Test No.: Test 3	Project No.: 21656
Client: Covanta	Location: Courtice, Ontario	Test location: Unit No. 1 BH Outlet	Operator: DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	DR ("H_2O)	Desired cfm	Stack Temp (°F)	Meter Temp Outlet (°F)	Meter Temp Inlet (°F)	Meter Pressure DH ("H_2O)	Pump Vacuum Gauge ("Hg)	Stack Gas Velocity (ft/s)	Cyclone I Cut Diam. (mm)	Cyclone IV Cut Diam. (mm)	ISO (%)
1	1	0.00	11.25	13.83	0.78	0.35	291	83	82	0.45	3.0	61.5	9.91	2.24	98.4
	2	11.25	10.25	18.00	0.67	0.35	291	83	82	0.45	3.0	57.0	9.92	2.25	105.9
	3	21.50	9.50	21.79	0.68	0.35	290	84	83	0.45	3.0	57.4	9.78	2.19	107.1
	4	31.00	9.50	25.38	0.62	0.35	282	84	82	0.45	3.0	54.5	9.84	2.21	110.5
	5	40.50	9.50	28.93	0.61	0.35	280	85	83	0.45	3.0	54.0	9.90	2.23	110.1
	6	50.00	9.25	32.45	0.56	0.35	282	85	83	0.45	3.0	51.8	9.66	2.14	119.2
		59.25		36.00											
2	1	0.00	11.00	36.00	0.80	0.35	290	85	83	0.45	3.0	62.2	9.95	2.26	96.4
	2	11.00	10.50	40.06	0.73	0.35	291	85	83	0.45	3.0	59.5	10.00	2.28	100.3
	3	21.50	10.00	43.91	0.65	0.35	287	85	83	0.45	3.0	56.0	9.99	2.27	106.1
	4	31.50	9.50	47.58	0.60	0.35	286	84	83	0.45	3.0	53.8	9.89	2.23	111.9
	5	41.00	9.75	51.11	0.65	0.35	285	84	83	0.45	3.0	55.9	9.71	2.16	110.3
	6	50.75	9.75	54.83	0.58	0.35	285	84	83	0.45	3.0	52.8	9.88	2.23	113.9
		60.50		58.46											
Averages					0.66		287	84		0.45		56.4	9.87	2.22	107.5

APPENDIX 24

Acid Gases Test Emission Calculations at the Boiler No. 1 BH Outlet (6 pages)

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Unit No. 1 BH Outlet
Test No.:	1 - Acid Gases (Method 26A)
Date:	May 2, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.98
NOZZLE DIAMETER	6.48 mm
DRY REF GAS VOLUME SAMPLED	1.181 m^3
AVGERGE ISOKINETICITY	100.3 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	145.4 °C
AVERAGE GAS MOISTURE BY VOLUME	16.5 %
AVERAGE GAS VELOCITY	17.14 m/s
BAROMETRIC PRESSURE (Station)	100.711 Kpa
STATIC PRESSURE	-2.316 Kpa
ABSOLUTE GAS PRESSURE	98.395 Kpa
OXYGEN CONCENTRATION	7.17 %
CARBON DIOXIDE CONCENTRATION	11.95 %
CARBON MONOXIDE CONCENTRATION	14.5 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.32 m^3/s
DRY REF GAS FLOWRATE	14.63 Rm^3/s
DRY ADJ GAS FLOWRATE	20.29 Rm^3/s
WET REF GAS FLOWRATE	17.52 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.181 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Acid Gases (Method 26A)	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.98	**Probe (mg)**	0
Barometric Pressure	29.74 "Hg	**CWTR (g)**	161.7
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	9.5
Nozzle	0.2553 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	1
		Number of points / Port	1

Combustion Gases	
O2%	7.17
CO2%	11.95
COppm	14.5

Measured H2O
16.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
5	0	96.45	0.66	285	75	78	77	1.65	4.0		16.92	
	5	100.10	0.69	291	58	78	78	1.6	3.5		17.37	**103.1**
	10	103.67	0.68	292	54	78	78	1.6	3.5		17.25	**98.9**
	15	107.25	0.67	293	52	79	78	1.6	3.5		17.14	**100.0**
	20	110.73	0.67	296	53	81	78	1.6	3.5		17.17	**97.9**
	25	114.30	0.66	296	53	82	79	1.6	3.5		17.04	**100.4**
	30	117.86	0.65	297	53	82	79	1.6	3.5		16.93	**100.7**
	35	121.43	0.68	296	52	83	80	1.65	3.5		17.30	**101.8**
	40	125.04	0.66	295	51	84	80	1.6	3.5		17.03	**100.4**
	45	128.58	0.69	294	51	84	80	1.65	3.5		17.40	**99.8**
	50	132.20	0.66	295	51	85	80	1.6	3.5		17.03	**99.7**
	55	135.75	0.66	295	52	84	80	1.6	3.5		17.03	**100.0**
	60	139.31										**100.4**

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Unit No. 1 BH Outlet
Test No.:	2 - Acid Gases (Method 26A)
Date:	May 2, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.98
NOZZLE DIAMETER	6.48 mm
DRY REF GAS VOLUME SAMPLED	1.158 m^3
AVGERGE ISOKINETICITY	100.0 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	141.8 °C
AVERAGE GAS MOISTURE BY VOLUME	16.2 %
AVERAGE GAS VELOCITY	16.65 m/s
BAROMETRIC PRESSURE (Station)	100.711 Kpa
STATIC PRESSURE	-2.316 Kpa
ABSOLUTE GAS PRESSURE	98.395 Kpa
OXYGEN CONCENTRATION	7.53 %
CARBON DIOXIDE CONCENTRATION	11.68 %
CARBON MONOXIDE CONCENTRATION	12.3 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.60 m^3/s
DRY REF GAS FLOWRATE	14.38 Rm^3/s
DRY ADJ GAS FLOWRATE	19.42 Rm^3/s
WET REF GAS FLOWRATE	17.17 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.158 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Acid Gases (Method 26A)	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.98	**Probe (mg)**	0
Barometric Pressure	29.74 "Hg	**CWTR (g)**	155.3
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	9.1
Nozzle	0.2553 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	1
		Number of points / Port	1

Combustion Gases	
O2%	7.53
CO2%	11.68
COppm	12.3

Measured H2O
16.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
5	0	39.79	0.67	294	80	82	81	1.65	2.5		17.15	
	5	43.46	0.61	288	49	82	81	1.55	2.5		16.30	102.4
	10	46.96	0.64	287	48	82	81	1.55	2.5		16.68	101.9
	15	50.49	0.6	286	48	83	81	1.45	2.5		16.14	100.3
	20	53.87	0.66	286	48	84	82	1.65	2.8		16.93	99.0
	25	57.45	0.64	286	48	85	82	1.55	3.0		16.67	99.8
	30	60.97	0.62	286	49	86	82	1.5	3.0		16.41	99.6
	35	64.45	0.66	286	49	86	83	1.6	3.0		16.93	99.9
	40	67.99	0.65	287	50	87	83	1.6	3.0		16.81	98.4
	45	71.52	0.66	287	50	87	83	1.65	3.0		16.94	98.9
	50	75.10	0.64	287	49	87	83	1.6	3.0		16.68	99.5
	55	78.64	0.6	287	50	87	84	1.5	3.0		16.15	99.9
	60	82.07										99.9

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Unit No. 1 BH Outlet
Test No.:	3 - Acid Gases (Method 26A)
Date:	May 2, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.98
NOZZLE DIAMETER	6.48 mm
DRY REF GAS VOLUME SAMPLED	1.124 m^3
AVGERGE ISOKINETICITY	98.6 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	140.7 °C
AVERAGE GAS MOISTURE BY VOLUME	15.1 %
AVERAGE GAS VELOCITY	16.14 m/s
BAROMETRIC PRESSURE (Station)	100.677 Kpa
STATIC PRESSURE	-2.316 Kpa
ABSOLUTE GAS PRESSURE	98.362 Kpa
OXYGEN CONCENTRATION	7.24 %
CARBON DIOXIDE CONCENTRATION	11.75 %
CARBON MONOXIDE CONCENTRATION	11.9 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	23.85 m^3/s
DRY REF GAS FLOWRATE	14.15 Rm^3/s
DRY ADJ GAS FLOWRATE	19.52 Rm^3/s
WET REF GAS FLOWRATE	16.68 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.124 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)
Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Acid Gases (Method 26A)	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 2, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.98	**Probe (mg)**	0
Barometric Pressure	29.73 "Hg	**CWTR (g)**	136.4
Static Pressure	-9.300 "H_2O	**WCBDA (g)**	11
Nozzle	0.2553 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	1
		Number of points / Port	1

Combustion Gases	
O2%	7.24
CO2%	11.75
COppm	11.9

Measured H2O
15.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	82.50	0.65	286	79	83	82	1.6	2.5		16.76	
	5	86.07	0.6	286	57	82	82	1.45	2.5		16.11	99.4
	10	89.46	0.6	285	56	82	82	1.45	2.5		16.10	98.3
	15	92.83	0.58	285	56	83	82	1.4	2.5		15.82	97.6
	20	96.16	0.57	284	57	84	82	1.4	2.5		15.68	98.0
	25	99.48	0.61	284	58	85	82	1.5	2.5		16.22	98.4
	30	102.90	0.65	285	57	85	82	1.6	3.0		16.75	97.9
	35	106.45	0.61	286	58	86	83	1.5	3.0		16.24	98.5
	40	109.91	0.62	286	59	87	83	1.55	3.0		16.37	99.0
	45	113.44	0.59	286	61	87	84	1.45	3.0		15.97	100.1
	50	116.83	0.59	286	62	87	84	1.45	3.0		15.97	98.4
	55	120.22	0.57	285	65	87	84	1.4	3.0		15.69	98.4
	60	123.58										99.2

APPENDIX 25

SVOC Test Emission Calculations at the Boiler No. 1 BH Outlet (12 pages)

ORTECH Environmental

Plant:	COVANTA - DYEC
Plant Location:	Courtice, Ontario
Test Location:	Unit No. 1 BH Outlet
Test No.:	1 - SVOC
Date:	May 9, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.983
NOZZLE DIAMETER	6.43 mm
DRY REF GAS VOLUME SAMPLED	6.539 m^3
AVGERGE ISOKINETICITY	100.5 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	142.9 °C
AVERAGE GAS MOISTURE BY VOLUME	16.1 %
AVERAGE GAS VELOCITY	15.88 m/s
BAROMETRIC PRESSURE (Station)	101.050 Kpa
STATIC PRESSURE	-2.565 Kpa
ABSOLUTE GAS PRESSURE	98.485 Kpa
OXYGEN CONCENTRATION	7.51 %
CARBON DIOXIDE CONCENTRATION	11.79 %
CARBON MONOXIDE CONCENTRATION	21.8 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	23.46 m^3/s
DRY REF GAS FLOWRATE	13.70 Rm^3/s
DRY ADJ GAS FLOWRATE	18.53 Rm^3/s
WET REF GAS FLOWRATE	16.34 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		6.539 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	COVANTA - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	1 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 9, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.84 "Hg	**CWTR (g)**	905.3
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	19.1
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.42 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.51
CO2%	11.79
COppm	21.8

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	44.56	0.64	290	74	73	72	1.55	5.0		16.70	
	5	47.91	0.67	293	52	75	74	1.6	5.5		17.12	**99.2**
	10	51.33	0.67	293	50	74	74	1.65	5.5		17.12	**98.8**
2	15	54.77	0.7	293	48	75	74	1.75	6.0		17.50	**99.5**
	20	58.31	0.66	294	50	75	74	1.65	6.0		17.00	**100.1**
	25	61.78	0.64	294	51	75	74	1.6	6.0		16.74	**101.1**
3	30	65.21	0.63	293	48	75	74	1.6	6.0		16.60	**101.5**
	35	68.63	0.64	293	50	75	74	1.55	5.5		16.73	**101.9**
	40	72.10	0.64	293	50	75	75	1.55	5.5		16.73	**102.6**
4	45	75.43	0.66	293	49	75	74	1.6	5.5		16.99	**98.3**
	50	78.80	0.62	293	48	76	75	1.5	5.5		16.47	**98.1**
	55	82.15	0.65	294	51	76	75	1.6	5.5		16.87	**100.4**
5	60	85.56	0.64	294	50	76	75	1.55	5.5		16.74	**99.9**
	65	88.94	0.6	294	47	76	75	1.5	5.5		16.21	**99.8**
	70	92.26	0.58	292	49	76	75	1.45	5.0		15.92	**101.2**
6	75	95.53	0.54	294	50	76	75	1.3	5.0		15.38	**101.3**
	80	98.65	0.56	292	47	76	75	1.4	5.0		15.64	**100.2**
	85	101.82	0.58	294	45	75	74	1.4	5.0		15.94	**99.9**
7	90	105.05	0.5	294	47	76	75	1.2	5.0		14.80	**100.3**
	95	108.05	0.49	293	46	76	75	1.15	5.0		14.64	**100.1**
	100	111.03	0.53	292	45	75	74	1.25	5.0		15.22	**100.4**
8	105	114.07	0.51	293	45	75	75	1.2	5.0		14.94	**98.6**
	110	117.09	0.55	293	46	76	75	1.35	5.0		15.51	**99.8**
	115	120.24	0.57	294	46	75	75	1.4	5.0		15.80	**100.2**
9	120	123.48	0.57	294	45	76	75	1.4	5.0		15.80	**101.4**
	125	126.68	0.63	294	46	76	75	1.55	5.5		16.61	**100.1**
	130	130.06	0.6	294	45	76	75	1.5	5.5		16.21	**100.6**
10	135	133.38	0.65	294	45	75	75	1.6	5.5		16.87	**101.2**
	140	136.87	0.65	294	45	74	75	1.6	5.5		16.87	**102.4**
	145	140.25	0.59	294	45	75	75	1.45	5.5		16.08	**99.2**
11	150	143.53	0.6	293	45	74	74	1.45	5.5		16.20	**100.9**
	155	146.80	0.58	293	45	75	74	1.45	5.5		15.93	**99.9**

ORTECH Environmental

Plant:	COVANTA - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	1 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 9, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.84 "Hg	**CWTR (g)**	905.3
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	19.1
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.42 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.51
CO2%	11.79
COppm	21.8

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	160	150.07	0.55	293	45	74	74	1.4	5.5		15.51	**101.5**
12	165	153.29	0.53	293	45	74	74	1.25	5.0		15.23	**102.7**
	170	156.35	0.52	294	45	74	74	1.25	5.0		15.09	**99.4**
	175	159.41	0.54	293	46	74	74	1.3	5.0		15.37	**100.4**
	180	162.52								0.42		**100.1**
1	0	162.94	0.6	288	57	74	74	1.45	5.0		16.15	
	5	166.24	0.71	288	45	74	74	1.8	6.0		17.57	**100.5**
	10	169.84	0.7	287	45	73	73	1.75	6.0		17.43	**100.9**
2	15	173.39	0.69	287	45	73	73	1.75	6.0		17.31	**100.3**
	20	176.96	0.65	287	46	73	73	1.6	6.0		16.80	**101.6**
	25	180.40	0.63	287	46	73	72	1.55	6.0		16.54	**100.8**
3	30	183.78	0.63	287	46	73	73	1.55	6.0		16.54	**100.7**
	35	187.15	0.62	286	46	73	73	1.5	5.5		16.39	**100.3**
	40	190.48	0.6	285	46	72	72	1.45	5.5		16.12	**99.8**
4	45	193.76	0.56	285	46	72	72	1.4	5.0		15.57	**100.1**
	50	196.93	0.57	285	47	72	72	1.4	5.0		15.71	**100.1**
	55	200.16	0.57	284	47	72	72	1.4	5.0		15.70	**101.1**
5	60	203.40	0.53	284	47	73	73	1.3	5.0		15.14	**101.3**
	65	206.50	0.54	284	47	73	72	1.35	5.0		15.28	**100.3**
	70	209.65	0.53	284	48	73	72	1.3	5.0		15.14	**101.1**
6	75	212.79	0.51	284	48	73	73	1.2	5.0		14.85	**101.7**
	80	215.77	0.51	283	48	73	72	1.25	5.0		14.84	**98.3**
	85	218.83	0.52	284	49	74	73	1.3	5.0		14.99	**101.0**
7	90	221.91	0.5	283	49	74	73	1.25	5.0		14.69	**100.5**
	95	225.01	0.5	283	49	74	73	1.25	5.0		14.69	**103.1**
	100	228.08	0.54	283	49	74	73	1.35	5.0		15.27	**102.1**
8	105	231.22	0.56	283	49	74	73	1.4	5.0		15.55	**100.5**
	110	234.42	0.55	284	50	74	73	1.4	5.0		15.42	**100.6**
	115	237.59	0.54	284	50	74	73	1.4	5.0		15.28	**100.6**
9	120	240.78	0.55	285	50	74	73	1.4	5.0		15.43	**102.2**
	125	243.90	0.58	286	50	74	73	1.4	5.0		15.86	**99.1**

ORTECH Environmental

Plant:	COVANTA - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	1 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 9, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.84 "Hg	**CWTR (g)**	905.3
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	19.1
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.42 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.51
CO2%	11.79
COppm	21.8

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	130	247.16	0.57	286	51	74	73	1.4	5.0		15.72	**100.9**
10	135	250.35	0.58	287	51	74	73	1.4	5.0		15.87	**99.6**
	140	253.54	0.58	285	52	74	73	1.4	5.0		15.84	**98.8**
	145	256.75	0.57	286	51	75	74	1.4	5.0		15.72	**99.3**
11	150	259.95	0.54	286	48	74	73	1.4	5.0		15.30	**99.7**
	155	263.07	0.52	286	48	75	73	1.4	5.0		15.01	**100.1**
	160	266.33	0.52	286	46	74	73	1.25	5.0		15.01	**106.5**
12	165	269.40	0.48	286	46	74	73	1.1	5.0		14.42	**100.3**
	170	272.32	0.48	286	46	74	74	1.1	5.0		14.42	**99.3**
	175	275.26	0.48	286	46	74	74	1.1	5.0		14.42	**99.9**
	180	278.23										**100.9**

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, Ontario
Test Location:	Unit No. 1 BH Outlet
Test No.:	2 - SVOC
Date:	May 10, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.983
NOZZLE DIAMETER	6.43 mm
DRY REF GAS VOLUME SAMPLED	6.656 m^3
AVGERGE ISOKINETICITY	100.7 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	143.2 °C
AVERAGE GAS MOISTURE BY VOLUME	16.1 %
AVERAGE GAS VELOCITY	16.09 m/s
BAROMETRIC PRESSURE (Station)	101.558 Kpa
STATIC PRESSURE	-2.814 Kpa
ABSOLUTE GAS PRESSURE	98.744 Kpa
OXYGEN CONCENTRATION	7.67 %
CARBON DIOXIDE CONCENTRATION	11.82 %
CARBON MONOXIDE CONCENTRATION	14.9 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	23.77 m^3/s
DRY REF GAS FLOWRATE	13.92 Rm^3/s
DRY ADJ GAS FLOWRATE	18.61 Rm^3/s
WET REF GAS FLOWRATE	16.59 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		6.656 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	2 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 10, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.99 "Hg	**CWTR (g)**	912.3
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	23.6
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.37 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.67
CO2%	11.82
COppm	14.9

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	79.24	0.66	293	75	76	76	1.65	5.0		16.96	
	5	82.70	0.66	293	56	76	76	1.65	5.0		16.96	**100.8**
	10	86.14	0.68	293	53	77	76	1.7	5.0		17.22	**100.2**
2	15	89.59	0.69	291	50	76	76	1.75	5.5		17.32	**98.9**
	20	93.15	0.69	291	49	77	76	1.75	5.5		17.32	**101.3**
	25	96.67	0.66	291	52	77	76	1.65	5.5		16.94	**100.1**
3	30	100.15	0.64	289	52	77	76	1.6	5.5		16.66	**101.1**
	35	103.58	0.65	290	50	78	77	1.6	5.5		16.80	**101.1**
	40	107.00	0.64	289	49	77	76	1.6	5.5		16.66	**99.9**
4	45	110.43	0.61	288	51	78	77	1.55	5.0		16.26	**101.1**
	50	113.79	0.62	288	54	78	77	1.55	5.0		16.39	**101.2**
	55	117.17	0.64	287	53	79	77	1.6	5.3		16.64	**100.9**
5	60	120.63	0.61	287	52	78	77	1.55	5.3		16.24	**101.5**
	65	123.97	0.58	288	54	79	77	1.4	5.0		15.85	**100.5**
	70	127.21	0.57	287	56	79	78	1.4	5.0		15.70	**99.9**
6	75	130.44	0.54	286	56	79	78	1.35	5.0		15.27	**100.3**
	80	133.63	0.54	286	53	79	78	1.3	5.0		15.27	**101.7**
	85	136.75	0.56	286	53	79	78	1.4	5.0		15.55	**99.5**
7	90	140.01	0.47	286	53	78	78	1.1	4.5		14.25	**102.1**
	95	142.96	0.47	286	52	79	78	1.1	4.5		14.25	**100.8**
	100	145.81	0.45	287	51	79	78	1.1	4.5		13.95	**97.3**
8	105	148.65	0.47	288	49	79	78	1.2	4.5		14.27	**99.2**
	110	151.63	0.49	289	49	79	78	1.2	4.5		14.58	**101.9**
	115	154.63	0.57	290	49	79	78	1.4	5.0		15.73	**100.6**
9	120	157.80	0.56	291	48	79	78	1.4	5.0		15.61	**98.6**
	125	161.04	0.58	291	48	79	78	1.45	5.0		15.88	**101.8**
	130	164.30	0.56	291	48	79	78	1.4	5.0		15.61	**100.6**
10	135	167.54	0.56	291	48	80	79	1.4	5.0		15.61	**101.8**
	140	170.78	0.6	289	48	79	78	1.5	5.0		16.13	**101.6**
	145	174.11	0.58	288	48	80	79	1.45	5.0		15.85	**101.0**
11	150	177.40	0.54	288	49	79	79	1.35	5.0		15.29	**101.2**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	2 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 10, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.99 "Hg	**CWTR (g)**	912.3
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	23.6
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.37 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.67
CO2%	11.82
COppm	14.9

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	155	180.57	0.51	287	49	80	79	1.25	5.0		14.85	**101.1**
	160	183.65	0.51	287	49	80	79	1.25	5.0		14.85	**100.9**
12	165	186.72	0.52	288	49	80	79	1.25	5.0		15.01	**100.6**
	170	189.80	0.51	288	50	80	79	1.3	5.0		14.86	**100.0**
	175	192.91	0.54	288	50	80	79	1.3	5.0		15.29	**102.0**
	180	196.09								0.37		**101.3**
1	0	196.46	0.66	288	67	80	79	1.65	5.3		16.91	
	5	199.95	0.68	291	51	79	79	1.7	5.5		17.20	**100.7**
	10	203.48	0.66	291	51	80	79	1.65	5.5		16.94	**100.6**
2	15	206.93	0.68	289	50	79	78	1.65	5.8		17.17	**99.7**
	20	210.42	0.68	289	51	79	79	1.65	5.8		17.17	**99.4**
	25	213.88	0.68	290	52	79	79	1.65	5.8		17.19	**98.5**
3	30	217.32	0.65	290	50	79	78	1.6	5.5		16.80	**98.0**
	35	220.76	0.7	289	47	80	79	1.75	6.0		17.42	**100.3**
	40	224.35	0.68	288	46	79	78	1.7	6.0		17.16	**100.6**
4	45	227.90	0.66	289	46	80	79	1.65	6.0		16.92	**101.1**
	50	231.41	0.61	289	46	80	79	1.55	5.7		16.27	**101.3**
	55	234.79	0.64	290	45	79	78	1.6	5.5		16.67	**101.4**
5	60	238.25	0.57	291	45	79	78	1.4	5.0		15.74	**101.7**
	65	241.47	0.58	291	46	80	79	1.45	5.0		15.88	**100.3**
	70	244.75	0.6	292	47	80	79	1.5	5.0		16.16	**101.1**
6	75	248.06	0.49	290	46	79	79	1.25	5.0		14.59	**100.4**
	80	251.14	0.54	290	47	80	79	1.3	5.0		15.31	**103.2**
	85	254.26	0.56	290	47	80	79	1.4	5.0		15.60	**99.5**
7	90	257.47	0.63	289	47	80	79	1.6	5.5		16.53	**100.6**
	95	260.86	0.64	289	46	80	79	1.6	5.5		16.66	**100.1**
	100	264.31	0.66	290	46	80	79	1.65	5.5		16.93	**101.1**
8	105	267.80	0.66	290	47	81	80	1.65	6.0		16.93	**100.8**
	110	271.29	0.71	292	46	80	79	1.75	6.0		17.58	**100.6**
	115	274.90	0.69	293	46	81	79	1.7	6.0		17.35	**100.7**
9	120	278.44	0.71	295	47	80	79	1.75	6.0		17.62	**100.1**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	2 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 10, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.99 "Hg	**CWTR (g)**	912.3
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	23.6
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.37 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.67
CO2%	11.82
COppm	14.9

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	125	282.04	0.64	295	46	81	79	1.6	6.0		16.73	**100.6**
	130	285.48	0.62	294	47	80	80	1.55	5.5		16.45	**101.1**
10	135	288.87	0.62	294	47	80	79	1.55	5.5		16.45	**101.2**
	140	292.28	0.58	294	48	80	80	1.45	5.5		15.91	**101.9**
	145	295.56	0.58	293	48	81	80	1.45	5.5		15.90	**101.2**
11	150	298.86	0.6	293	49	81	80	1.5	5.5		16.18	**101.6**
	155	302.17	0.62	293	48	80	79	1.55	5.5		16.44	**100.2**
	160	305.55	0.62	292	50	81	80	1.55	5.5		16.43	**100.9**
12	165	308.94	0.6	290	50	81	80	1.5	5.5		16.14	**100.9**
	170	312.27	0.42	290	50	81	80	1	4.5		13.51	**100.6**
	175	315.09	0.43	288	51	81	80	1	4.5		13.65	**101.7**
	180	317.94										**101.5**

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, Ontario
Test Location:	Unit No. 1 BH Outlet
Test No.:	3 - SVOC
Date:	May 11, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.983
NOZZLE DIAMETER	6.43 mm
DRY REF GAS VOLUME SAMPLED	6.860 m^3
AVGERGE ISOKINETICITY	100.8 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	142.6 °C
AVERAGE GAS MOISTURE BY VOLUME	16.5 %
AVERAGE GAS VELOCITY	16.65 m/s
BAROMETRIC PRESSURE (Station)	101.355 Kpa
STATIC PRESSURE	-2.789 Kpa
ABSOLUTE GAS PRESSURE	98.566 Kpa
OXYGEN CONCENTRATION	7.53 %
CARBON DIOXIDE CONCENTRATION	11.92 %
CARBON MONOXIDE CONCENTRATION	11.9 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.60 m^3/s
DRY REF GAS FLOWRATE	14.33 Rm^3/s
DRY ADJ GAS FLOWRATE	19.36 Rm^3/s
WET REF GAS FLOWRATE	17.16 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		6.860 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 11, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.93 "Hg	**CWTR (g)**	973.2
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	20
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.47 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.53
CO2%	11.92
COppm	11.9

Measured H2O
16.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	19.62	0.66	281	73	81	80	1.65	4.0		16.86	
	5	23.14	0.69	283	57	81	80	1.75	4.5		17.26	**101.2**
	10	26.68	0.71	284	57	81	80	1.8	5.0		17.52	**99.7**
2	15	30.30	0.73	286	57	80	80	1.85	5.0		17.79	**100.5**
	20	33.99	0.76	287	59	80	80	1.9	5.0		18.16	**101.3**
	25	37.69	0.75	288	57	81	80	1.9	5.0		18.05	**99.6**
3	30	41.38	0.73	288	55	80	80	1.8	5.0		17.81	**100.0**
	35	45.01	0.8	288	58	81	80	2	5.0		18.65	**99.8**
	40	48.81	0.73	288	60	81	80	1.8	5.0		17.81	**99.7**
4	45	52.45	0.71	289	59	81	80	1.75	5.0		17.58	**100.0**
	50	56.05	0.76	289	56	81	80	1.9	5.0		18.19	**100.3**
	55	59.78	0.67	290	56	82	81	1.65	5.0		17.09	**100.5**
5	60	63.30	0.67	289	57	81	80	1.65	5.0		17.07	**100.8**
	65	66.78	0.64	289	60	82	81	1.6	5.0		16.69	**99.8**
	70	70.23	0.66	289	58	82	81	1.65	5.0		16.95	**101.0**
6	75	73.72	0.62	290	55	82	81	1.55	5.0		16.44	**100.7**
	80	77.13	0.61	289	55	82	81	1.5	5.0		16.29	**101.5**
	85	80.47	0.61	290	52	82	81	1.5	5.0		16.30	**100.2**
7	90	83.80	0.55	291	51	82	81	1.4	5.0		15.49	**99.9**
	95	87.05	0.55	292	49	83	82	1.4	4.8		15.50	**102.8**
	100	90.25	0.56	292	49	83	82	1.4	4.8		15.64	**101.0**
8	105	93.45	0.56	292	47	83	82	1.4	4.8		15.64	**100.1**
	110	96.66	0.56	291	47	83	82	1.4	4.8		15.63	**100.5**
	115	99.86	0.58	291	47	83	82	1.45	4.8		15.91	**100.1**
9	120	103.12	0.61	290	47	83	83	1.5	4.8		16.30	**100.2**
	125	106.43	0.66	290	47	83	82	1.65	5.0		16.96	**99.1**
	130	109.90	0.59	290	46	83	82	1.5	5.0		16.03	**100.0**
10	135	113.28	0.62	289	45	82	82	1.5	5.0		16.43	**102.9**
	140	116.65	0.63	289	46	83	82	1.6	5.0		16.56	**100.1**
	145	120.08	0.62	289	45	83	82	1.55	5.0		16.43	**101.0**
11	150	123.49	0.53	288	45	83	82	1.3	4.0		15.18	**101.3**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 11, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.93 "Hg	**CWTR (g)**	973.2
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	20
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.47 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.53
CO2%	11.92
COppm	11.9

Measured H2O
16.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	155	126.65	0.55	288	46	83	82	1.4	4.0		15.46	**101.4**
	160	129.85	0.54	288	46	83	82	1.4	4.0		15.32	**100.8**
12	165	133.04	0.54	288	46	83	82	1.4	4.0		15.32	**101.4**
	170	136.25	0.5	288	46	83	82	1.25	4.0		14.74	**102.0**
	175	139.32	0.5	288	47	83	82	1.25	4.0		14.74	**101.4**
	180	142.39								0.47		**101.4**
1	0	142.86	0.75	285	64	82	82	1.9	5.0		18.02	
	5	146.58	0.74	285	46	82	82	1.9	5.0		17.90	**100.3**
	10	150.31	0.73	286	46	82	82	1.9	5.0		17.79	**101.3**
2	15	154.04	0.69	286	45	82	82	1.75	5.0		17.29	**102.0**
	20	157.66	0.71	286	46	82	82	1.8	5.0		17.54	**101.8**
	25	161.31	0.72	286	46	82	82	1.8	5.0		17.67	**101.2**
3	30	164.96	0.71	286	46	82	82	1.8	5.0		17.54	**100.5**
	35	168.62	0.73	287	46	82	82	1.85	5.0		17.80	**101.5**
	40	172.29	0.69	288	46	82	81	1.75	5.0		17.32	**100.5**
4	45	175.91	0.67	289	46	82	81	1.65	5.0		17.07	**102.1**
	50	179.43	0.67	290	45	82	81	1.65	5.0		17.09	**100.8**
	55	182.96	0.66	291	46	82	81	1.6	5.0		16.97	**101.1**
5	60	186.46	0.65	291	46	82	82	1.6	5.0		16.84	**101.1**
	65	189.98	0.61	291	46	82	82	1.5	5.0		16.31	**102.3**
	70	193.32	0.63	292	47	83	82	1.6	5.0		16.59	**100.2**
6	75	196.76	0.6	290	47	83	82	1.5	5.0		16.17	**101.5**
	80	200.15	0.6	290	47	83	82	1.5	5.0		16.17	**102.4**
	85	203.48	0.63	289	47	82	82	1.6	5.0		16.56	**100.6**
7	90	206.92	0.6	289	48	83	82	1.5	5.0		16.16	**101.4**
	95	210.27	0.6	289	49	83	82	1.5	5.0		16.16	**101.1**
	100	213.63	0.62	289	49	83	82	1.55	5.0		16.43	**101.4**
8	105	216.99	0.62	289	49	83	82	1.55	5.0		16.43	**99.8**
	110	220.38	0.62	289	50	84	82	1.55	5.0		16.43	**100.7**
	115	223.75	0.62	289	50	84	82	1.55	5.0		16.43	**100.0**
9	120	227.12	0.63	290	50	83	82	1.55	5.0		16.57	**100.0**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - SVOC	**Test Location:**	Unit No. 1 BH Outlet
Date:	May 11, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.983	**Probe (mg)**	0
Barometric Pressure	29.93 "Hg	**CWTR (g)**	973.2
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	20
Nozzle	0.2531 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.47 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.53
CO2%	11.92
COppm	11.9

Measured H2O
16.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	125	230.63	0.65	292	52	84	83	1.6	5.0		16.85	**103.5**
	130	233.94	0.64	292	51	83	82	1.6	5.0		16.72	**96.0**
10	135	237.34	0.66	292	51	83	83	1.6	5.0		16.98	**99.6**
	140	240.77	0.65	291	51	83	83	1.6	5.0		16.84	**98.8**
	145	244.15	0.7	290	51	84	82	1.8	5.3		17.46	**98.1**
11	150	247.75	0.64	290	51	83	82	1.6	5.0		16.70	**100.6**
	155	251.22	0.66	288	52	84	83	1.7	5.0		16.94	**101.5**
	160	254.75	0.63	288	52	84	83	1.6	5.0		16.55	**101.4**
12	165	258.24	0.55	288	52	84	83	1.4	5.0		15.46	**102.6**
	170	261.53	0.5	287	52	84	83	1.25	4.0		14.73	**103.4**
	175	264.60	0.48	287	52	84	83	1.2	4.0		14.43	**101.1**
	180	267.61										**101.2**

APPENDIX 26

Particulate and Metals Test Emission Calculations
at the Boiler No. 2 BH Outlet
(12 pages)

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 2 BH Outlet
Test No.:	1 - Metals & Particulate
Date:	May 3, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.984
NOZZLE DIAMETER	6.45 mm
DRY REF GAS VOLUME SAMPLED	3.714 m^3
AVGERGE ISOKINETICITY	99.9 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	142.6 °C
AVERAGE GAS MOISTURE BY VOLUME	15.5 %
AVERAGE GAS VELOCITY	18.00 m/s
BAROMETRIC PRESSURE (Station)	100.406 Kpa
STATIC PRESSURE	-2.490 Kpa
ABSOLUTE GAS PRESSURE	97.916 Kpa
OXYGEN CONCENTRATION	8.41 %
CARBON DIOXIDE CONCENTRATION	10.94 %
CARBON MONOXIDE CONCENTRATION	24.4 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.60 m^3/s
DRY REF GAS FLOWRATE	15.57 Rm^3/s
DRY ADJ GAS FLOWRATE	19.64 Rm^3/s
WET REF GAS FLOWRATE	18.43 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	1.8 mg
	-FILTER	0.3 mg
	-TOTAL	2.1 mg
DRY REF GAS VOLUME SAMPLED		3.714 m^3
PARTICULATE CONC. - ACTUAL		0.331 mg/m^3
PARTICULATE CONC. - DRY REF		0.565 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.448 mg/m^4
PARTICULATE CONC. - WET REF		0.478 mg/m^3
PARTICULATE EMISSION RATE		0.00880 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	1.8
Barometric Pressure	29.65 "Hg	**CWTR (g)**	482.7
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	19.2
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.53 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.41
CO2%	10.94
COppm	24.4

Measured H2O
15.5 %

				Temperatures								
Point	Time	DGM Reading	ΔP "H2O	Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	76.93	0.91	285	61	75	75	2.3	6.0		19.91	
	2.5	78.98	0.94	293	45	76	76	2.4	6.0		20.34	99.6
	5	81.17	0.95	293	39	76	76	2.4	6.0		20.45	105.1
2	7.5	83.37	0.95	294	37	76	76	2.3	6.0		20.46	105.0
	10	85.52	0.96	294	37	76	77	2.2	5.5		20.57	102.6
	12.5	87.62	0.94	294	36	77	77	2.1	5.5		20.36	99.6
3	15	89.66	0.92	294	37	77	77	2.1	5.5		20.14	97.7
	17.5	91.69	0.9	293	37	77	78	2	5.0		19.90	98.2
	20	93.71	0.87	293	37	77	79	2	5.0		19.57	98.7
4	22.5	95.70	0.82	293	37	77	79	1.9	5.0		19.00	98.8
	25	97.64	0.83	293	37	77	80	1.9	5.0		19.11	99.2
	27.5	99.61	0.82	293	38	77	81	1.9	5.0		19.00	100.0
5	30	101.55	0.78	294	38	77	82	1.8	5.0		18.54	99.0
	32.5	103.44	0.74	293	39	77	82	1.7	5.0		18.05	98.8
	35	105.29	0.74	293	40	77	83	1.7	5.0		18.05	99.2
6	37.5	107.14	0.69	293	40	78	84	1.5	5.0		17.43	99.1
	40	108.91	0.69	292	39	78	84	1.6	5.0		17.42	98.0
	42.5	110.69	0.69	292	39	78	85	1.6	5.0		17.42	98.5
7	45	112.49	0.68	292	39	78	85	1.6	5.0		17.29	99.5
	47.5	114.30	0.64	292	38	78	86	1.5	5.0		16.77	100.8
	50	116.05	0.66	291	38	78	86	1.5	5.0		17.02	100.3
8	52.5	117.79	0.67	293	38	79	86	1.6	5.0		17.17	98.2
	55	119.57	0.67	290	38	79	87	1.6	5.0		17.14	99.7
	57.5	121.36	0.67	290	38	79	87	1.6	5.0		17.14	100.0
9	60	123.14	0.7	290	38	79	87	1.7	5.0		17.52	99.4
	62.5	124.95	0.72	290	38	79	87	1.7	5.0		17.77	99.0
	65	126.81	0.71	291	39	79	87	1.7	5.0		17.66	100.3
10	67.5	128.65	0.71	290	39	79	87	1.7	5.0		17.64	100.0
	70	130.48	0.7	289	39	79	87	1.6	5.0		17.51	99.3
	72.5	132.28	0.7	289	39	80	87	1.6	5.0		17.51	98.3
11	75	134.07	0.66	289	40	80	87	1.6	5.0		17.00	97.7

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	1.8
Barometric Pressure	29.65 "Hg	**CWTR (g)**	482.7
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	19.2
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.53 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.41
CO2%	10.94
COppm	24.4

Measured H2O
15.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	77.5	135.86	0.66	289	40	80	87	1.5	5.0		17.00	**100.6**
	80	137.65	0.63	289	40	80	87	1.5	5.0		16.61	**100.6**
12	82.5	139.38	0.6	287	40	80	88	1.4	5.0		16.19	**99.5**
	85	141.06	0.6	285	41	80	88	1.4	5.0		16.17	**98.8**
	87.5	142.74	0.61	285	41	80	89	1.4	5.0		16.30	**98.6**
	90	144.44								0.53		**98.9**
1	0	144.97	0.79	285	54	80	82	2	6.0		18.55	
	2.5	146.91	0.78	288	46	80	83	1.8	5.5		18.47	**99.9**
	5	148.85	0.76	288	41	80	84	1.7	5.5		18.23	**100.6**
2	7.5	150.73	0.78	287	39	80	84	1.8	5.5		18.46	**98.7**
	10	152.63	0.8	287	38	80	85	1.9	5.5		18.69	**98.4**
	12.5	154.57	0.79	286	38	80	85	1.9	5.5		18.56	**99.2**
3	15	156.50	0.75	287	38	80	86	1.8	5.5		18.10	**99.2**
	17.5	158.42	0.75	286	37	80	86	1.7	5.5		18.09	**101.2**
	20	160.29	0.76	286	37	80	86	1.8	5.5		18.21	**98.5**
4	22.5	162.19	0.73	286	37	81	87	1.7	5.5		17.84	**99.4**
	25	164.05	0.73	285	37	81	87	1.7	5.5		17.83	**99.1**
	27.5	165.92	0.72	285	38	81	87	1.7	5.5		17.71	**99.6**
5	30	167.76	0.68	285	38	81	87	1.6	5.0		17.21	**98.7**
	32.5	169.58	0.65	285	38	81	88	1.65	5.5		16.83	**100.4**
	35	171.37	0.66	285	38	81	88	1.65	5.5		16.95	**100.9**
6	37.5	173.18	0.62	285	38	81	88	1.6	5.5		16.43	**101.3**
	40	174.90	0.62	285	38	81	89	1.6	5.5		16.43	**99.3**
	42.5	176.73	0.61	291	38	81	88	1.3	5.0		16.36	**105.5**
7	45	178.39	0.75	273	39	81	89	1.7	5.5		17.93	**96.9**
	47.5	180.23	0.76	286	39	81	89	1.8	5.5		18.21	**95.7**
	50	182.13	0.7	286	39	81	89	1.7	5.5		17.47	**99.1**
8	52.5	183.97	0.74	287	40	81	88	1.7	5.5		17.98	**100.0**
	55	185.85	0.75	286	40	81	88	1.75	5.5		18.09	**99.5**
	57.5	187.73	0.75	287	41	81	88	1.8	5.5		18.10	**98.8**
9	60	189.64	0.77	287	41	81	88	1.8	6.0		18.34	**100.4**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	1.8
Barometric Pressure	29.65 "Hg	**CWTR (g)**	482.7
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	19.2
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.53 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.41
CO2%	10.94
COppm	24.4

Measured H2O
15.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	62.5	191.56	0.77	290	41	82	88	1.8	6.0		18.37	99.6
	65	193.48	0.76	287	41	81	88	1.8	6.0		18.22	99.7
10	67.5	195.37	0.81	287	42	81	88	1.9	6.0		18.81	98.7
	70	197.33	0.8	288	42	81	87	1.9	6.0		18.70	99.2
	72.5	199.28	0.79	287	42	82	87	1.6	6.0		18.57	99.5
11	75	201.24	0.74	287	42	81	87	1.85	6.0		17.98	100.4
	77.5	203.18	0.73	287	42	81	87	1.85	6.0		17.85	102.8
	80	205.08	0.72	287	43	82	87	1.8	6.0		17.73	101.4
12	82.5	207.00	0.68	287	43	82	87	1.8	6.0		17.23	103.0
	85	208.85	0.68	287	43	82	87	1.8	6.0		17.23	102.2
	87.5	210.70	0.67	286	43	82	88	1.8	6.0		17.09	102.2
	90	212.60										105.5

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 2 BH Outlet
Test No.:	2 - Metals & Particulate
Date:	May 3, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.984
NOZZLE DIAMETER	6.45 mm
DRY REF GAS VOLUME SAMPLED	3.523 m^3
AVGERGE ISOKINETICITY	99.0 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	140.1 °C
AVERAGE GAS MOISTURE BY VOLUME	15.3 %
AVERAGE GAS VELOCITY	17.11 m/s
BAROMETRIC PRESSURE (Station)	100.203 Kpa
STATIC PRESSURE	-2.490 Kpa
ABSOLUTE GAS PRESSURE	97.713 Kpa
OXYGEN CONCENTRATION	8.22 %
CARBON DIOXIDE CONCENTRATION	11.18 %
CARBON MONOXIDE CONCENTRATION	19.3 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.28 m^3/s
DRY REF GAS FLOWRATE	14.89 Rm^3/s
DRY ADJ GAS FLOWRATE	19.07 Rm^3/s
WET REF GAS FLOWRATE	17.59 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	2.1 mg
	-FILTER	0.3 mg
	-TOTAL	2.4 mg
DRY REF GAS VOLUME SAMPLED		3.523 m^3
PARTICULATE CONC. - ACTUAL		0.401 mg/m^3
PARTICULATE CONC. - DRY REF		0.681 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.532 mg/m^4
PARTICULATE CONC. - WET REF		0.577 mg/m^3
PARTICULATE EMISSION RATE		0.01014 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	2.1
Barometric Pressure	29.59 "Hg	**CWTR (g)**	448.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	20.4
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.63 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.22
CO2%	11.18
COppm	19.3

Measured H2O
15.3 %

				Temperatures								
Point	Time	DGM Reading	ΔP "H2O	Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	13.50	0.85	280	71	79	79	2.2	5.0		19.18	
	2.5	15.55	0.85	286	63	79	78	2	5.0		19.26	**101.7**
	5	17.60	0.82	285	59	79	78	1.7	5.0		18.90	**102.1**
2	7.5	19.47	0.85	287	56	79	79	1.9	5.0		19.27	**94.7**
	10	21.41	0.95	285	55	79	80	2.4	5.5		20.34	**96.6**
	12.5	23.57	0.81	284	54	79	82	1.8	5.0		18.77	**101.6**
3	15	25.53	0.81	285	53	79	81	1.8	5.0		18.78	**99.5**
	17.5	27.42	0.76	285	53	79	81	1.8	5.0		18.20	**96.1**
	20	29.31	0.78	284	52	79	83	1.9	5.0		18.42	**99.2**
4	22.5	31.23	0.74	285	51	79	83	1.8	5.0		17.95	**99.2**
	25	33.18	0.76	286	50	79	84	1.7	5.0		18.21	**103.5**
	27.5	35.05	0.75	285	50	79	84	1.8	5.0		18.08	**97.9**
5	30	36.94	0.66	284	50	79	85	1.6	5.0		16.95	**99.5**
	32.5	38.75	0.67	284	49	79	85	1.6	5.0		17.07	**101.4**
	35	40.55	0.67	284	50	79	86	1.6	5.0		17.07	**100.1**
6	37.5	42.32	0.65	284	50	79	87	1.5	5.0		16.82	**98.3**
	40	44.06	0.65	284	50	79	87	1.5	5.0		16.82	**98.0**
	42.5	45.81	0.66	285	50	80	87	1.5	5.0		16.96	**98.6**
7	45	47.54	0.66	284	50	80	86	1.5	5.0		16.95	**96.7**
	47.5	49.27	0.66	285	50	80	88	1.5	5.0		16.96	**96.7**
	50	51.00	0.65	285	50	80	88	1.5	5.0		16.83	**96.6**
8	52.5	52.76	0.63	285	50	80	89	1.5	5.0		16.57	**99.0**
	55	54.48	0.63	284	50	80	89	1.5	5.0		16.56	**98.2**
	57.5	56.22	0.6	284	49	80	89	1.4	5.0		16.16	**99.3**
9	60	57.92	0.62	284	48	80	90	1.4	5.0		16.42	**99.4**
	62.5	59.63	0.62	284	47	80	89	1.5	5.0		16.42	**98.3**
	65	61.35	0.62	285	47	81	89	1.5	5.0		16.43	**98.9**
10	67.5	63.07	0.62	284	46	81	89	1.5	5.0		16.42	**98.9**
	70	64.80	0.62	284	46	81	89	1.5	5.0		16.42	**99.4**
	72.5	66.52	0.61	284	46	81	89	1.4	5.0		16.29	**98.9**
11	75	68.22	0.6	284	46	81	89	1.4	5.0		16.16	**98.5**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	2.1
Barometric Pressure	29.59 "Hg	**CWTR (g)**	448.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	20.4
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.63 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.22
CO2%	11.18
COppm	19.3

Measured H2O
15.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	77.5	69.92	0.5	284	46	81	90	1.1	5.0		14.75	99.3
	80	71.47	0.47	284	46	81	89	1.1	5.0		14.30	99.0
12	82.5	72.96	0.5	283	46	81	90	1.15	5.0		14.74	98.3
	85	74.47	0.5	283	46	81	90	1.2	5.0		14.74	96.4
	87.5	76.03	0.5	283	46	81	90	1.2	5.0		14.74	99.6
	90	77.57								0.63		98.3
1	0	78.20	0.77	280	63	81	82	1.8	5.0		18.25	
	2.5	80.05	0.79	285	51	81	82	1.8	5.0		18.55	95.8
	5	81.97	0.78	285	48	81	83	1.8	5.0		18.43	98.5
2	7.5	83.86	0.78	286	48	81	84	1.8	5.0		18.45	97.5
	10	85.77	0.75	285	48	81	84	1.7	5.0		18.08	98.5
	12.5	87.65	0.77	286	49	81	85	1.8	5.0		18.33	98.8
3	15	89.55	0.73	285	50	81	85	1.7	5.0		17.83	98.6
	17.5	91.42	0.73	285	50	81	86	1.7	5.0		17.83	99.5
	20	93.29	0.71	285	50	81	86	1.6	5.0		17.59	99.4
4	22.5	95.12	0.69	284	51	81	86	1.6	5.0		17.33	98.6
	25	96.93	0.7	285	51	81	87	1.6	5.0		17.46	98.9
	27.5	98.73	0.7	285	52	81	87	1.6	5.0		17.46	97.6
5	30	100.55	0.63	284	52	81	88	1.5	5.0		16.56	98.7
	32.5	102.32	0.65	285	53	81	88	1.5	5.0		16.83	101.0
	35	104.07	0.64	285	53	81	88	1.5	5.0		16.70	98.4
6	37.5	105.83	0.6	285	52	81	88	1.4	5.0		16.17	99.7
	40	107.53	0.6	284	52	81	88	1.4	5.0		16.16	99.5
	42.5	109.22	0.61	284	51	81	88	1.5	5.0		16.29	98.8
7	45	110.93	0.58	284	50	81	88	1.3	5.0		15.89	99.2
	47.5	112.60	0.58	284	50	81	88	1.3	5.0		15.89	99.3
	50	114.25	0.58	283	50	81	89	1.3	5.0		15.87	98.1
8	52.5	115.92	0.62	283	50	81	89	1.5	5.0		16.41	99.1
	55	117.60	0.61	283	50	81	89	1.5	5.0		16.28	96.5
	57.5	119.34	0.62	283	50	81	89	1.5	5.0		16.41	100.8
9	60	121.08	0.65	283	50	82	88	1.55	5.5		16.81	99.9

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	AN

Pitot Factor	0.841	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	2.1
Barometric Pressure	29.59 "Hg	**CWTR (g)**	448.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	20.4
Nozzle	0.2539 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.63 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.22
CO2%	11.18
COppm	19.3

Measured H2O
15.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	62.5	122.83	0.65	284	50	82	88	1.55	5.5		16.82	**98.2**
	65	124.59	0.65	284	50	82	88	1.55	5.5		16.82	**98.8**
10	67.5	126.35	0.68	284	50	82	87	1.7	5.5		17.20	**98.8**
	70	128.17	0.67	284	50	82	87	1.7	5.5		17.07	**100.0**
	72.5	129.98	0.68	284	50	82	87	1.7	5.5		17.20	**100.2**
11	75	131.80	0.71	284	50	82	87	1.8	5.8		17.58	**100.0**
	77.5	133.70	0.7	284	50	82	87	1.8	5.8		17.45	**102.2**
	80	135.59	0.7	284	50	82	86	1.7	5.5		17.45	**102.4**
12	82.5	137.46	0.69	284	51	82	86	1.7	5.5		17.33	**101.4**
	85	139.30	0.67	283	51	82	86	1.6	5.5		17.06	**100.5**
	87.5	141.12	0.67	283	52	82	86	1.6	5.5		17.06	**100.8**
	90	142.92										99.7

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 2 BH Outlet
Test No.:	3 - Metals & Particulate
Date:	May 4, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.848
DGM CORRECTION FACTOR	0.984
NOZZLE DIAMETER	6.46 mm
DRY REF GAS VOLUME SAMPLED	3.559 m^3
AVGERGE ISOKINETICITY	100.1 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	140.2 °C
AVERAGE GAS MOISTURE BY VOLUME	15.4 %
AVERAGE GAS VELOCITY	17.14 m/s
BAROMETRIC PRESSURE (Station)	99.695 Kpa
STATIC PRESSURE	-2.490 Kpa
ABSOLUTE GAS PRESSURE	97.205 Kpa
OXYGEN CONCENTRATION	8.06 %
CARBON DIOXIDE CONCENTRATION	11.15 %
CARBON MONOXIDE CONCENTRATION	20.2 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.32 m^3/s
DRY REF GAS FLOWRATE	14.83 Rm^3/s
DRY ADJ GAS FLOWRATE	19.23 Rm^3/s
WET REF GAS FLOWRATE	17.53 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	1.8 mg
	-FILTER	0.3 mg
	-TOTAL	2.1 mg
DRY REF GAS VOLUME SAMPLED		3.559 m^3
PARTICULATE CONC. - ACTUAL		0.346 mg/m^3
PARTICULATE CONC. - DRY REF		0.590 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.455 mg/m^4
PARTICULATE CONC. - WET REF		0.499 mg/m^3
PARTICULATE EMISSION RATE		0.00875 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 4, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	1.8
Barometric Pressure	29.44 "Hg	**CWTR (g)**	454.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	20.8
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.55 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.06
CO2%	11.15
COppm	20.2

Measured H2O
15.4 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	64.02	0.69	280	51	81	80	1.7	5.0		17.47	
	2.5	65.95	0.68	284	47	81	81	1.7	5.0		17.39	**104.4**
	5	67.82	0.65	285	45	81	81	1.6	5.0		17.02	**102.0**
2	7.5	69.62	0.75	285	44	81	82	1.8	5.0		18.28	**100.5**
	10	71.49	0.75	285	42	81	83	1.9	5.0		18.28	**97.2**
	12.5	73.44	0.77	285	42	81	84	1.9	5.0		18.52	**101.2**
3	15	75.40	0.77	286	42	81	84	1.9	5.0		18.53	**100.3**
	17.5	77.35	0.78	286	42	82	85	1.95	5.0		18.65	**99.9**
	20	79.34	0.78	286	42	82	86	1.95	5.0		18.65	**101.1**
4	22.5	81.30	0.7	287	42	82	86	1.7	5.0		17.68	**99.5**
	25	83.17	0.7	287	41	82	86	1.7	5.0		17.68	**100.2**
	27.5	85.02	0.72	286	41	82	86	1.8	5.0		17.92	**99.1**
5	30	86.92	0.68	286	41	82	87	1.6	5.0		17.42	**100.4**
	32.5	88.78	0.67	286	41	82	87	1.6	5.0		17.29	**101.0**
	35	90.55	0.66	286	40	82	87	1.6	5.0		17.16	**96.8**
6	37.5	92.35	0.61	286	40	82	88	1.5	5.0		16.50	**99.2**
	40	94.12	0.6	286	40	82	88	1.4	5.0		16.36	**101.3**
	42.5	95.82	0.59	286	39	83	88	1.4	5.0		16.22	**98.1**
7	45	97.53	0.55	286	39	83	88	1.3	5.0		15.66	**99.4**
	47.5	99.18	0.55	285	39	83	89	1.35	5.0		15.65	**99.3**
	50	100.85	0.55	286	39	83	89	1.35	5.0		15.66	**100.4**
8	52.5	102.53	0.57	285	39	83	89	1.4	5.0		15.93	**101.0**
	55	104.22	0.58	286	39	83	90	1.4	5.0		16.08	**99.8**
	57.5	105.92	0.57	285	39	83	89	1.4	5.0		15.93	**99.5**
9	60	107.62	0.56	285	39	83	89	1.4	5.0		15.79	**100.4**
	62.5	109.32	0.59	285	40	83	90	1.4	5.0		16.21	**101.3**
	65	111.02	0.59	285	40	83	89	1.4	5.0		16.21	**98.6**
10	67.5	112.74	0.63	284	41	83	89	1.6	5.0		16.74	**99.8**
	70	114.54	0.59	284	41	83	89	1.5	5.0		16.20	**101.1**
	72.5	116.30	0.6	284	42	84	90	1.5	5.0		16.34	**102.1**
11	75	118.06	0.6	284	42	84	89	1.4	5.0		16.34	**101.1**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 4, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	1.8
Barometric Pressure	29.44 "Hg	**CWTR (g)**	454.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	20.8
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.55 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.06
CO2%	11.15
COppm	20.2

Measured H2O
15.4 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	77.5	119.80	0.59	284	42	84	89	1.4	5.0		16.20	**100.0**
	80	121.52	0.59	283	42	84	89	1.4	5.0		16.19	**99.7**
12	82.5	123.24	0.61	283	43	84	90	1.5	5.0		16.46	**99.6**
	85	125.00	0.62	283	43	84	91	1.5	5.0		16.60	**100.2**
	87.5	126.79	0.62	284	43	84	90	1.5	5.0		16.61	**101.0**
	90	128.55								0.55		**99.4**
1	0	129.10	0.71	285	60	84	85	1.7	5.0		17.78	
	2.5	131.01	0.7	285	46	84	84	1.7	5.0		17.66	**101.4**
	5	132.89	0.71	285	44	84	85	1.7	5.0		17.78	**100.6**
2	7.5	134.74	0.69	285	42	84	85	1.7	5.0		17.53	**98.2**
	10	136.60	0.78	285	41	83	86	2	6.0		18.64	**100.2**
	12.5	138.60	0.77	285	40	84	87	1.95	6.0		18.52	**101.4**
3	15	140.58	0.77	284	39	83	87	1.9	6.0		18.51	**100.8**
	17.5	142.54	0.79	285	39	84	87	1.9	6.0		18.76	**99.8**
	20	144.51	0.78	284	39	84	88	1.9	6.0		18.63	**99.0**
4	22.5	146.49	0.72	285	39	84	88	1.8	5.0		17.91	**100.0**
	25	148.40	0.73	284	39	84	88	1.8	5.0		18.02	**100.4**
	27.5	150.30	0.72	284	39	84	88	1.8	5.0		17.90	**99.2**
5	30	152.22	0.66	284	40	84	88	1.6	5.0		17.14	**100.9**
	32.5	154.05	0.65	284	40	84	89	1.6	5.0		17.01	**100.4**
	35	155.89	0.66	284	40	84	89	1.6	5.0		17.14	**101.6**
6	37.5	157.72	0.61	283	40	84	89	1.5	5.0		16.46	**100.3**
	40	159.48	0.62	284	40	84	89	1.5	5.0		16.61	**100.3**
	42.5	161.25	0.6	284	40	84	89	1.5	5.0		16.34	**100.1**
7	45	162.99	0.6	282	40	84	90	1.5	5.0		16.32	**100.0**
	47.5	164.73	0.61	282	40	84	90	1.5	5.0		16.45	**99.8**
	50	166.49	0.6	283	40	84	90	1.5	5.0		16.33	**100.1**
8	52.5	168.25	0.61	287	40	84	90	1.5	5.0		16.51	**101.0**
	55	170.02	0.61	282	40	84	90	1.5	5.0		16.45	**101.0**
	57.5	171.77	0.62	282	41	84	90	1.5	5.0		16.59	**99.5**
9	60	173.52	0.66	282	41	84	90	1.6	5.0		17.11	**98.7**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Metals & Particulate	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 4, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0.3
DGMCF	0.984	**Probe (mg)**	1.8
Barometric Pressure	29.44 "Hg	**CWTR (g)**	454.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	20.8
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.55 ft^3
Length	0.000 ft	**Reading Interval**	2.5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.06
CO2%	11.15
COppm	20.2

Measured H2O
15.4 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	62.5	175.34	0.63	282	41	84	90	1.5	5.0		16.72	99.5
	65	177.11	0.63	282	42	84	90	1.6	5.0		16.72	99.1
10	67.5	178.91	0.64	283	42	84	90	1.6	5.0		16.86	100.8
	70	180.70	0.7	283	42	84	90	1.8	6.0		17.64	99.5
	72.5	182.59	0.7	284	43	84	89	1.8	6.0		17.65	100.5
11	75	184.48	0.7	284	43	84	89	1.7	6.0		17.65	100.6
	77.5	186.36	0.7	282	43	84	89	1.7	6.0		17.62	100.1
	80	188.22	0.7	282	43	84	89	1.7	6.0		17.62	98.9
12	82.5	190.10	0.73	283	44	84	89	1.8	6.0		18.01	100.0
	85	192.02	0.71	283	44	84	89	1.8	6.0		17.76	100.1
	87.5	193.91	0.71	283	44	84	89	1.8	6.0		17.76	99.9
	90	195.82										100.9

APPENDIX 27

Particle Size Distribution Test Emission Calculations at the Boiler No. 2 BH Outlet (6 pages)

EPA Draft Method - $PM_{2.5}$ Calculations

Date:	02-May-16
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	Test 1
Test Location:	Unit No. 2 BH Outlet

Project No.: 21656
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.47
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.984
Pitot Factor	0.846
Barometric Pressure (" Hg)	29.74
Static Pressure ("H_2O)	-9.10
Oxygen Content (%)	8.4
Carbon Dioxide Content (%)	11.2
Carbon Monoxide Content (PPM)	17
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1773

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.37 Rft³/min*	10.4 l/min*
Cyclone Qs_{actual}	0.61 ft³/min	17.3 l/min
Stack Gas Sampling Parameters		
V_{ms}	44.6 Rft³*	1.263 Rm³*
Average Cyclone I Cut Diameter		9.95 µm
Average Cyclone IV Cut Diameter		2.24 µm
Average Isokineticity		105.0 %
Stack Gas Physical Parameters		
B_{ws}	15.0 % v/v	
Average m	214.6 (dimensionless)	
M_d	30.12 lbs/lbs mole	
M_w	28.31 lbs/lbs mole	
Average T_s	282 °F	139 °C
Average U_s	57.0 ft/s	17.37 m/s
Stack Area	15.87 ft²	1.474 m²
Actual Q_s	54256 ACFM	25.61 m³/s
Wet Reference Q_s	38160 SCFM*	18.01 Rm³/s*
Dry Reference Q_s	32452 SCFM*	15.32 Rm³/s*
Summary of Particulate Emission Rates		
	Dry Ref. Conc.	Emission Rate
Total Part. (a)	6.97 mg/Rm³*	0.1067 g/s
Total Part. (b)	23.7 mg/Rm³*	0.3626 g/s
$PM_{2.5}$ Part. (a)	0.95 mg/Rm³*	0.01455 g/s
$PM_{2.5}$ Part. (b)	17.7 mg/Rm³*	0.2705 g/s
Cond. Part.	16.7 mg/Rm³*	0.2559 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	475.2	561.6	780.5	986.3	
final volume or weight (ml or mg)	629.6	561.6	778.6	997.2	
gain in volume or weight (ml or mg)	154.4	0.0	-1.9	10.9	
				TOTAL	163.4

Particulate Weight Gains	>10mm	>2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	<0.5	7.1	<0.5	0.7	21.1

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: 42492	Plant: DYEC	Test No.: Test 1	Project No.: 21656
Client: Covanta	Location: Courtice, Ontario	Test location: Unit No. 2 BH Outlet	Operator: DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	DR ("H_2O)	Desired cfm	Stack Temp (°F)	Meter Temp Outlet (°F)	Meter Temp Inlet (°F)	Meter Pressure DH ("H_2O)	Pump Vacuum Gauge ("Hg)	Stack Gas Velocity (ft/s)	Cyclone I Cut Diam. (mm)	Cyclone IV Cut Diam. (mm)	ISO (%)
1	1	0.00	11.00	43.42	0.84	0.36	272	75	76	0.45	5.0	62.4	9.83	2.18	95.2
	2	11.00	11.00	47.57	0.83	0.36	283	76	77	0.45	5.0	62.5	9.81	2.19	97.0
	3	22.00	10.50	51.75	0.74	0.36	284	76	81	0.45	5.0	59.1	10.04	2.27	99.6
	4	32.50	10.00	55.63	0.69	0.36	284	77	83	0.45	5.0	57.0	9.92	2.23	104.9
	5	42.50	9.00	59.40	0.53	0.36	282	77	84	0.45	5.0	49.9	9.99	2.25	118.3
	6	51.50	9.00	62.76	0.50	0.36	282	78	85	0.45	15.0	48.5	10.61	2.50	111.8
		60.50		65.85											
2	1	0.00	11.50	65.85	0.90	0.36	284	78	81	0.45	5.0	65.1	9.98	2.25	91.0
	2	11.50	10.50	70.14	0.82	0.36	285	78	85	0.45	5.0	62.2	10.27	2.37	91.7
	3	22.00	10.00	73.92	0.69	0.36	285	79	87	0.45	5.0	57.1	9.42	2.03	113.0
	4	32.00	9.50	78.00	0.62	0.36	285	79	87	0.45	5.0	54.1	9.86	2.21	111.6
	5	41.50	9.50	81.63	0.60	0.36	278	79	87	0.45	5.0	53.0	9.83	2.19	113.3
	6	51.00	10.50	85.27	0.60	0.36	278	80	87	0.45	5.0	53.0	9.89	2.21	112.2
		61.50		89.26											
Averages					**0.70**		**282**	**81**		**0.45**		**57.0**	**9.95**	**2.24**	**105.0**

EPA Draft Method - $PM_{2.5}$ Calculations

Date:	May 2, 2016
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	Test 2
Test Location:	Unit No. 2 BH Outlet

Project No.: 21656
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.47
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.984
Pitot Factor	0.846
Barometric Pressure (" Hg)	29.73
Static Pressure ("H_2O)	-9.70
Oxygen Content (%)	8.1
Carbon Dioxide Content (%)	11.4
Carbon Monoxide Content (PPM)	12.8
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1773

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	9.9 l/min*
Cyclone Qs_{actual}	0.59 ft^3/min	16.6 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.2 Rft^3*	1.194 Rm^3*
Average Cyclone I Cut Diameter		10.22 µm
Average Cyclone IV Cut Diameter		2.35 µm
Average Isokineticity		100.4 %
Stack Gas Physical Parameters		
B_{ws}	15.2 % v/v	
Average m	213.8 (dimensionless)	
M_d	30.15 lbs/lbs mole	
M_w	28.30 lbs/lbs mole	
Average T_s	280 °F	138 °C
Average U_s	57.1 ft/s	17.39 m/s
Stack Area	15.87 ft^2	1.474 m^2
Actual Q_s	54331 ACFM	25.64 m^3/s
Wet Reference Q_s	38223 SCFM*	18.04 Rm^3/s*
Dry Reference Q_s	32400 SCFM*	15.29 Rm^3/s*
Summary of Particulate Emission Rates		
	Dry Ref. Conc.	**Emission Rate**
Total Part. (a)	2.26 mg/Rm^3*	0.0346 g/s
Total Part. (b)	9.1 mg/Rm^3*	0.1396 g/s
$PM_{2.5}$ Part. (a)	0.50 mg/Rm^3*	0.00768 g/s
$PM_{2.5}$ Part. (b)	7.4 mg/Rm^3*	0.1127 g/s
Cond. Part.	6.9 mg/Rm^3*	0.1050 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	490.7	670.5	760.8	946.0	
final volume or weight (ml or mg)	639.5	670.2	758.6	957.6	
gain in volume or weight (ml or mg)	148.8	-0.3	-2.2	11.6	
				TOTAL	**157.9**

Particulate Weight Gains	>10mm	>2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.9	1.2	0.6	0.0	8.2

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 2, 2016	Plant: DYEC	Test No.: Test 2	Project No.: 21656
Client: Covanta	Location: Courtice, Ontario	Test location: Unit No. 2 BH Outlet	Operator: DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	DR ("H_2O)	Desired cfm	Stack Temp (°F)	Meter Temp Outlet (°F)	Meter Temp Inlet (°F)	Meter Pressure DH ("H_2O)	Pump Vacuum Gauge ("Hg)	Stack Gas Velocity (ft/s)	Cyclone I Cut Diam. (mm)	Cyclone IV Cut Diam. (mm)	ISO (%)
1	1	0.00	11.00	389.42	0.85	0.36	277	79	79	0.40	5.0	63.1	9.84	2.19	94.7
	2	11.00	11.00	393.57	0.85	0.36	282	79	81	0.40	5.0	63.3	9.87	2.21	94.8
	3	22.00	10.50	397.72	0.74	0.36	284	79	85	0.40	5.0	59.1	11.08	2.70	86.5
	4	32.50	10.00	401.10	0.69	0.36	282	80	86	0.40	5.0	57.0	9.99	2.25	103.5
	5	42.50	9.00	404.83	0.60	0.36	281	80	88	0.40	5.0	53.1	10.30	2.38	106.2
	6	51.50	9.00	408.05	0.60	0.36	281	80	88	0.40	5.0	53.1	10.08	2.29	109.5
		60.50		411.37											
2	1	0.00	11.50	411.37	0.86	0.36	278	80	85	0.40	5.0	63.5	9.91	2.22	93.4
	2	11.50	10.50	415.70	0.72	0.36	284	81	88	0.40	5.0	58.3	10.63	2.51	93.0
	3	22.00	10.00	419.30	0.68	0.36	283	81	88	0.40	5.0	56.6	10.26	2.36	100.4
	4	32.00	9.50	422.90	0.57	0.36	277	81	89	0.40	5.0	51.6	10.19	2.33	110.1
	5	41.50	9.25	426.35	0.60	0.36	277	81	89	0.40	5.0	53.0	10.11	2.30	108.6
	6	50.75	9.25	429.75	0.60	0.36	277	81	89	0.40	5.0	53.0	10.44	2.43	103.8
		60.00		433.00											
Averages					0.70		280	83		0.40		57.1	10.22	2.35	100.4

EPA Draft Method - $PM_{2.5}$ Calculations

Date:	May 2, 2016
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	Test 3
Test Location:	Unit No. 2 BH Outlet

Project No.: 21656
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.47
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.984
Pitot Factor	0.846
Barometric Pressure (" Hg)	29.73
Static Pressure ("H_2O)	-9.70
Oxygen Content (%)	8.3
Carbon Dioxide Content (%)	11.3
Carbon Monoxide Content (PPM)	31.9
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1773

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.33 Rft³/min*	9.4 l/min*
Cyclone Qs_{actual}	0.56 ft³/min	15.9 l/min
Stack Gas Sampling Parameters		
V_{ms}	40.0 Rft³*	1.133 Rm³*
Average Cyclone I Cut Diameter		10.53 µm
Average Cyclone IV Cut Diameter		2.47 µm
Average Isokineticity		92.7 %
Stack Gas Physical Parameters		
B_{ws}	15.6 % v/v	
Average m	214.1 (dimensionless)	
M_d	30.14 lbs/lbs mole	
M_w	28.25 lbs/lbs mole	
Average T_s	282 °F	139 °C
Average U_s	59.3 ft/s	18.07 m/s
Stack Area	15.87 ft²	1.474 m²
Actual Q_s	56453 ACFM	26.64 m³/s
Wet Reference Q_s	39623 SCFM*	18.70 Rm³/s*
Dry Reference Q_s	33435 SCFM*	15.78 Rm³/s*
Summary of Particulate Emission Rates		
	Dry Ref. Conc.	**Emission Rate**
Total Part. (a)	4.85 mg/Rm³*	0.0766 g/s
Total Part. (b)	20.0 mg/Rm³*	0.3161 g/s
$PM_{2.5}$ Part. (a)	1.15 mg/Rm³*	0.01810 g/s
$PM_{2.5}$ Part. (b)	16.3 mg/Rm³*	0.2576 g/s
Cond. Part.	15.2 mg/Rm³*	0.2395 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	475.4	563.2	776.3	1003.6	
final volume or weight (ml or mg)	620.5	561.5	775.3	1015.5	
gain in volume or weight (ml or mg)	145.1	-1.7	-1.0	11.9	0.0
				TOTAL	**154.3**

Particulate Weight Gains	>10mm	>2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.8	3.4	<0.5	0.8	17.2

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 2, 2016	Plant: DYEC	Test No.: Test 3	Project No.: 21656
Client: Covanta	Location: Courtice, Ontario	Test location: Unit No. 2 BH Outlet	Operator: DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	DR ("H_2O)	Desired cfm	Stack Temp (°F)	Meter Temp Outlet (°F)	Meter Temp Inlet (°F)	Meter Pressure DH ("H_2O)	Pump Vacuum Gauge ("Hg)	Stack Gas Velocity (ft/s)	Cyclone I Cut Diam. (mm)	Cyclone IV Cut Diam. (mm)	ISO (%)
1	1	0.00	11.00	33.13	0.81	0.35	275	79	78	0.35	5.0	61.5	10.59	2.49	87.2
	2	11.00	11.00	36.85	0.80	0.35	283	79	81	0.35	5.0	61.5	10.57	2.49	88.7
	3	22.00	10.50	40.60	0.75	0.35	283	79	84	0.35	5.0	59.5	10.51	2.46	92.4
	4	32.50	10.00	44.22	0.75	0.35	285	79	86	0.35	5.0	59.6	10.52	2.47	92.4
	5	42.50	9.25	47.67	0.75	0.35	282	79	87	0.35	5.0	59.5	10.41	2.42	93.5
	6	51.75	9.25	50.91	0.73	0.35	280	79	88	0.35	5.0	58.6	10.46	2.44	94.0
		61.00		54.13											
2	1	0.00	11.25	54.13	0.95	0.35	279	79	85	0.35	5.0	66.8	10.52	2.47	81.6
	2	11.25	10.25	58.00	0.78	0.35	286	79	87	0.35	5.0	60.8	10.56	2.49	90.1
	3	21.50	10.00	61.52	0.73	0.35	285	79	88	0.35	5.0	58.8	10.55	2.49	93.2
	4	31.50	9.00	64.96	0.68	0.35	284	79	88	0.35	5.0	56.7	10.57	2.49	96.3
	5	40.50	9.25	68.05	0.67	0.35	282	79	88	0.35	5.0	56.2	10.53	2.47	97.3
	6	49.75	9.25	71.24	0.57	0.35	280	79	88	0.35	5.0	51.8	10.53	2.47	105.4
		59.00		74.43											
Averages					**0.75**		**282**	**82**		**0.35**		**59.3**	**10.53**	**2.47**	**92.7**

APPENDIX 28

Acid Gases Test Emission Calculations
at the Boiler No. 2 BH Outlet
(6 pages)

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Unit No. 2 BH Outlet
Test No.:	1 - Acid Gases (Method 26A)
Date:	May 3, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.98
NOZZLE DIAMETER	6.48 mm
DRY REF GAS VOLUME SAMPLED	1.184 m^3
AVGERGE ISOKINETICITY	98.5 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	144.1 °C
AVERAGE GAS MOISTURE BY VOLUME	15.2 %
AVERAGE GAS VELOCITY	17.26 m/s
BAROMETRIC PRESSURE (Station)	100.373 Kpa
STATIC PRESSURE	-2.490 Kpa
ABSOLUTE GAS PRESSURE	97.883 Kpa
OXYGEN CONCENTRATION	8.21 %
CARBON DIOXIDE CONCENTRATION	11.12 %
CARBON MONOXIDE CONCENTRATION	17.8 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.50 m^3/s
DRY REF GAS FLOWRATE	14.92 Rm^3/s
DRY ADJ GAS FLOWRATE	19.12 Rm^3/s
WET REF GAS FLOWRATE	17.61 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.184 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Acid Gases (Method 26A)	**Test Location:**	Unit No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.98	**Probe (mg)**	0
Barometric Pressure	29.64 "Hg	**CWTR (g)**	146.3
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	10.2
Nozzle	0.2553 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	1
		Number of points / Port	1

Combustion Gases	
O2%	8.21
CO2%	11.12
COppm	17.8

Measured H2O
15.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	24.28	0.67	291	82	78	77	1.6	2.5		17.14	
	5	27.79	0.69	293	56	81	80	1.65	2.5		17.42	97.4
	10	31.36	0.7	292	55	81	80	1.7	2.5		17.53	97.2
	15	34.98	0.69	294	56	82	81	1.7	3.0		17.43	97.8
	20	38.63	0.69	293	58	83	81	1.7	3.0		17.42	99.3
	25	42.27	0.67	293	60	84	81	1.65	2.5		17.16	98.8
	30	45.87	0.67	291	60	84	81	1.65	2.5		17.14	99.1
	35	49.46	0.67	291	62	84	81	1.65	2.5		17.14	98.7
	40	53.06	0.67	290	56	84	82	1.65	2.5		17.13	99.0
	45	56.64	0.68	289	54	85	82	1.7	2.5		17.24	98.3
	50	60.27	0.68	289	53	85	82	1.7	2.5		17.24	98.8
	55	63.92	0.67	290	53	85	82	1.65	2.5		17.13	99.3
	60	67.52										98.7

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Unit No. 2 BH Outlet
Test No.:	2 - Acid Gases (Method 26A)
Date:	May 3, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.98
NOZZLE DIAMETER	6.48 mm
DRY REF GAS VOLUME SAMPLED	1.256 m^3
AVGERGE ISOKINETICITY	99.1 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	144.6 °C
AVERAGE GAS MOISTURE BY VOLUME	15.5 %
AVERAGE GAS VELOCITY	18.31 m/s
BAROMETRIC PRESSURE (Station)	100.305 Kpa
STATIC PRESSURE	-2.490 Kpa
ABSOLUTE GAS PRESSURE	97.815 Kpa
OXYGEN CONCENTRATION	8.77 %
CARBON DIOXIDE CONCENTRATION	10.76 %
CARBON MONOXIDE CONCENTRATION	17.0 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.06 m^3/s
DRY REF GAS FLOWRATE	15.74 Rm^3/s
DRY ADJ GAS FLOWRATE	19.29 Rm^3/s
WET REF GAS FLOWRATE	18.65 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.256 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)
Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Acid Gases (Method 26A)	**Test Location:**	Unit No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.98	**Probe (mg)**	0
Barometric Pressure	29.62 "Hg	**CWTR (g)**	157.2
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	12.8
Nozzle	0.2553 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	1
		Number of points / Port	1

Combustion Gases	
O2%	8.77
CO2%	10.76
COppm	17.0

Measured H2O
15.5 %

				Temperatures								
Point	Time	DGM Reading	ΔP "H2O	Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	67.97	0.73	290	75	83	82	1.8	3.0		17.90	
	5	71.77	0.75	291	60	83	82	1.85	3.0		18.16	100.3
	10	75.55	0.73	291	58	83	82	1.75	3.0		17.92	98.5
	15	79.28	0.75	292	58	83	82	1.85	3.0		18.17	98.5
	20	83.05	0.75	292	59	84	82	1.85	3.0		18.17	98.3
	25	86.82	0.75	292	59	84	82	1.85	3.0		18.17	98.2
	30	90.62	0.75	292	61	85	82	1.85	3.0		18.17	99.0
	35	94.40	0.75	293	63	85	83	1.85	3.0		18.18	98.4
	40	98.22	0.79	293	63	85	83	1.95	3.2		18.66	99.4
	45	102.15	0.81	294	61	85	83	2	3.5		18.91	99.6
	50	106.11	0.8	294	60	85	83	2	3.5		18.79	99.2
	55	110.07	0.78	294	60	85	83	1.9	3.5		18.56	99.8
	60	113.99										100.1

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Unit No. 2 BH Outlet
Test No.:	3 - Acid Gases (Method 26A)
Date:	May 3, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.841
DGM CORRECTION FACTOR	0.98
NOZZLE DIAMETER	6.48 mm
DRY REF GAS VOLUME SAMPLED	1.191 m^3
AVGERGE ISOKINETICITY	100.2 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	142.9 °C
AVERAGE GAS MOISTURE BY VOLUME	15.8 %
AVERAGE GAS VELOCITY	17.18 m/s
BAROMETRIC PRESSURE (Station)	100.203 Kpa
STATIC PRESSURE	-2.490 Kpa
ABSOLUTE GAS PRESSURE	97.713 Kpa
OXYGEN CONCENTRATION	8.18 %
CARBON DIOXIDE CONCENTRATION	11.22 %
CARBON MONOXIDE CONCENTRATION	13.6 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.38 m^3/s
DRY REF GAS FLOWRATE	14.77 Rm^3/s
DRY ADJ GAS FLOWRATE	18.98 Rm^3/s
WET REF GAS FLOWRATE	17.55 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.191 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Acid Gases (Method 26A)	**Test Location:**	Unit No. 2 BH Outlet
Date:	May 3, 2016	**Operator:**	TT

Pitot Factor	0.841	**Filter (mg)**	0
DGMCF	0.98	**Probe (mg)**	0
Barometric Pressure	29.59 "Hg	**CWTR (g)**	154.4
Static Pressure	-10.000 "H_2O	**WCBDA (g)**	9.7
Nozzle	0.2553 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	1
		Number of points / Port	1

Combustion Gases	
O2%	8.18
CO2%	11.22
COppm	13.6

Measured H2O
15.8 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Temperatures: Imp. Out °F	Temperatures: DGM Out °F	Temperatures: DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	14.48	0.68	290	78	82	81	1.7	2.5		17.29	
	5	18.21	0.67	290	56	82	82	1.7	2.5		17.16	**102.5**
	10	21.81	0.67	289	53	82	81	1.7	2.5		17.15	**99.5**
	15	25.44	0.66	289	53	82	81	1.65	2.5		17.02	**100.3**
	20	29.02	0.68	289	53	83	81	1.7	2.5		17.27	**99.7**
	25	32.66	0.69	289	53	83	81	1.7	2.5		17.40	**99.8**
	30	36.32	0.69	289	53	83	81	1.7	2.5		17.40	**99.6**
	35	39.99	0.71	289	54	84	81	1.8	2.5		17.65	**99.8**
	40	43.75	0.66	289	55	84	82	1.65	2.5		17.02	**100.8**
	45	47.36	0.63	289	56	84	82	1.6	2.5		16.63	**100.2**
	50	50.89	0.66	289	57	84	82	1.65	2.5		17.02	**100.3**
	55	54.46	0.67	289	58	84	82	1.7	2.5		17.15	**99.1**
	60	58.10										**100.3**

APPENDIX 29

SVOC Test Emission Calculations
at the Boiler No. 2 BH Outlet
(12 pages)

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 2 BH Outlet
Test No.:	1 - SVOC
Date:	May 5, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.848
DGM CORRECTION FACTOR	0.984
NOZZLE DIAMETER	6.46 mm
DRY REF GAS VOLUME SAMPLED	7.287 m^3
AVGERGE ISOKINETICITY	101.1 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	139.9 °C
AVERAGE GAS MOISTURE BY VOLUME	16.2 %
AVERAGE GAS VELOCITY	17.47 m/s
BAROMETRIC PRESSURE (Station)	100.135 Kpa
STATIC PRESSURE	-2.565 Kpa
ABSOLUTE GAS PRESSURE	97.571 Kpa
OXYGEN CONCENTRATION	7.99 %
CARBON DIOXIDE CONCENTRATION	11.41 %
CARBON MONOXIDE CONCENTRATION	17.5 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.82 m^3/s
DRY REF GAS FLOWRATE	15.04 Rm^3/s
DRY ADJ GAS FLOWRATE	19.62 Rm^3/s
WET REF GAS FLOWRATE	17.95 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		7.287 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 5, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.57 "Hg	**CWTR (g)**	1007.8
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	24.5
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.53 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.99
CO2%	11.41
COppm	17.5

Measured H2O
16.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures: Stack °F	Temperatures: Imp. Out °F	Temperatures: DGM Out °F	Temperatures: DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	1.60	0.68	280	72	80	82	1.8	7.0		17.33	
	5	5.35	0.64	284	45	82	82	1.5	7.0		16.86	**103.2**
	10	8.85	0.65	283	45	82	83	1.6	7.0		16.98	**99.3**
2	15	12.45	0.73	283	45	82	85	1.8	7.0		18.00	**101.2**
	20	16.24	0.76	283	44	82	85	1.9	7.5		18.36	**100.4**
	25	20.14	0.78	283	44	82	86	1.95	7.5		18.60	**101.2**
3	30	24.09	0.8	284	45	82	86	2	8.0		18.85	**101.1**
	35	28.10	0.8	285	45	83	86	2	8.0		18.86	**101.5**
	40	32.11	0.79	285	45	83	86	1.95	8.0		18.75	**101.4**
4	45	36.08	0.78	285	46	83	86	1.95	8.0		18.63	**101.0**
	50	40.04	0.76	286	46	83	86	1.9	8.0		18.40	**101.4**
	55	43.97	0.77	286	46	83	86	1.85	8.0		18.52	**102.0**
5	60	47.86	0.7	286	47	83	86	1.75	7.5		17.66	**100.3**
	65	51.63	0.72	286	47	83	86	1.75	7.5		17.91	**102.0**
	70	55.39	0.7	286	47	83	87	1.7	7.5		17.66	**100.3**
6	75	59.11	0.67	286	48	83	87	1.65	7.0		17.27	**100.5**
	80	62.78	0.67	286	48	83	87	1.65	7.0		17.27	**101.3**
	85	66.44	0.67	285	48	83	87	1.65	7.0		17.26	**101.1**
7	90	70.10	0.65	285	49	83	87	1.6	7.5		17.00	**101.0**
	95	73.73	0.64	285	47	83	87	1.55	7.0		16.87	**101.7**
	100	77.26	0.62	285	47	83	88	1.5	7.0		16.61	**99.6**
8	105	80.78	0.64	285	46	83	88	1.55	7.0		16.87	**100.8**
	110	84.25	0.65	285	46	83	88	1.6	7.0		17.00	**97.9**
	115	87.90	0.65	285	46	87	88	1.6	7.0		17.00	**102.1**
9	120	91.55	0.67	284	46	83	88	1.6	7.0		17.25	**101.8**
	125	95.18	0.68	285	46	83	88	1.7	7.5		17.39	**100.0**
	130	98.90	0.7	284	47	83	88	1.7	7.5		17.63	**101.8**
10	135	102.62	0.71	284	47	83	87	1.75	7.5		17.76	**100.3**
	140	106.40	0.71	285	47	83	87	1.75	8.0		17.77	**101.3**
	145	110.17	0.79	286	47	83	87	2	8.0		18.76	**101.1**
11	150	114.18	0.69	287	47	83	86	1.7	8.0		17.54	**102.1**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 5, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.57 "Hg	**CWTR (g)**	1007.8
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	24.5
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.53 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.99
CO2%	11.41
COppm	17.5

Measured H2O
16.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	155	117.99	0.66	282	47	83	87	1.6	7.5		17.10	**103.8**
	160	121.66	0.66	282	47	83	86	1.55	7.0		17.10	**101.8**
12	165	125.25	0.73	281	47	83	87	1.8	7.5		17.97	**99.7**
	170	129.05	0.74	284	47	83	87	1.8	8.0		18.13	**100.2**
	175	132.89	0.72	287	48	83	86	1.75	8.0		17.92	**100.8**
	180	136.68								0.53		**101.1**
1	0	137.21	0.75	280	64	82	83	1.9	8.0		18.20	
	5	141.03	0.75	282	48	82	84	1.9	8.0		18.23	**99.8**
	10	144.98	0.74	282	49	82	85	1.9	8.0		18.11	**103.2**
2	15	148.87	0.81	282	50	82	85	2	8.0		18.94	**102.3**
	20	152.86	0.81	283	46	82	86	2	8.0		18.96	**100.3**
	25	156.87	0.8	283	46	82	85	2	8.0		18.84	**100.8**
3	30	160.98	0.8	282	46	82	85	2	8.0		18.83	**104.0**
	35	164.84	0.75	282	45	82	85	1.9	8.0		18.23	**97.6**
	40	168.67	0.76	282	45	82	86	1.9	8.0		18.35	**100.0**
4	45	172.53	0.7	282	45	82	86	1.7	7.5		17.61	**100.0**
	50	176.22	0.74	284	45	82	86	1.8	8.0		18.13	**99.6**
	55	180.05	0.75	284	45	82	86	1.9	8.0		18.25	**100.7**
5	60	183.97	0.69	288	46	83	86	1.7	8.0		17.55	**102.4**
	65	187.74	0.66	284	46	83	86	1.6	7.5		17.12	**102.8**
	70	191.35	0.7	284	47	83	87	1.8	8.0		17.63	**100.4**
6	75	195.13	0.58	285	48	83	86	1.4	7.0		16.06	**102.0**
	80	198.37	0.55	285	48	83	86	1.4	7.0		15.64	**96.1**
	85	201.76	0.55	285	48	83	87	1.3	7.0		15.64	**103.3**
7	90	205.09	0.6	284	49	83	88	1.45	7.0		16.33	**101.3**
	95	208.55	0.59	283	49	83	88	1.45	7.0		16.18	**100.7**
	100	212.01	0.59	284	49	83	89	1.45	7.0		16.19	**101.5**
8	105	215.46	0.6	283	49	83	89	1.5	7.0		16.31	**101.1**
	110	218.92	0.6	283	49	83	89	1.5	7.0		16.31	**100.5**
	115	222.37	0.61	283	49	83	89	1.6	7.0		16.45	**100.2**
9	120	225.92	0.69	284	50	83	89	1.7	7.5		17.51	**102.3**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 5, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.57 "Hg	**CWTR (g)**	1007.8
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	24.5
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.53 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.99
CO2%	11.41
COppm	17.5

Measured H2O
16.2 %

				Temperatures								
Point	Time	DGM Reading	ΔP "H2O	Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	125	229.63	0.69	283	50	84	89	1.7	7.5		17.50	**100.6**
	130	233.36	0.72	284	50	84	89	1.8	8.0		17.88	**101.0**
10	135	237.17	0.69	284	51	84	89	1.7	8.0		17.51	**101.1**
	140	240.92	0.7	285	51	84	89	1.7	8.0		17.65	**101.6**
	145	244.65	0.71	284	51	84	89	1.8	8.0		17.76	**100.4**
11	150	248.48	0.61	285	51	84	89	1.5	7.5		16.47	**102.3**
	155	252.04	0.63	282	51	84	89	1.5	7.5		16.71	**102.6**
	160	255.58	0.62	282	52	84	91	1.5	7.5		16.57	**100.2**
12	165	259.13	0.55	281	51	84	80	1.3	7.0		15.60	**101.1**
	170	262.49	0.56	281	52	84	90	1.35	7.0		15.74	**102.5**
	175	265.85	0.59	281	52	84	90	1.5	7.0		16.16	**100.7**
	180	269.30										**100.8**

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 2 BH Outlet
Test No.:	2 - SVOC
Date:	May 9, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.848
DGM CORRECTION FACTOR	0.984
NOZZLE DIAMETER	6.46 mm
DRY REF GAS VOLUME SAMPLED	6.961 m^3
AVGERGE ISOKINETICITY	100.0 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	138.0 °C
AVERAGE GAS MOISTURE BY VOLUME	16.1 %
AVERAGE GAS VELOCITY	16.64 m/s
BAROMETRIC PRESSURE (Station)	101.050 Kpa
STATIC PRESSURE	-2.565 Kpa
ABSOLUTE GAS PRESSURE	98.485 Kpa
OXYGEN CONCENTRATION	7.9 %
CARBON DIOXIDE CONCENTRATION	11.56 %
CARBON MONOXIDE CONCENTRATION	19.0 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.58 m^3/s
DRY REF GAS FLOWRATE	14.53 Rm^3/s
DRY ADJ GAS FLOWRATE	19.08 Rm^3/s
WET REF GAS FLOWRATE	17.33 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		6.961 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 9, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.84 "Hg	**CWTR (g)**	961.9
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	21.5
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.48 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.9
CO2%	11.56
COppm	19.0

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	35.00	0.68	278	71	71	71	1.6	7.0		17.22	
	5	38.62	0.66	278	43	73	73	1.5	7.5		16.97	**101.7**
	10	42.04	0.68	278	42	73	75	1.6	7.5		17.22	**97.1**
2	15	45.54	0.7	279	42	73	77	1.7	8.0		17.49	**97.8**
	20	49.20	0.7	279	42	73	79	1.7	8.0		17.49	**100.7**
	25	52.87	0.73	279	41	74	86	1.7	8.0		17.86	**100.8**
3	30	56.53	0.7	279	42	74	82	1.7	8.0		17.49	**97.7**
	35	60.18	0.69	280	42	75	83	1.7	8.0		17.37	**99.9**
	40	63.82	0.7	280	42	75	83	1.7	8.0		17.50	**100.2**
4	45	67.46	0.64	280	43	75	84	1.5	8.0		16.73	**99.5**
	50	70.92	0.64	281	42	75	84	1.6	7.5		16.74	**98.7**
	55	74.44	0.66	280	42	75	84	1.6	7.5		16.99	**100.5**
5	60	77.97	0.59	280	42	76	85	1.4	7.5		16.06	**99.2**
	65	81.36	0.55	281	42	76	85	1.3	7.0		15.52	**100.5**
	70	84.64	0.54	281	42	76	86	1.3	7.0		15.38	**100.8**
6	75	87.87	0.53	279	42	76	85	1.3	7.0		15.22	**100.1**
	80	91.08	0.52	280	41	76	85	1.3	7.0		15.08	**100.4**
	85	94.27	0.51	280	40	76	85	1.2	7.0		14.94	**100.8**
7	90	97.40	0.5	283	40	76	87	1.2	7.0		14.82	**99.8**
	95	100.51	0.53	282	40	76	86	1.3	7.0		15.25	**100.2**
	100	103.74	0.53	281	40	76	85	1.3	7.0		15.24	**101.1**
8	105	106.97	0.54	281	40	76	85	1.3	7.0		15.38	**101.1**
	110	110.19	0.54	281	40	76	85	1.3	7.0		15.38	**99.9**
	115	113.42	0.53	281	40	76	85	1.3	7.0		15.24	**100.2**
9	120	116.64	0.57	281	41	75	85	1.3	7.0		15.80	**100.8**
	125	119.91	0.56	281	41	75	85	1.3	7.0		15.66	**98.8**
	130	123.20	0.56	280	41	76	84	1.3	7.0		15.65	**100.3**
10	135	126.49	0.56	280	40	75	84	1.3	7.0		15.65	**100.2**
	140	129.78	0.56	280	39	75	84	1.3	7.0		15.65	**100.3**
	145	133.06	0.54	281	39	76	85	1.3	7.0		15.38	**100.0**
11	150	136.29	0.55	279	39	75	84	1.3	7.0		15.50	**100.2**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 9, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.84 "Hg	**CWTR (g)**	961.9
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	21.5
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.48 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.9
CO2%	11.56
COppm	19.0

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	155	139.55	0.53	279	39	75	84	1.3	7.0		15.22	**100.2**
	160	142.81	0.54	279	39	75	85	1.3	7.0		15.36	**102.1**
12	165	146.07	0.54	279	38	75	84	1.3	7.0		15.36	**101.1**
	170	149.29	0.56	279	39	75	83	1.3	7.0		15.64	**99.9**
	175	152.55	0.57	279	39	75	85	1.35	7.0		15.78	**99.4**
	180	155.87								0.48		**100.2**
1	0	156.35	0.75	280	50	73	76	1.8	8.5		18.11	
	5	160.17	0.65	281	39	74	78	1.5	8.0		16.87	**101.7**
	10	163.73	0.63	281	39	73	79	1.4	7.5		16.61	**101.5**
2	15	167.10	0.74	281	39	73	80	1.8	8.0		18.00	**97.6**
	20	170.77	0.73	281	39	73	81	1.7	8.5		17.88	**98.1**
	25	174.47	0.74	281	38	73	81	1.8	8.5		18.00	**99.4**
3	30	178.24	0.74	282	38	73	81	1.8	8.5		18.02	**100.7**
	35	182.04	0.74	281	38	73	81	1.8	8.5		18.00	**101.5**
	40	185.75	0.74	282	39	73	81	1.8	8.5		18.02	**99.1**
4	45	189.55	0.72	282	39	73	81	1.7	8.5		17.77	**101.5**
	50	193.24	0.73	282	39	73	83	1.8	8.5		17.89	**99.9**
	55	196.98	0.71	282	39	74	85	1.7	8.5		17.65	**100.4**
5	60	200.68	0.69	283	40	73	81	1.7	8.5		17.41	**100.4**
	65	204.35	0.68	282	40	73	81	1.7	8.5		17.27	**101.6**
	70	207.99	0.68	282	40	73	81	1.6	8.0		17.27	**101.4**
6	75	211.59	0.64	282	41	73	82	1.5	8.0		16.75	**100.3**
	80	215.07	0.61	282	41	73	83	1.4	8.0		16.36	**99.8**
	85	218.50	0.6	281	41	73	82	1.4	8.0		16.21	**100.7**
7	90	222.03	0.63	281	41	73	82	1.5	8.0		16.61	**104.5**
	95	225.36	0.62	281	42	73	82	1.45	8.0		16.48	**96.2**
	100	228.74	0.62	281	42	73	82	1.45	8.0		16.48	**98.4**
8	105	232.11	0.66	281	42	73	83	1.55	8.0		17.00	**98.1**
	110	235.55	0.65	282	43	73	83	1.55	8.0		16.88	**97.0**
	115	239.07	0.63	282	43	74	85	1.3	7.5		16.62	**100.1**
9	120	242.38	0.71	282	44	73	82	1.7	8.0		17.65	**95.3**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 9, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.84 "Hg	**CWTR (g)**	961.9
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	21.5
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.48 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	7.9
CO2%	11.56
COppm	19.0

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	125	245.99	0.7	282	43	73	83	1.7	8.0		17.52	98.4
	130	249.60	0.68	282	44	74	82	1.65	8.5		17.27	99.0
10	135	253.22	0.7	283	44	74	82	1.7	8.5		17.53	100.7
	140	256.88	0.7	282	45	74	83	1.7	8.5		17.52	100.4
	145	260.55	0.67	281	45	74	83	1.65	8.5		17.13	100.5
11	150	264.17	0.69	281	45	74	82	1.65	8.5		17.38	101.3
	155	267.79	0.65	277	46	74	83	1.5	8.0		16.83	99.9
	160	271.29	0.64	279	46	74	83	1.5	8.0		16.72	99.1
12	165	274.78	0.69	277	46	74	83	1.6	8.0		17.34	99.7
	170	278.36	0.63	276	46	74	83	1.6	8.0		16.55	98.4
	175	281.95	0.66	276	47	74	83	1.6	8.0		16.94	103.2
	180	285.50										99.7

ORTECH Environmental

Plant:	Covanta - DYEC
Plant Location:	Courtice, ON
Test Location:	Boiler No. 2 BH Outlet
Test No.:	3 - SVOC
Date:	May 10, 2016

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.848
DGM CORRECTION FACTOR	0.984
NOZZLE DIAMETER	6.46 mm
DRY REF GAS VOLUME SAMPLED	7.048 m^3
AVGERGE ISOKINETICITY	99.3 %
STACK DIAMETER	1.37 m
LENGTH	0.00 m
WIDTH	0.00 m
AREA OF STACK or DUCT	1.48 m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	138.6 °C
AVERAGE GAS MOISTURE BY VOLUME	15.7 %
AVERAGE GAS VELOCITY	16.81 m/s
BAROMETRIC PRESSURE (Station)	101.558 Kpa
STATIC PRESSURE	-2.565 Kpa
ABSOLUTE GAS PRESSURE	98.993 Kpa
OXYGEN CONCENTRATION	8.12 %
CARBON DIOXIDE CONCENTRATION	11.41 %
CARBON MONOXIDE CONCENTRATION	15.0 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	24.84 m^3/s
DRY REF GAS FLOWRATE	14.81 Rm^3/s
DRY ADJ GAS FLOWRATE	19.12 Rm^3/s
WET REF GAS FLOWRATE	17.58 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		7.048 m^3
PARTICULATE CONC. - ACTUAL		0.000 mg/m^3
PARTICULATE CONC. - DRY REF		0.000 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.000 mg/m^4
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.00000 g/s

Note: * Reference conditions refers to 25 deg C (77 deg F) and 101.325 kPa (29.92 in. Hg)

Note: Dry Adj condition refers to 25 deg C (77 deg F)and 1 atmosphere, adjusted to 11% oxygen by volume

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 10, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.99 "Hg	**CWTR (g)**	944.8
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	20.7
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.44 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.12
CO2%	11.41
COppm	15.0

Measured H2O
15.7 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	86.32	0.68	280	74	74	76	1.6	7.0		17.19	
	5	89.98	0.65	282	43	74	74	1.45	7.0		16.83	**102.0**
	10	93.38	0.68	281	43	74	76	1.55	7.0		17.20	**97.2**
2	15	96.84	0.75	281	42	75	78	1.8	8.0		18.07	**96.5**
	20	100.58	0.71	281	41	75	80	1.7	8.0		17.58	**99.1**
	25	104.28	0.71	281	41	75	82	1.7	8.0		17.58	**100.6**
3	30	107.95	0.72	281	40	76	83	1.7	8.0		17.70	**99.6**
	35	111.62	0.72	280	41	76	89	1.7	8.0		17.69	**98.7**
	40	115.27	0.72	281	40	76	85	1.7	8.0		17.70	**97.5**
4	45	118.93	0.67	280	40	77	85	1.5	7.2		17.06	**98.2**
	50	122.38	0.67	280	40	77	86	1.6	7.4		17.06	**95.8**
	55	125.98	0.68	280	40	77	86	1.6	7.4		17.19	**99.9**
5	60	129.53	0.66	280	40	77	86	1.6	7.4		16.94	**97.8**
	65	133.10	0.66	281	41	78	87	1.6	7.4		16.95	**99.8**
	70	136.67	0.66	281	41	78	87	1.6	7.4		16.95	**99.7**
6	75	140.24	0.6	280	41	78	87	1.4	7.0		16.15	**99.7**
	80	143.61	0.6	280	40	78	87	1.4	7.0		16.15	**98.6**
	85	146.98	0.6	279	41	78	88	1.4	7.0		16.14	**98.6**
7	90	150.37	0.6	280	41	79	88	1.4	7.0		16.15	**99.0**
	95	153.70	0.59	280	40	79	88	1.4	7.0		16.01	**97.2**
	100	157.05	0.59	280	40	79	88	1.4	7.0		16.01	**98.6**
8	105	160.34	0.63	281	40	79	88	1.5	7.2		16.56	**96.9**
	110	163.88	0.62	281	40	79	80	1.5	7.2		16.43	**101.0**
	115	167.28	0.63	281	41	79	88	1.5	7.2		16.56	**98.5**
9	120	170.78	0.7	282	40	79	88	1.6	7.6		17.46	**99.8**
	125	174.34	0.66	284	40	79	88	1.6	8.0		16.98	**96.4**
	130	177.93	0.66	282	40	79	92	1.6	8.0		16.96	**100.3**
10	135	181.53	0.69	282	40	79	90	1.7	8.0		17.34	**100.0**
	140	185.20	0.68	283	41	79	88	1.7	8.0		17.23	**99.9**
	145	188.88	0.68	282	40	79	88	1.65	8.0		17.21	**101.2**
11	150	192.53	0.7	282	41	79	88	1.7	8.0		17.46	**100.3**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 10, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.99 "Hg	**CWTR (g)**	944.8
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	20.7
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.44 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.12
CO2%	11.41
COppm	15.0

Measured H2O
15.7 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	155	196.22	0.67	282	41	80	88	1.6	8.0		17.09	**99.9**
	160	199.84	0.68	282	41	79	88	1.65	8.0		17.21	**100.1**
12	165	203.49	0.68	282	41	79	88	1.65	8.0		17.21	**100.3**
	170	207.16	0.65	283	42	79	88	1.55	8.0		16.84	**100.8**
	175	210.75	0.63	281	42	79	88	1.5	7.5		16.56	**100.9**
	180	214.29								0.44		**101.0**
1	0	214.73	0.7	280	64	79	82	1.7	8.0		17.44	
	5	218.43	0.68	280	41	79	82	1.6	8.0		17.19	**100.6**
	10	222.04	0.66	280	42	79	84	1.6	8.0		16.94	**99.6**
2	15	225.61	0.73	280	42	79	85	1.8	8.0		17.81	**99.8**
	20	229.34	0.77	280	42	79	87	1.9	8.5		18.29	**99.1**
	25	233.20	0.79	280	43	79	87	1.95	9.0		18.53	**99.7**
3	30	237.15	0.77	282	43	79	87	1.9	9.0		18.32	**100.7**
	35	241.05	0.77	281	44	79	87	1.9	9.0		18.30	**100.9**
	40	244.97	0.78	282	44	79	87	1.9	9.0		18.44	**101.3**
4	45	248.87	0.7	281	44	79	88	1.7	8.2		17.45	**100.2**
	50	252.59	0.7	281	44	79	88	1.7	8.2		17.45	**100.7**
	55	256.30	0.7	281	44	79	88	1.7	8.2		17.45	**100.4**
5	60	259.98	0.65	281	45	79	88	1.5	8.0		16.82	**99.6**
	65	263.50	0.64	281	46	79	88	1.5	8.0		16.69	**98.8**
	70	266.98	0.64	281	46	80	89	1.5	8.0		16.69	**98.5**
6	75	270.43	0.61	282	46	80	89	1.4	7.6		16.30	**97.4**
	80	273.80	0.61	282	46	80	89	1.4	7.6		16.30	**97.5**
	85	277.16	0.62	282	45	80	89	1.45	7.7		16.44	**97.2**
7	90	280.60	0.57	282	45	80	89	1.4	7.5		15.76	**98.8**
	95	283.97	0.6	281	45	80	89	1.4	7.5		16.16	**100.9**
	100	287.32	0.6	283	46	80	90	1.45	7.5		16.18	**97.7**
8	105	290.73	0.58	283	46	80	90	1.35	7.5		15.91	**99.5**
	110	294.10	0.6	284	46	80	90	1.45	7.5		16.19	**100.0**
	115	297.52	0.56	283	47	81	91	1.3	7.5		15.63	**99.9**
9	120	300.80	0.61	282	47	81	90	1.45	7.5		16.30	**98.8**

ORTECH Environmental

Plant:	Covanta - DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	Boiler No. 2 BH Outlet
Date:	May 10, 2016	**Operator:**	AN

Pitot Factor	0.848	**Filter (mg)**	0
DGMCF	0.984	**Probe (mg)**	0
Barometric Pressure	29.99 "Hg	**CWTR (g)**	944.8
Static Pressure	-10.300 "H_2O	**WCBDA (g)**	20.7
Nozzle	0.2543 inches		
Stack Diameter	4.500 ft	**Leak Check Volume**	0.44 ft^3
Length	0.000 ft	**Reading Interval**	5 minutes
Width	0.000 ft	**Number of Ports**	2
		Number of points / Port	12

Combustion Gases	
O2%	8.12
CO2%	11.41
COppm	15.0

Measured H2O
15.7 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	125	304.21	0.61	283	44	81	90	1.45	7.5		16.31	98.5
	130	307.62	0.62	283	43	81	90	1.45	7.5		16.45	98.6
10	135	311.04	0.61	282	43	81	90	1.45	7.5		16.30	98.1
	140	314.46	0.61	284	43	81	90	1.45	7.5		16.33	98.8
	145	317.86	0.62	283	43	81	90	1.45	7.5		16.45	98.4
11	150	321.31	0.58	283	43	81	90	1.35	7.5		15.91	98.9
	155	324.62	0.57	283	44	81	90	1.35	7.5		15.77	98.1
	160	327.95	0.57	282	44	81	90	1.35	7.5		15.76	99.6
12	165	331.28	0.51	282	44	81	90	1.25	7.2		14.91	99.5
	170	334.39	0.51	282	44	81	90	1.25	7.2		14.91	98.2
	175	337.66	0.51	282	44	81	90	1.15	7.0		14.91	103.3
	180	340.78										98.5

APPENDIX 30

CALPUFF Zip Files
(CD)

APPENDIX 31

DYEC CEMS 1-Hour Average Data
and ORTECH THC Data
(6 pages)

Covanta - Durham York Energy Centre
Total Hydrocarbons at the Boiler No. 1 BH Outlet
April 20, 2016

Test No. 1 Time	Test No. 1 THC ppm	Test No. 2 Time	Test No. 2 THC ppm	Test No. 3 Time	Test No. 3 THC ppm	Test No. 4 Time	Test No. 4 THC ppm	Test No. 5 Time	Test No. 5 THC ppm	Test No. 6 Time	Test No. 6 THC ppm
08:40	0.0	09:11	0.5	13:10	1.2	13:41	0.7	14:12	0.8	14:43	0.3
08:41	0.0	09:12	0.5	13:11	1.0	13:42	0.4	14:13	0.8	14:44	0.4
08:42	0.0	09:13	0.4	13:12	0.7	13:43	0.7	14:14	0.7	14:45	0.4
08:43	0.0	09:14	0.4	13:13	1.2	13:44	0.7	14:15	0.6	14:46	0.4
08:44	0.0	09:15	0.3	13:14	0.7	13:45	0.6	14:16	0.6	14:47	0.4
08:45	0.0	09:16	0.2	13:15	1.2	13:46	0.6	14:17	0.6	14:48	0.2
08:46	0.0	09:17	0.2	13:16	1.4	13:47	0.8	14:18	0.6	14:49	0.2
08:47	0.0	09:18	0.1	13:17	0.9	13:48	0.8	14:19	0.4	14:50	0.1
08:48	0.1	09:19	0.4	13:18	0.8	13:49	0.6	14:20	0.4	14:51	0.0
08:49	0.3	09:20	0.5	13:19	0.7	13:50	0.3	14:21	0.6	14:52	0.0
08:50	0.1	09:21	0.5	13:20	0.4	13:51	0.2	14:22	0.7	14:53	0.1
08:51	0.3	09:22	0.7	13:21	0.3	13:52	0.5	14:23	0.5	14:54	0.2
08:52	0.5	09:23	0.9	13:22	0.2	13:53	0.6	14:24	0.5	14:55	0.4
08:53	0.6	09:24	1.2	13:23	0.6	13:54	0.4	14:25	0.2	14:56	0.3
08:54	0.5	09:25	1.1	13:24	0.9	13:55	0.6	14:26	0.2	14:57	0.2
08:55	0.6	09:26	1.1	13:25	0.8	13:56	0.5	14:27	0.4	14:58	0.4
08:56	0.7	09:27	1.2	13:26	0.8	13:57	0.4	14:28	0.4	14:59	0.3
08:57	0.8	09:28	1.3	13:27	0.6	13:58	0.4	14:29	0.7	15:00	0.3
08:58	0.8	09:29	1.2	13:28	0.4	13:59	0.3	14:30	0.4	15:01	0.4
08:59	0.8	09:30	1.1	13:29	0.7	14:00	0.2	14:31	0.4	15:02	0.3
09:00	0.7	09:31	1.3	13:30	0.6	14:01	0.3	14:32	0.5	15:03	0.4
09:01	0.7	09:32	1.5	13:31	0.3	14:02	0.5	14:33	0.4	15:04	0.4
09:02	0.7	09:33	1.6	13:32	0.5	14:03	0.5	14:34	0.5	15:05	0.2
09:03	0.7	09:34	2.0	13:33	0.6	14:04	0.5	14:35	0.3	15:06	0.0
09:04	0.6	09:35	2.6	13:34	0.5	14:05	0.4	14:36	0.2	15:07	0.0
09:05	0.6	09:36	3.2	13:35	0.7	14:06	0.6	14:37	0.4	15:08	0.0
09:06	0.6	09:37	3.8	13:36	0.5	14:07	0.8	14:38	0.6	15:09	0.0
09:07	0.7	09:38	4.2	13:37	0.3	14:08	0.6	14:39	0.5	15:10	0.2
09:08	0.5	09:39	4.9	13:38	0.3	14:09	0.3	14:40	0.3	15:11	0.1
09:09	0.5	09:40	5.1	13:39	0.3	14:10	0.3	14:41	0.2	15:12	0.1
09:10	0.4	09:41	5.5	13:40	0.5	14:11	0.4	14:42	0.1	15:13	0.0

	Test No. 1		Test No. 2		Test No. 3		Test No. 4		Test No. 5		Test No. 6
Min	0.0	Min	0.1	Min	0.2	Min	0.2	Min	0.1	Min	0.0
Max	0.8	Max	5.5	Max	1.4	Max	0.8	Max	0.8	Max	0.4
Avg	0.4	Avg	1.6	Avg	0.7	Avg	0.5	Avg	0.5	Avg	0.2

Dry Basis using measured moisture of 16.5%

	Test No. 1		Test No. 2		Test No. 3		Test No. 4		Test No. 5		Test No. 6
Min	0.0	Min	0.2	Min	0.3	Min	0.2	Min	0.2	Min	0.0
Max	1.0	Max	6.6	Max	1.7	Max	1.0	Max	1.0	Max	0.5
Avg	0.5	Avg	1.9	Avg	0.8	Avg	0.6	Avg	0.6	Avg	0.3

Covanta - Durham York Energy Centre
Boiler No. 1 CEMS

		BH Outlet											Scrubber Inlet
		O_2	CO_2	CO		SO_2		NOx		HCl		THC	O_2
		%	kg/m^3	mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2	%
Date	Time	1-hr	1-hr	1-hr	Rolling 4-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	1-hr
2-May-16	0:00	8.23	0.20	6		0		99		5		0	9
2-May-16	1:00	7.83	0.20	7		0		108		5		0	8
2-May-16	2:00	7.96	0.20	8		0		107		3		0	9
2-May-16	3:00	8.14	0.20	11	8.0	0		106		4		0	9
2-May-16	4:00	7.79	0.20	5	7.8	0		106		7		0	8
2-May-16	5:00	6.96	0.21	5	7.3	0		124		5		0	8
2-May-16	6:00	6.99	0.22	6	6.8	0		115		5		0	8
2-May-16	7:00	7.49	0.21	7	5.8	0		123		6		0	
2-May-16	8:00	7.37	0.21	9	6.8	0		100		5		0	8
2-May-16	9:00	7.26	0.21	8	7.5	0		97		5		0	8
2-May-16	10:00	6.77	0.22	20	11.0	0		123		5		0	7
2-May-16	11:00	6.94	0.21	12	12.3	0		100		5		0	8
2-May-16	12:00	8.19	0.20	18	14.5	0		99		9		0	9
2-May-16	13:00	7.35	0.21	9	14.8	0		109		6		0	8
2-May-16	14:00	7.04	0.22	10	12.3	0		101		5		0	8
2-May-16	15:00	7.22	0.21	10	11.8	0		111		7		0	8
2-May-16	16:00	8.61	0.19	27	14.0	0		109		10		0	9
2-May-16	17:00	7.27	0.20	9	14.0	0		100		5		0	8
2-May-16	18:00	7.61	0.21	13	14.8	0		108		5		0	8
2-May-16	19:00	7.21	0.21	20	17.3	0		108		4		0	8
2-May-16	20:00	7.48	0.21	16	14.5	0		103		5		0	8
2-May-16	21:00	7.72	0.20	16	16.3	0		106		5		0	8
2-May-16	22:00	7.78	0.20	18	17.5	0		102		6		0	8
2-May-16	23:00	8.05	0.20	15	16.3	0	0.0	108	107	6	5.5	0	9
3-May-16	0:00	7.49	0.21	24	18.3	0	0.0	101	107	5	5.5	0	8
3-May-16	1:00	7.38	0.21	24	20.3	0	0.0	112	107	4	5.5	0	8
3-May-16	2:00	7.42	0.21	25	22.0	0	0.0	100	107	5	5.6	0	8
3-May-16	3:00	7.47	0.21	17	22.5	0	0.0	108	107	5	5.6	0	8
3-May-16	4:00	7.50	0.21	21	21.8	0	0.0	93	107	6	5.6	0	8
3-May-16	5:00	7.62	0.20	16	19.8	0	0.0	110	106	5	5.6	0	8
3-May-16	6:00	7.30	0.21	14	17.0	0	0.0	107	106	2	5.5	0	8
3-May-16	7:00	7.35	0.21	19	17.5	0	0.0	114	105	4	5.4	0	
3-May-16	8:00	8.41	0.19	9	14.5	0	0.0	108	106	5	5.4	0	9
3-May-16	9:00	7.61	0.21	13	13.8	0	0.0	102	106	5	5.4	0	8
3-May-16	10:00	7.32	0.21	10	12.8	0	0.0	105	105	5	5.4	0	8
3-May-16	11:00	7.35	0.20	11	10.8	0	0.0	99	105	5	5.4	0	8
3-May-16	12:00	8.01	0.20	16	12.5	0	0.0	110	106	5	5.2	0	9
3-May-16	13:00	8.06	0.20	19	14.0	0	0.0	96	105	6	5.2	0	8
3-May-16	14:00	6.42	0.23	19	16.3	0	0.0	116	106	4	5.2	0	7
3-May-16	15:00	7.23	0.21	14	17.0	0	0.0	102	105	5	5.1	0	8
3-May-16	16:00	6.96	0.22	19	17.8	0	0.0	108	105	5	4.9	0	8
3-May-16	17:00	6.99	0.21	16	17.0	0	0.0	109	106	4	4.8	0	8
3-May-16	18:00	7.24	0.21	18	16.8	0	0.0	102	105	5	4.8	0	8
3-May-16	19:00	7.34	0.21	28	20.3	0	0.0	108	105	8	5.0	1	8
3-May-16	20:00	7.12	0.21	20	20.5	0	0.0	98	105	5	5.0	0	8
3-May-16	21:00	7.27	0.21	21	21.8	0	0.0	111	105	5	5.0	0	8
3-May-16	22:00	7.30	0.21	18	21.8	0	0.0	102	105	4	4.9	0	8
3-May-16	23:00	7.02	0.21	21	20.0	0	0.0	104	105	5	4.9	0	8
4-May-16	0:00	7.24	0.21	17	19.3	0	0.0	102	105	5	4.9	0	8
4-May-16	1:00	7.51	0.21	22	19.5	0	0.0	111	105	6	5.0	0	8
4-May-16	2:00	7.02	0.21	19	19.8	0	0.0	103	105	5	5.0	0	8
4-May-16	3:00	7.16	0.21	21	19.8	0	0.0	103	105	5	5.0	0	8
4-May-16	4:00	7.49	0.20	23	21.3	0	0.0	106	106	6	5.0	0	8
4-May-16	5:00	7.31	0.20	19	20.5	0	0.0	110	106	5	5.0	0	8
4-May-16	6:00	7.39	0.21	19	20.5	0	0.0	103	106	4	5.0	0	8
4-May-16	7:00	7.42	0.21	14	18.8	0	0.0	119	106	5	5.1	0	
4-May-16	8:00	7.70	0.20	13	16.3	0	0.0	96	105	5	5.1	0	8
4-May-16	9:00	7.56	0.20	13	14.8	0	0.0	111	106	5	5.1	0	8
4-May-16	10:00	7.44	0.21	16	14.0	0	0.0	102	105	5	5.1	0	8
4-May-16	11:00	7.56	0.20	19	15.3	0	0.0	105	106	7	5.2	0	8
4-May-16	12:00	8.93	0.17	28	19.0	0	0.0	114	106	8	5.3	0	9
4-May-16	13:00	7.43	0.20	6	17.3	0	0.0	101	106	5	5.3	0	8
4-May-16	14:00	6.81	0.21	13	16.5	0	0.0	106	106	4	5.3	0	7
4-May-16	15:00	7.35	0.21	19	16.5	0	0.0	106	106	5	5.3	0	8
4-May-16	16:00	7.21	0.21	15	13.3	0	0.0	99	105	5	5.3	0	8
4-May-16	17:00	6.72	0.21	13	15.0	0	0.0	107	105	5	5.3	0	8
4-May-16	18:00	7.37	0.21	16	15.8	0	0.0	109	106	6	5.3	0	8
4-May-16	19:00	7.04	0.21	22	16.5	0	0.0	104	106	5	5.2	0	8
4-May-16	20:00	6.89	0.22	17	17.0	0	0.0	107	106	5	5.2	0	8
4-May-16	21:00	6.69	0.22	21	19.0	0	0.0	113	106	5	5.2	0	8
4-May-16	22:00	6.97	0.21	17	19.3	0	0.0	94	106	5	5.3	0	8
4-May-16	23:00	6.75	0.21	18	18.3	0	0.0	96	105	5	5.3	0	8

Covanta - Durham York Energy Centre
Boiler No. 1 CEMS

		BH Outlet											Scrubber Inlet
		O_2	CO_2	CO		SO_2		NOx		HCl		THC	O_2
		%	kg/m³	mg/m³ @ 11% O_2		mg/m³ @ 11% O_2		mg/m³ @ 11% O_2		mg/m³ @ 11% O_2		mg/m³ @ 11% O_2	%
	Time	1-hr	1-hr	1-hr	Rolling 4-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	1-hr
9-May-16	0:00	7.25	0.22	14		0		108		4		0	7
9-May-16	1:00	7.64	0.21	19		2		126		4		0	8
9-May-16	2:00	7.65	0.21	18		1		96		4		0	8
9-May-16	3:00	7.26	0.22	18	17.3	0		110		5		0	8
9-May-16	4:00	7.51	0.21	15	17.5	0		115		6		0	8
9-May-16	5:00	7.84	0.20	15	16.5	0		107		6		0	8
9-May-16	6:00	8.13	0.20	20	17.0	0		114		5		0	8
9-May-16	7:00	7.28	0.21	16	16.5	0		114		4		0	8
9-May-16	8:00	7.45	0.21	24	18.8	0		108		3		0	8
9-May-16	9:00	7.65	0.21	20	20.0	0		116		2		0	8
9-May-16	10:00	7.31	0.22	15	18.8	0		108		2		0	8
9-May-16	11:00	7.13	0.21	17	19.0	0		111		2		0	8
9-May-16	12:00	7.78	0.21	19	17.8	0		103		4		0	8
9-May-16	13:00	7.45	0.21	21	18.0	0		102		6		0	8
9-May-16	14:00	7.42	0.21	16	18.3	0		116		6		0	8
9-May-16	15:00	7.75	0.21	23	19.8	0		114		5		0	8
9-May-16	16:00	7.67	0.21	18	19.5	0		111		4		0	8
9-May-16	17:00	7.82	0.21	14	17.8	0		106		3		0	8
9-May-16	18:00	7.14	0.22	14	17.3	0		112		3		0	7
9-May-16	19:00	7.38	0.21	16	15.5	1		113		4		0	8
9-May-16	20:00	7.84	0.21	17	15.3	0		112		5		0	8
9-May-16	21:00	7.43	0.22	12	14.8	0		111		5		0	8
9-May-16	22:00	7.55	0.21	14	14.8	0		113		5		0	8
9-May-16	23:00	7.70	0.20	11	13.5	0	0.2	107	111	5	4.3	0	8
10-May-16	0:00	7.82	0.21	11	12.0	0	0.2	109	111	5	4.3	0	8
10-May-16	1:00	7.52	0.22	12	12.0	0	0.1	106	110	5	4.3	0	8
10-May-16	2:00	8.02	0.21	23	14.3	0	0.0	116	111	6	4.4	0	8
10-May-16	3:00	8.66	0.20	16	15.5	0	0.0	108	111	5	4.4	0	9
10-May-16	4:00	8.38	0.20	17	17.0	0	0.0	105	110	5	4.4	0	9
10-May-16	5:00	6.96	0.21	12	17.0	0	0.0	117	111	3	4.3	0	7
10-May-16	6:00	7.55	0.21	12	14.3	0	0.0	96	110	4	4.2	0	8
10-May-16	7:00	7.68	0.21	15	14.0	1	0.1	116	110	5	4.3	0	8
10-May-16	8:00	7.95	0.21	14	13.3	1	0.1	108	110	5	4.3	0	8
10-May-16	9:00	7.68	0.21	15	14.0	0	0.1	115	110	5	4.5	0	8
10-May-16	10:00	7.47	0.22	17	15.3	0	0.1	109	110	5	4.6	0	8
10-May-16	11:00	7.54	0.21	10	14.0	0	0.1	110	110	5	4.7	0	8
10-May-16	12:00	7.58	0.21	13	13.8	0	0.1	112	110	5	4.8	0	8
10-May-16	13:00	7.95	0.21	10	12.5	0	0.1	117	111	5	4.7	0	8
10-May-16	14:00	7.58	0.21	11	11.0	0	0.1	101	110	5	4.7	0	8
10-May-16	15:00	7.82	0.21	12	11.5	0	0.1	109	110	6	4.7	0	8
10-May-16	16:00	7.83	0.21	8	10.3	0	0.1	116	110	5	4.8	0	8
10-May-16	17:00	7.62	0.20	10	10.3	0	0.1	101	110	4	4.8	0	8
10-May-16	18:00	7.46	0.22	8	9.5	0	0.1	114	110	4	4.8	0	8
10-May-16	19:00	7.53	0.21	8	8.5	0	0.1	109	110	5	4.9	0	8
10-May-16	20:00	7.96	0.21	11	9.3	0	0.1	120	110	5	4.9	0	8
10-May-16	21:00	8.30	0.20	15	10.5	0	0.1	105	110	6	4.9	0	9
10-May-16	22:00	7.83	0.21	11	11.3	0	0.1	114	110	5	4.9	0	8
10-May-16	23:00	7.70	0.20	12	12.3	0	0.1	102	110	5	4.9	0	8
11-May-16	0:00	7.79	0.21	13	12.8	0	0.1	115	110	5	4.9	0	8
11-May-16	1:00	7.54	0.21	14	12.5	0	0.1	106	110	5	4.9	0	8
11-May-16	2:00	7.41	0.21	12	12.8	0	0.1	106	110	5	4.9	0	8
11-May-16	3:00	7.77	0.21	13	13.0	0	0.1	113	110	4	4.8	0	8
11-May-16	4:00	7.95	0.21	13	13.0	0	0.1	110	110	6	4.9	0	8
11-May-16	5:00	7.86	0.21	11	12.3	0	0.1	121	110	6	5.0	0	8
11-May-16	6:00	7.32	0.22	10	11.8	0	0.1	100	110	5	5.0	0	8
11-May-16	7:00	7.48	0.22	12	11.5	0	0.0	114	110	5	5.0	0	8
11-May-16	8:00	7.51	0.21	10	10.8	0	0.0	111	110	5	5.0	0	8
11-May-16	9:00	7.58	0.21	11	10.8	0	0.0	111	110	5	5.0	0	8
11-May-16	10:00	7.61	0.21	11	11.0	0	0.0	112	110	5	5.0	0	8
11-May-16	11:00	7.41	0.21	9	10.3	0	0.0	107	110	5	5.0	0	8
11-May-16	12:00	7.52	0.21	10	10.3	0	0.0	112	110	5	5.0	0	8
11-May-16	13:00	7.37	0.22	9	9.8	0	0.0	119	110	5	5.0	0	8
11-May-16	14:00	7.54	0.22	10	9.5	0	0.0	99	110	5	5.0	0	8
11-May-16	15:00	7.69	0.21	9	9.5	0	0.0	117	111	6	5.0	0	8
11-May-16	16:00	7.95	0.21	13	10.3	0	0.0	110	110	7	5.1	0	8
11-May-16	17:00	7.52	0.21	13	11.3	0	0.0	105	111	6	5.2	0	8
11-May-16	18:00	7.68	0.21	16	12.8	0	0.0	112	110	5	5.3	0	8
11-May-16	19:00	7.53	0.21	13	13.8	0	0.0	107	110	5	5.3	0	8
11-May-16	20:00	7.48	0.21	11	13.3	0	0.0	107	110	6	5.3	0	8
11-May-16	21:00	7.37	0.22	11	12.8	0	0.0	114	110	5	5.3	0	8
11-May-16	22:00	7.67	0.21	17	13.0	0	0.0	114	110	6	5.3	0	8
11-May-16	23:00	7.45	0.21	12	12.8	0	0.0	100	110	7	5.4	0	8

Min	6.42	0.17	5	5.8	0	0.0	93	105	2	4.2	0	7
Max	8.93	0.23	28	22.5	2	0.2	126	111	10	5.6	1	9
Avg	7.52	0.21	15	14.8	0	0.0	108	108	5	5.0	0	8
Std Dev	0.39	0.01	4.9	3.8	0.2	0.0	6.5	2.3	1.1	0.3	0.1	0.4

Covanta - Durham York Energy Centre
Total Hydrocarbons at the Boiler No. 2 BH Outlet
April 19, 2016

Test No. 1		Test No. 2		Test No. 3		Test No. 4		Test No. 5		Test No. 6	
	THC		THC		THC		THC		THC		THC
Time	ppm	Time	ppm	Time	ppm	Time	ppm	Time	ppm	Time	ppm
08:10	6.8	08:45	1.5	10:19	0.0	10:50	0.0	11:41	1.1	12:13	0.5
08:11	5.8	08:46	1.4	10:20	0.0	10:51	0.0	11:42	0.8	12:14	0.7
08:12	5.0	08:47	1.3	10:21	0.0	10:52	0.0	11:43	0.8	12:15	0.7
08:13	4.5	08:48	1.4	10:22	0.0	10:53	0.0	11:44	0.7	12:16	0.4
08:14	4.1	08:49	1.2	10:23	0.0	10:54	0.0	11:45	0.6	12:17	0.4
08:15	3.9	08:50	1.1	10:24	0.0	10:55	0.0	11:46	0.4	12:18	0.4
08:16	3.6	08:51	0.9	10:25	0.0	10:56	0.0	11:47	0.4	12:19	0.5
08:17	3.5	08:52	0.8	10:26	0.0	10:57	0.0	11:48	0.4	12:20	0.5
08:18	3.4	08:53	0.8	10:27	0.0	10:58	0.0	11:49	0.4	12:21	0.6
08:19	3.3	08:54	0.8	10:28	0.0	10:59	0.0	11:50	0.3	12:22	0.7
08:20	3.1	08:55	0.8	10:29	0.0	11:00	0.0	11:51	0.3	12:23	0.7
08:21	2.8	08:56	0.7	10:30	0.0	11:01	0.0	11:52	0.3	12:24	0.7
08:22	2.6	08:57	0.8	10:31	0.0	11:02	0.0	11:53	0.2	12:25	0.7
08:23	2.4	08:58	0.8	10:32	0.0	11:03	0.0	11:54	0.2	12:26	0.8
08:24	2.4	08:59	0.7	10:33	0.0	11:04	0.0	11:55	0.2	12:27	0.7
08:25	2.4	09:00	0.7	10:34	0.0	11:05	0.0	11:56	0.3	12:28	0.8
08:26	2.5	09:01	0.7	10:35	0.0	11:06	0.0	11:57	0.2	12:29	0.9
08:27	2.3	09:02	0.5	10:36	0.0	11:07	0.0	11:58	0.2	12:30	0.9
08:28	2.0	09:03	0.5	10:37	0.0	11:08	0.0	11:59	0.3	12:31	0.8
08:29	1.8	09:04	0.5	10:38	0.0	11:09	0.0	12:00	0.3	12:32	0.8
08:30	1.7	09:05	0.5	10:39	0.0	11:10	0.0	12:01	0.5	12:33	0.8
08:31	1.7	09:06	0.3	10:40	0.0	11:11	0.0	12:02	0.5	12:34	0.8
08:32	1.6	09:07	0.3	10:41	0.0	11:12	0.0	12:03	0.4	12:35	0.8
08:33	1.6	09:08	0.3	10:42	0.0	11:13	0.0	12:04	0.5	12:36	0.8
08:34	1.6	09:09	0.2	10:43	0.1	11:14	0.0	12:05	0.5	12:37	0.8
08:35	1.6	09:10	0.4	10:44	0.0	11:15	0.0	12:06	0.5	12:38	0.7
08:36	1.6	09:11	0.4	10:45	0.0	11:16	0.0	12:07	0.5	12:39	0.7
08:37	1.6	09:12	0.3	10:46	0.1	11:17	0.0	12:08	0.5	12:40	0.6
08:38	1.6	09:13	0.2	10:47	0.0	11:18	0.0	12:09	0.4	12:41	0.7
08:39	1.7	09:14	0.2	10:48	0.0	11:19	0.0	12:10	0.5	12:42	0.6
08:40	1.5	09:15	0.2	10:49	0.0	11:20	0.0	12:11	0.5	12:43	0.7
Min	1.5	Min	0.2	Min	0.0	Min	0.0	Min	0.2	Min	0.4
Max	6.8	Max	1.5	Max	0.1	Max	0.0	Max	1.1	Max	0.9
Avg	2.8	Avg	0.7	Avg	0.0	Avg	0.0	Avg	0.4	Avg	0.7

Dry Basis using measured moisture of 16.2%

Min	1.8	Min	0.2	Min	0.0	Min	0.0	Min	0.2	Min	0.5
Max	8.1	Max	1.8	Max	0.1	Max	0.0	Max	1.3	Max	1.1
Avg	3.3	Avg	0.8	Avg	0.0	Avg	0.0	Avg	0.5	Avg	0.8

Covanta - Durham York Energy Centre
Boiler No. 2 CEMS

		BH Outlet											Scrubber Inlet
		O_2	CO_2	CO		SO_2		NOx		HCl		THC	O_2
		%	kg/m^3	mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2	%
Date	Time	1-hr	1-hr	1-hr	Rolling 4-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	1-hr
2-May-16	0:00	8.56	0.19	12		0		106		3		0	8
2-May-16	1:00	8.89	0.19	10		0		99		3		0	8
2-May-16	2:00	8.71	0.19	10		0		112		3		0	8
2-May-16	3:00	8.62	0.19	10	10.5	0		106		3		0	8
2-May-16	4:00	8.24	0.20	9	9.8	0		114		4		0	8
2-May-16	5:00	8.03	0.20	12	10.3	0		129		3		0	7
2-May-16	6:00	7.84	0.21	13	11.0	0		98		4		0	7
2-May-16	7:00												8
2-May-16	8:00												7
2-May-16	9:00	8.18	0.20	18	13.0	0		108		3		0	8
2-May-16	10:00	8.03	0.21	19	15.5	0		109		4		0	7
2-May-16	11:00	8.38	0.20	14	16.0	0		108		5		0	8
2-May-16	12:00	8.62	0.20	15	16.5	0		105		6		0	8
2-May-16	13:00	8.28	0.20	10	14.5	0	0.0	106	108	5	3.8	0	8
2-May-16	14:00	8.32	0.20	10	12.3	0	0.0	112	109	4	3.9	0	8
2-May-16	15:00	7.89	0.21	13	12.0	0	0.0	94	108	4	4.0	0	7
2-May-16	16:00	8.93	0.19	37	17.5	0	0.0	116	109	3	4.0	1	8
2-May-16	17:00	9.06	0.18	18	19.5	0	0.0	104	109	3	4.0	0	8
2-May-16	18:00	7.83	0.21	18	21.5	0	0.0	92	107	3	3.9	0	7
2-May-16	19:00	8.64	0.20	32	26.3	0	0.0	104	105	3	3.9	0	8
2-May-16	20:00	8.46	0.20	31	24.8	0	0.0	110	106	3	3.8	0	8
2-May-16	21:00	8.15	0.21	27	27.0	0	0.0	108	106	3	3.8	0	7
2-May-16	22:00	8.38	0.20	29	29.8	0	0.0	105	105	4	3.8	0	8
2-May-16	23:00	8.27	0.20	24	27.8	0	0.0	98	105	4	3.8	0	8
3-May-16	0:00	8.66	0.20	30	27.5	0	0.0	107	105	4	3.6	0	8
3-May-16	1:00	8.67	0.19	15	24.5	0	0.0	103	104	5	3.6	0	8
3-May-16	2:00	8.50	0.19	24	23.3	0	0.0	105	104	4	3.6	0	8
3-May-16	3:00	8.23	0.20	20	22.3	0	0.0	108	105	4	3.6	0	7
3-May-16	4:00	8.17	0.20	15	18.5	0	0.0	102	104	4	3.7	0	8
3-May-16	5:00	8.37	0.20	19	19.5	0	0.0	122	105	3	3.7		8
3-May-16	6:00	8.57	0.20	26	20.0	0	0.0	106	107	4	3.8		8
3-May-16	7:00												7
3-May-16	8:00												7
3-May-16	9:00												8
3-May-16	10:00	8.09	0.20	15	18.8	0	0.0	100	106	3	3.8	0	7
3-May-16	11:00	8.65	0.19	17	19.3	0	0.0	118	107	3	3.8	0	8
3-May-16	12:00	8.71	0.20	13	17.8	0	0.0	107	107	4	3.8	0	8
3-May-16	13:00	8.23	0.20	12	14.3	0	0.0	105	107	4	3.8	0	8
3-May-16	14:00	8.01	0.20	18	15.0	0	0.0	104	107	4	3.8	0	7
3-May-16	15:00	8.38	0.20	22	16.3	0	0.0	109	107	4	3.8	0	8
3-May-16	16:00	7.95	0.21	14	16.5	0	0.0	110	108	4	3.8	0	7
3-May-16	17:00	7.86	0.21	13	16.8	0	0.0	104	108	5	3.8	0	7
3-May-16	18:00	8.11	0.20	14	15.8	0	0.0	99	107	5	3.9	0	7
3-May-16	19:00	8.00	0.20	16	14.3	0	0.0	106	108	5	4.0	0	7
3-May-16	20:00	7.83	0.21	12	13.8	0	0.0	106	106	6	4.3	0	7
3-May-16	21:00	8.43	0.20	16	14.5	0	0.0	107	106	5	4.3	0	8
3-May-16	22:00	8.41	0.20	18	15.5	0	0.0	116	108	6	4.6	0	8
3-May-16	23:00	8.31	0.20	23	17.3	0	0.0	97	106	5	4.8	0	8
4-May-16	0:00	7.67	0.21	12	17.3	0	0.0	108	106	5	4.8	0	7
4-May-16	1:00	7.93	0.21	17	17.5	0	0.0	108	106	5	4.9	0	7
4-May-16	2:00	8.42	0.20	17	17.3	0	0.0	102	106	6	5.1	0	8
4-May-16	3:00	7.88	0.21	13	14.8	0	0.0	105	106	5	5.2	0	7
4-May-16	4:00	8.11	0.20	15	15.5	0	0.0	112	106	6	5.3	0	7
4-May-16	5:00	8.15	0.20	13	14.5	0	0.0	123	107	5	5.3	0	7
4-May-16	6:00	8.11	0.20	20	15.3	0	0.0	101	108	6	5.4	0	8
4-May-16	7:00												8
4-May-16	8:00	7.76	0.21	15	15.8	0	0.0	121	109	5	5.4	0	7
4-May-16	9:00	7.84	0.21	12	15.0	0	0.0	103	109	4	5.3	0	7
4-May-16	10:00	8.19	0.20	12	14.8	0	0.0	106	109	4	5.2	0	8
4-May-16	11:00	8.43	0.19	65	26.0	0	0.0	103	107	4	5.0	0	8
4-May-16	12:00	7.97	0.19	6	23.8	0	0.0	107	108	3	4.8	0	7
4-May-16	13:00	7.72	0.20	7	22.5	0	0.0	111	109	3	4.7	0	7
4-May-16	14:00	7.61	0.21	16	23.5	0	0.0	102	108	4	4.6	0	7
4-May-16	15:00	7.84	0.20	15	11.0	0	0.0	122	110	2	4.3	0	7
4-May-16	16:00	8.08	0.20	15	13.3	0	0.0	107	110	2	4.0	0	7
4-May-16	17:00	8.30	0.20	21	16.8	0	0.0	102	109	3	3.8	0	8
4-May-16	18:00	7.85	0.21	23	18.5	0	0.0	108	108	5	3.8	0	7
4-May-16	19:00	8.14	0.20	15	18.5	0	0.0	102	108	5	3.7	1	8
4-May-16	20:00	7.79	0.21	12	17.8	0	0.0	109	107	5	3.7	0	7
4-May-16	21:00	7.55	0.21	16	16.5	0	0.0	100	107	5	3.8	0	7
4-May-16	22:00	7.72	0.21	15	14.5	0	0.0	111	107	5	3.8	0	7
4-May-16	23:00	7.97	0.21	15	14.5	0	0.0	103	107	5	3.9	0	7

Covanta - Durham York Energy Centre
Boiler No. 2 CEMS

		BH Outlet											Scrubber Inlet
		O_2	CO_2	CO		SO_2		NOx		HCl		THC	O_2
		%	kg/m^3	mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2		mg/m^3 @ 11% O_2	%
	Time	1-hr	1-hr	1-hr	Rolling 4-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	Rolling 24-hr	1-hr	1-hr
5-May-16	0:00	7.90	0.21	21	16.8	0	0.0	111	107	4	4.0	0	7
5-May-16	1:00	7.98	0.21	18	17.3	0	0.0	103	107	4	4.1	0	7
5-May-16	2:00	7.41	0.21	21	18.8	0	0.0	104	107	3	4.0	0	7
5-May-16	3:00	7.29	0.22	16	19.0	0	0.0	106	106	4	4.2	0	7
5-May-16	4:00	7.90	0.21	16	17.8	0	0.0	104	105	4	4.3	0	7
5-May-16	5:00	7.68	0.21	12	16.3	0	0.0	122	107	3	4.3	0	7
5-May-16	6:00	7.77	0.21	15	14.8	0	0.0	107	107	4	4.3	0	7
5-May-16	7:00	8.16	0.20	17	15.0	0	0.0	122	109	6	4.3	0	8
5-May-16	8:00	7.79	0.21	16	15.0	0	0.0	108	108	5	4.3	0	7
5-May-16	9:00	7.91	0.21	19	16.8	0	0.0	108	109	5	4.3	0	7
5-May-16	10:00	8.04	0.20	20	18.0	0	0.0	106	109	4	4.3	0	7
5-May-16	11:00	7.86	0.21	14	17.3	0	0.0	104	109	4	4.2	0	7
5-May-16	12:00	8.21	0.20	13	16.5	0	0.0	103	108	3	4.1	0	8
5-May-16	13:00	7.90	0.21	11	14.5	0	0.0	111	109	3	4.0	0	7
5-May-16	14:00	8.14	0.20	16	13.5	0	0.0	104	109	4	4.1	0	8
5-May-16	15:00	8.12	0.20	14	13.5	0	0.0	109	109	4	4.1	0	8
5-May-16	16:00												8
5-May-16	17:00												7
5-May-16	18:00												7
5-May-16	19:00	7.83	0.21	12	13.3	0	0.0	127	111	5	4.2	0	7
5-May-16	20:00	7.93	0.21	16	14.5	0	0.0	103	109	8	4.6	0	7
5-May-16	21:00	7.61	0.22	21	15.8	0	0.0	112	110	7	4.8	0	7
5-May-16	22:00	7.86	0.22	18	16.8	0	0.0	102	108	7	4.9	0	7
5-May-16	23:00	7.79	0.21	17	18.0	0	0.0	105	108	6	5.0	0	7
9-May-16	0:00	7.52	0.21	12		0		108		5		0	7
9-May-16	1:00	7.58	0.21	25		0		110		6		0	7
9-May-16	2:00	7.95	0.20	16		0		100		6		0	7
9-May-16	3:00	7.73	0.21	18	17.8	0		101		5		0	7
9-May-16	4:00	7.08	0.22	20	19.8	0		106		4		0	7
9-May-16	5:00	8.05	0.20	22	19.0	0		124		3		0	8
9-May-16	6:00	8.10	0.20	22	20.5	0		99		4		0	7
9-May-16	7:00	7.39	0.21	25	22.3	0		134		4		0	7
9-May-16	8:00	7.93	0.21	17	21.5	0		104		4		0	7
9-May-16	9:00	7.73	0.21	22	21.5	0		100		4		0	7
9-May-16	10:00	7.41	0.21	22	21.5	0		108		4		0	7
9-May-16	11:00	7.68	0.21	15	19.0	0		106		3		0	7
9-May-16	12:00	7.86	0.21	16	18.8	0		105		5		0	7
9-May-16	13:00	7.86	0.21	15	17.0	0		97		5		0	7
9-May-16	14:00	8.26	0.20	16	15.5	0		107		4		0	8
9-May-16	15:00	8.16	0.20	16	15.8	0		108		4		0	7
9-May-16	16:00	8.34	0.20	22	17.3	0		108		4		0	8
9-May-16	17:00	7.91	0.21	16	17.5	0		112		4		0	7
9-May-16	18:00	7.81	0.21	13	16.8	0		99		3		0	7
9-May-16	19:00	8.32	0.20	14	16.3	0		105		2		0	8
9-May-16	20:00	8.12	0.21	15	14.5	0		106		3		0	7
9-May-16	21:00	8.09	0.21	13	13.8	0		109		4		0	7
9-May-16	22:00	8.39	0.20	19	15.3	0		105		4		0	8
9-May-16	23:00	8.21	0.20	17	16.0	0	0.0	103	107	4	4.1	0	7
10-May-16	0:00	7.95	0.21	12	15.3	0	0.0	103	107	4	4.0	0	7
10-May-16	1:00	8.39	0.20	17	16.3	0	0.0	103	106	4	4.0	0	8
10-May-16	2:00	8.08	0.21	21	16.8	0	0.0	116	107	4	3.9	0	7
10-May-16	3:00	7.92	0.21	17	16.8	0	0.0	98	107	4	3.8	0	7
10-May-16	4:00	7.74	0.21	16	17.8	0	0.0	107	107	4	3.8	0	7
10-May-16	5:00	8.28	0.20	18	18.0	0	0.0	122	107	2	3.8	0	8
10-May-16	6:00	7.90	0.21	20	17.8	0	0.0	110	107	3	3.8	0	7
10-May-16	7:00	7.85	0.21	18	18.0	0	0.0	130	107	6	3.8	0	7
10-May-16	8:00	8.20	0.20	14	17.5	0	0.0	107	107	5	3.9	0	8
10-May-16	9:00	8.00	0.21	15	16.8	0	0.0	106	108	5	3.9	0	7
10-May-16	10:00	7.81	0.21	14	15.3	0	0.0	104	107	5	4.0	0	7
10-May-16	11:00	8.22	0.20	12	13.8	0	0.0	97	107	5	4.0	0	8
10-May-16	12:00	7.98	0.21	10	12.8	0	0.0	113	107	5	4.0	0	7
10-May-16	13:00	8.42	0.20	13	12.3	0	0.0	103	108	5	4.0	0	8
10-May-16	14:00	8.15	0.20	13	12.0	0	0.0	107	108	5	4.1	0	8
10-May-16	15:00	8.25	0.20	14	12.5	0	0.0	106	107	5	4.1	0	8
10-May-16	16:00	7.80	0.21	12	13.0	0	0.0	109	108	5	4.2	0	7
10-May-16	17:00	8.17	0.20	17	14.0	0	0.0	101	107	4	4.2	0	8
10-May-16	18:00	8.32	0.20	21	16.0	0	0.0	104	107	5	4.3	0	8
10-May-16	19:00	8.27	0.20	12	15.5	0	0.0	103	107	4	4.3	0	8
10-May-16	20:00	8.28	0.20	11	15.3	0	0.0	108	107	4	4.4	0	8
10-May-16	21:00	7.70	0.21	11	13.8	0	0.0	108	107	4	4.4	0	7
10-May-16	22:00	8.04	0.21	11	11.3	0	0.0	109	107	5	4.4	0	7
10-May-16	23:00	8.45	0.20	13	11.5	0	0.0	104	107	6	4.5	0	8
	Min	7.08	0.18	6	9.8	0	0.0	92	104	2	3.6	0	7
	Max	9.06	0.22	65	29.8	0	0.0	134	111	8	5.4	1	8
	Avg	8.08	0.20	17	16.9	0	0.0	107	107	4	4.2	0	7
	Std Dev	0.34	0.01	6.5	3.8	0	0.0	7.08	1.3	1.1	0.5	0.1	0.5

APPENDIX 32

DYEC AMESA Dioxin and Furan Analytical Report and Results

AMESA Dioxin and Furan Emission Data
Calculated with AMESA Cartridge
and Probe Rinse
(55 pages)

TABLE 1
Covanta - Durham York Energy Centre
AMESA Monitor
Dioxin and Furan Test Schedule

Boiler No. 1 BH Outlet

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 9, 2016	10:04	16:17	373
2	May 10, 2016	8:49	15:08	379
3	May 11, 2016	8:24	14:31	367

Boiler No. 2 BH Outlet

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 6, 2016	8:48	15:00	372
2	May 9, 2016	10:04	16:21	377
3	May 10, 2016	8:54	15:12	378

TABLE 2
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	902	76.2	978	0.14	0.24	0.18	0.20	3.31
Pentachlorodibenzo-p-dioxins	22900	5590	28490	4.10	7.04	5.21	5.91	96.4
Hexachlorodibenzo-p-dioxins	44000	50100	94100	13.5	23.2	17.2	19.5	318
Heptachlorodibenzo-p-dioxins	24200	56600	80800	11.6	20.0	14.8	16.8	273
Octachlorodibenzo-p-dioxin	7560	25200	32760	4.72	8.09	5.99	6.80	111
Total			237128	34.1	58.6	43.4	49.2	802

Furans

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	1700	103	1803	0.26	0.45	0.33	0.37	6.10
Pentachlorodibenzofurans	9880	2590	12470	1.80	3.08	2.28	2.59	42.2
Hexachlorodibenzofurans	15000	12200	27200	3.92	6.72	4.97	5.65	92.0
Heptachlorodibenzofurans	7100	14200	21300	3.07	5.26	3.90	4.42	72.1
Octachlorodibenzofuran	<1900	<5900	<7800	<1.12	<1.93	<1.43	<1.62	<26.4
Total	<35580		<70573	<10.2	<17.4	<12.9	<14.6	<239

Dry Gas Volume Sampled (Nm³***) :	3.710
Dry Gas Volume Sampled (Rm³*) :	4.050
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 3
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	128	196	324	0.046	0.078	0.058	0.065	1.09
Pentachlorodibenzo-p-dioxins	3300	3830	7130	1.00	1.72	1.29	1.44	23.9
Hexachlorodibenzo-p-dioxins	6710	22200	28910	4.07	6.97	5.21	5.84	96.9
Heptachlorodibenzo-p-dioxins	4620	23600	28220	3.98	6.81	5.09	5.70	94.6
Octachlorodibenzo-p-dioxin	1680	12000	13680	1.93	3.30	2.47	2.76	45.9
Total			78264	11.0	18.9	14.1	15.8	262

Furans

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	302	276	578	0.081	0.14	0.10	0.12	1.94
Pentachlorodibenzofurans	1320	1780	3100	0.44	0.75	0.56	0.63	10.4
Hexachlorodibenzofurans	2050	6240	8290	1.17	2.00	1.49	1.67	27.8
Heptachlorodibenzofurans	1150	6520	7670	1.08	1.85	1.38	1.55	25.7
Octachlorodibenzofuran	<370	<2900	<3270	<0.46	<0.79	<0.59	<0.66	<11.0
Total			<22908	<3.23	<5.53	<4.13	<4.63	<76.8

Dry Gas Volume Sampled (Nm³***) :	3.798
Dry Gas Volume Sampled (Rm³*) :	4.146
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 4
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	25.6	28.3	53.9	0.0074	0.013	0.0094	0.011	0.18
Pentachlorodibenzo-p-dioxins	1310	623	1933	0.27	0.46	0.34	0.38	6.57
Hexachlorodibenzo-p-dioxins	2920	3940	6860	0.95	1.63	1.20	1.36	23.3
Heptachlorodibenzo-p-dioxins	1030	5570	6600	0.91	1.57	1.16	1.30	22.4
Octachlorodibenzo-p-dioxin	163	3980	4143	0.57	0.98	0.73	0.82	14.1
Total			19590	2.71	4.66	3.43	3.87	66.6

Furans

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	65.4	41.0	106	0.015	0.025	0.019	0.021	0.36
Pentachlorodibenzofurans	570	263	833	0.12	0.20	0.15	0.16	2.83
Hexachlorodibenzofurans	1020	1150	2170	0.30	0.52	0.38	0.43	7.37
Heptachlorodibenzofurans	375	1320	1695	0.23	0.40	0.30	0.33	5.76
Octachlorodibenzofuran	<44	<850	<894	<0.12	<0.21	<0.16	<0.18	<3.04
Total			<5698	<0.79	<1.35	<1.00	<1.13	<19.4

Dry Gas Volume Sampled (Nm³***) :	3.855
Dry Gas Volume Sampled (Rm³*) :	4.208
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.3
Dry Adjusted Flowrate (Rm³/s**) :	19.4
Wet Reference Flowrate (Rm³/s*) :	17.2

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 5
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.14	0.046	0.0074	0.065	106
Pentachlorodibenzo-p-dioxins	4.10	1.00	0.27	1.79	114
Hexachlorodibenzo-p-dioxins	13.5	4.07	0.95	6.19	106
Heptachlorodibenzo-p-dioxins	11.6	3.98	0.91	5.51	100
Octachlorodibenzo-p-dioxin	4.72	1.93	0.57	2.41	87.8
Total	34.1	11.0	2.71	16.0	102

Furans

Congener Group	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
Tetrachlorodibenzofurans	0.26	0.081	0.015	0.12	107
Pentachlorodibenzofurans	1.80	0.44	0.12	0.78	114
Hexachlorodibenzofurans	3.92	1.17	0.30	1.79	105
Heptachlorodibenzofurans	3.07	1.08	0.23	1.46	99.6
Octachlorodibenzofuran	<1.12	<0.46	<0.12	<0.57	89.4
Total	<10.2	<3.23	<0.79	<4.72	103

TABLE 6
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.24	0.078	0.013	0.11	106
Pentachlorodibenzo-p-dioxins	7.04	1.72	0.46	3.07	114
Hexachlorodibenzo-p-dioxins	23.2	6.97	1.63	10.6	106
Heptachlorodibenzo-p-dioxins	20.0	6.81	1.57	9.44	100
Octachlorodibenzo-p-dioxin	8.09	3.30	0.98	4.12	87.9
Total	58.6	18.9	4.66	27.4	102

Furans

Congener Group	Dry Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzofurans	0.45	0.14	0.025	0.20	107
Pentachlorodibenzofurans	3.08	0.75	0.20	1.34	114
Hexachlorodibenzofurans	6.72	2.00	0.52	3.08	105
Heptachlorodibenzofurans	5.26	1.85	0.40	2.50	99.6
Octachlorodibenzofuran	<1.93	<0.79	<0.21	<0.98	89.4
Total	<17.4	<5.53	<1.35	<8.10	103

* At 25°C and 1 atmosphere

TABLE 7
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.18	0.058	0.0094	0.082	106
Pentachlorodibenzo-p-dioxins	5.21	1.29	0.34	2.28	113
Hexachlorodibenzo-p-dioxins	17.2	5.21	1.20	7.87	106
Heptachlorodibenzo-p-dioxins	14.8	5.09	1.16	7.01	100
Octachlorodibenzo-p-dioxin	5.99	2.47	0.73	3.06	87.6
Total	43.4	14.1	3.43	20.3	102

Furans

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.33	0.10	0.019	0.15	107
Pentachlorodibenzofurans	2.28	0.56	0.15	1.00	114
Hexachlorodibenzofurans	4.97	1.49	0.38	2.28	105
Heptachlorodibenzofurans	3.90	1.38	0.30	1.86	99.3
Octachlorodibenzofuran	<1.43	<0.59	<0.16	<0.72	89.1
Total	<12.9	<4.13	<1.00	<6.01	103

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 8
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.20	0.065	0.011	0.093	107
Pentachlorodibenzo-p-dioxins	5.91	1.44	0.38	2.58	114
Hexachlorodibenzo-p-dioxins	19.5	5.84	1.36	8.91	106
Heptachlorodibenzo-p-dioxins	16.8	5.70	1.30	7.92	101
Octachlorodibenzo-p-dioxin	6.80	2.76	0.82	3.46	88.2
Total	49.2	15.8	3.87	23.0	102

Furans

Congener Group	Wet reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.37	0.12	0.021	0.17	107
Pentachlorodibenzofurans	2.59	0.63	0.16	1.13	114
Hexachlorodibenzofurans	5.65	1.67	0.43	2.58	105
Heptachlorodibenzofurans	4.42	1.55	0.335	2.10	99.8
Octachlorodibenzofuran	<1.62	<0.66	<0.18	<0.82	89.7
Total	<14.6	<4.63	<1.13	<6.80	103

* At 25°C and 1 atmosphere

TABLE 9
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	3.31	1.09	0.18	1.53	105
Pentachlorodibenzo-p-dioxins	96.4	23.9	6.57	42.3	113
Hexachlorodibenzo-p-dioxins	318	96.9	23.3	146	105
Heptachlorodibenzo-p-dioxins	273	94.6	22.4	130	99.3
Octachlorodibenzo-p-dioxin	111	45.9	14.1	56.9	86.6
Total	802	262	66.6	377	101

Furans

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzofurans	6.10	1.94	0.36	2.80	106
Pentachlorodibenzofurans	42.2	10.4	2.83	18.5	113
Hexachlorodibenzofurans	92.0	27.8	7.37	42.4	104
Heptachlorodibenzofurans	72.1	25.7	5.76	34.5	98.6
Octachlorodibenzofuran	<26.4	<11.0	<3.04	<13.5	88.2
Total	<239	<76.8	<19.4	<112	102

TABLE 10
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	0.065	0.11	0.082	0.093	1.53
Pentachlorodibenzo-p-dioxins	1.79	3.07	2.28	2.58	42.3
Hexachlorodibenzo-p-dioxins	6.19	10.6	7.87	8.91	146
Heptachlorodibenzo-p-dioxins	5.51	9.44	7.01	7.92	130
Octachlorodibenzo-p-dioxin	2.41	4.12	3.06	3.46	56.9
Total	16.0	27.4	20.3	23.0	377

Furans

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	0.12	0.20	0.15	0.17	2.80
Pentachlorodibenzofurans	0.78	1.34	1.00	1.13	18.5
Hexachlorodibenzofurans	1.79	3.08	2.28	2.58	42.4
Heptachlorodibenzofurans	1.46	2.50	1.86	2.10	34.5
Octachlorodibenzofuran	<0.57	<0.98	<0.72	<0.82	<13.5
Total	<4.72	<8.10	<6.01	<6.80	<112

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 11
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	149	170	319	0.041	0.070	0.054	0.058	1.05
Pentachlorodibenzo-p-dioxins	673	2500	3173	0.41	0.70	0.53	0.58	10.5
Hexachlorodibenzo-p-dioxins	1450	13800	15250	1.95	3.35	2.57	2.79	50.3
Heptachlorodibenzo-p-dioxins	1080	24300	25380	3.24	5.58	4.27	4.65	83.7
Octachlorodibenzo-p-dioxin	403	12500	12903	1.65	2.84	2.17	2.36	42.5
Total			57025	7.29	12.5	9.59	10.4	188

Furans

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	262	252	514	0.066	0.11	0.086	0.094	1.69
Pentachlorodibenzofurans	332	1050	1382	0.18	0.30	0.23	0.25	4.56
Hexachlorodibenzofurans	376	3870	4246	0.54	0.93	0.71	0.78	14.0
Heptachlorodibenzofurans	279	5360	5639	0.72	1.24	0.95	1.03	18.6
Octachlorodibenzofuran	<68	<2900	<2968	<0.38	<0.65	<0.50	<0.54	<9.79
Total			<14749	<1.88	<3.24	<2.48	<2.70	<48.6

Dry Gas Volume Sampled (Nm³***) :	4.168
Dry Gas Volume Sampled (Rm³*) :	4.549
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 12
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	90.7	<15	<106	<0.014	<0.024	<0.018	<0.020	<0.35
Pentachlorodibenzo-p-dioxins	377	478	855	0.11	0.19	0.15	0.16	2.79
Hexachlorodibenzo-p-dioxins	847	4090	4937	0.66	1.11	0.84	0.93	16.1
Heptachlorodibenzo-p-dioxins	655	5260	5915	0.79	1.33	1.01	1.12	19.3
Octachlorodibenzo-p-dioxin	293	3530	3823	0.51	0.86	0.65	0.72	12.5
Total			<15636	<2.08	<3.52	<2.67	<2.95	<51.1

Furans

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	185	6.8	192	0.025	0.043	0.033	0.036	0.63
Pentachlorodibenzofurans	212	240	452	0.060	0.10	0.077	0.085	1.48
Hexachlorodibenzofurans	187	1110	1297	0.17	0.29	0.22	0.24	4.24
Heptachlorodibenzofurans	150	1170	1320	0.18	0.30	0.23	0.25	4.31
Octachlorodibenzofuran	<45	<730	<775	<0.10	<0.17	<0.13	<0.15	<2.53
Total			<4036	<0.54	<0.91	<0.69	<0.76	<13.2

Dry Gas Volume Sampled (Nm³***) :	4.068
Dry Gas Volume Sampled (Rm³*) :	4.440
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.5
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 13
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	135	234	369	0.048	0.081	0.063	0.068	1.20
Pentachlorodibenzo-p-dioxins	379	1890	2269	0.30	0.50	0.39	0.42	7.38
Hexachlorodibenzo-p-dioxins	972	8860	9832	1.29	2.16	1.67	1.82	32.0
Heptachlorodibenzo-p-dioxins	850	14700	15550	2.04	3.42	2.65	2.87	50.6
Octachlorodibenzo-p-dioxin	394	8770	9164	1.20	2.01	1.56	1.69	29.8
Total			37184	4.88	8.17	6.33	6.87	121

Furans

Congener Group	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	224	365	589	0.077	0.13	0.10	0.11	1.92
Pentachlorodibenzofurans	230	965	1195	0.16	0.26	0.20	0.22	3.89
Hexachlorodibenzofurans	231	2590	2821	0.37	0.62	0.48	0.52	9.17
Heptachlorodibenzofurans	213	3710	3923	0.51	0.86	0.67	0.72	12.8
Octachlorodibenzofuran	<65	<2000	<2065	<0.27	<0.45	<0.35	<0.38	<6.72
Total			<10593	<1.39	<2.33	<1.80	<1.96	<34.5

Dry Gas Volume Sampled (Nm³***) :	4.169
Dry Gas Volume Sampled (Rm³*) :	4.551
Actual Flowrate (m³/s) :	24.8
Dry Reference Flowrate (Rm³/s*) :	14.8
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 14
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzo-p-dioxins	0.041	<0.014	0.048	<0.034	52.5
Pentachlorodibenzo-p-dioxins	0.41	0.11	0.30	0.27	54.2
Hexachlorodibenzo-p-dioxins	1.95	0.66	1.29	1.30	49.8
Heptachlorodibenzo-p-dioxins	3.24	0.79	2.04	2.02	60.8
Octachlorodibenzo-p-dioxin	1.65	0.51	1.20	1.12	51.4
Total	7.29	<2.08	4.88	<4.75	55.0

Furans

Congener Group	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzofurans	0.066	0.025	0.077	0.056	48.4
Pentachlorodibenzofurans	0.18	0.060	0.16	0.13	47.6
Hexachlorodibenzofurans	0.54	0.17	0.37	0.36	51.3
Heptachlorodibenzofurans	0.72	0.18	0.51	0.47	58.6
Octachlorodibenzofuran	<0.38	<0.10	<0.27	<0.25	55.5
Total	<1.88	<0.54	<1.39	<1.27	53.7

TABLE 15
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.070	<0.024	0.081	<0.058	52.1
Pentachlorodibenzo-p-dioxins	0.70	0.19	0.50	0.46	54.9
Hexachlorodibenzo-p-dioxins	3.35	1.11	2.16	2.21	50.8
Heptachlorodibenzo-p-dioxins	5.58	1.33	3.42	3.44	61.7
Octachlorodibenzo-p-dioxin	2.84	0.86	2.01	1.90	52.1
Total	12.5	<3.52	8.17	<8.08	55.8

Furans

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.11	0.043	0.13	0.095	48.1
Pentachlorodibenzofurans	0.30	0.10	0.26	0.22	47.9
Hexachlorodibenzofurans	0.93	0.29	0.62	0.62	52.1
Heptachlorodibenzofurans	1.24	0.30	0.86	0.80	59.3
Octachlorodibenzofuran	<0.65	<0.17	<0.45	<0.43	56.2
Total	<3.24	<0.91	<2.33	<2.16	54.4

* At 25°C and 1 atmosphere

TABLE 16
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.054	<0.018	0.063	<0.045	52.7
Pentachlorodibenzo-p-dioxins	0.53	0.15	0.39	0.36	55.0
Hexachlorodibenzo-p-dioxins	2.57	0.84	1.67	1.69	50.8
Heptachlorodibenzo-p-dioxins	4.27	1.01	2.65	2.64	61.6
Octachlorodibenzo-p-dioxin	2.17	0.65	1.56	1.46	52.2
Total	9.59	<2.67	6.33	<6.20	55.8

Furans

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.086	0.033	0.10	0.073	48.7
Pentachlorodibenzofurans	0.23	0.077	0.20	0.17	48.2
Hexachlorodibenzofurans	0.71	0.22	0.48	0.47	52.2
Heptachlorodibenzofurans	0.95	0.23	0.67	0.61	59.3
Octachlorodibenzofuran	<0.50	<0.13	<0.35	<0.33	56.3
Total	<2.48	<0.69	<1.80	<1.66	54.5

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 17
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.058	<0.020	0.068	<0.049	52.2
Pentachlorodibenzo-p-dioxins	0.58	0.16	0.42	0.39	54.7
Hexachlorodibenzo-p-dioxins	2.79	0.93	1.82	1.85	50.4
Heptachlorodibenzo-p-dioxins	4.65	1.12	2.87	2.88	61.3
Octachlorodibenzo-p-dioxin	2.36	0.72	1.69	1.59	51.8
Total	10.4	<2.95	6.87	<6.76	55.5

Furans

Congener Group	Wet Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.094	0.036	0.11	0.080	48.2
Pentachlorodibenzofurans	0.25	0.085	0.22	0.19	47.8
Hexachlorodibenzofurans	0.78	0.24	0.52	0.51	51.8
Heptachlorodibenzofurans	1.03	0.25	0.72	0.67	59.0
Octachlorodibenzofuran	<0.54	<0.15	<0.38	<0.36	55.9
Total	<2.70	<0.76	<1.96	<1.81	54.2

* At 25°C and 1 atmosphere

TABLE 18
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	1.05	<0.35	1.20	<0.87	52.8
Pentachlorodibenzo-p-dioxins	10.5	2.79	7.38	6.88	56.1
Hexachlorodibenzo-p-dioxins	50.3	16.1	32.0	32.8	52.1
Heptachlorodibenzo-p-dioxins	83.7	19.3	50.6	51.2	62.9
Octachlorodibenzo-p-dioxin	42.5	12.5	29.8	28.3	53.4
Total	188	<51.1	121	<120	57.1

Furans

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzofurans	1.69	0.63	1.92	1.41	48.8
Pentachlorodibenzofurans	4.56	1.48	3.89	3.31	49.0
Hexachlorodibenzofurans	14.0	4.24	9.17	9.14	53.4
Heptachlorodibenzofurans	18.6	4.31	12.8	11.9	60.4
Octachlorodibenzofuran	<9.79	<2.53	<6.72	<6.34	57.4
Total	<48.6	<13.2	<34.5	<32.1	55.6

TABLE 19
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<0.034	<0.058	<0.045	<0.049	<0.87
Pentachlorodibenzo-p-dioxins	0.27	0.46	0.36	0.39	6.88
Hexachlorodibenzo-p-dioxins	1.30	2.21	1.69	1.85	32.8
Heptachlorodibenzo-p-dioxins	2.02	3.44	2.64	2.88	51.2
Octachlorodibenzo-p-dioxin	1.12	1.90	1.46	1.59	28.3
Total	<4.75	<8.08	<6.20	<6.76	<120

Furans

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	0.056	0.095	0.073	0.080	1.41
Pentachlorodibenzofurans	0.13	0.22	0.17	0.19	3.31
Hexachlorodibenzofurans	0.36	0.62	0.47	0.51	9.14
Heptachlorodibenzofurans	0.47	0.80	0.61	0.67	11.9
Octachlorodibenzofuran	<0.25	<0.43	<0.33	<0.36	<6.34
Total	<1.27	<2.16	<1.66	<1.81	<32.1

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 20
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	24.0	<5.2	<29.2	<4.20	<7.21	<5.34	<6.06	<0.099
12378-pentachlorodibenzo-p-dioxin	396	186	582	83.8	144	106	121	1.97
123478-hexachlorodibenzo-p-dioxin	1070	1310	2380	343	588	435	494	8.05
123678-hexachlorodibenzo-p-dioxin	3090	4210	7300	1051	1803	1335	1515	24.7
123789-hexachlorodibenzo-p-dioxin	2770	4010	6780	976	1674	1240	1407	22.9
1234678-heptachlorodibenzo-p-dioxin	11600	28200	39800	5730	9828	7278	8261	135
Octachlorodibenzo-p-dioxin	7560	25200	32760	4716	8090	5991	6799	111
2378-tetrachlorodibenzofuran	<150	<66	<216	<31.1	<53.3	<39.5	<44.8	<0.73
12378-pentachlorodibenzofuran	335	81.1	416	59.9	103	76.1	86.4	1.41
23478-pentachlorodibenzofuran	<1000	432	<1432	<206	<354	<262	<297	<4.84
123478-hexachlorodibenzofuran	3350	2780	6130	882	1514	1121	1272	20.7
123678-hexachlorodibenzofuran	1630	1430	3060	441	756	560	635	10.4
234678-hexachlorodibenzofuran	2210	2750	4960	714	1225	907	1029	16.8
123789-hexachlorodibenzofuran	<130	<200	<330	<47.5	<81.5	<60	<68.5	<1.12
1234678-heptachlorodibenzofuran	4130	7630	11760	1693	2904	2151	2441	39.8
1234789-heptachlorodibenzofuran	698	1600	2298	331	567	420	477	7.77
Octachlorodibenzofuran	<1900	<5900	<7800	<1123	<1926	<1426	<1619	<26.4
Total Dioxins & Furans Only			<128033	<18432	<31617	<23413	<26573	<433

Dry Gas Volume Sampled (Nm³***) :	3.710
Dry Gas Volume Sampled (Rm³*) :	4.050
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 21
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<5.8	<5.0	<10.8	<1.52	<2.61	<1.95	<2.18	<0.036
12378-pentachlorodibenzo-p-dioxin	57.4	95.7	153	21.6	36.9	27.6	30.9	0.51
123478-hexachlorodibenzo-p-dioxin	149	618	767	108	185	138	155	2.57
123678-hexachlorodibenzo-p-dioxin	433	1780	2213	312	534	399	447	7.42
123789-hexachlorodibenzo-p-dioxin	409	1790	2199	310	530	396	444	7.37
1234678-heptachlorodibenzo-p-dioxin	2120	12000	14120	1989	3406	2545	2852	47.3
Octachlorodibenzo-p-dioxin	1680	12000	13680	1927	3300	2466	2763	45.9
2378-tetrachlorodibenzofuran	<35	<22	<57.0	<8.03	<13.7	<10.3	<11.5	<0.19
12378-pentachlorodibenzofuran	52.0	50.1	102	14.4	24.6	18.4	20.6	0.34
23478-pentachlorodibenzofuran	<150	255	<405	<57.1	<97.7	<73.0	<81.8	<1.36
123478-hexachlorodibenzofuran	450	1370	1820	256	439	328	368	6.10
123678-hexachlorodibenzofuran	220	668	888	125	214	160	179	2.98
234678-hexachlorodibenzofuran	260	1390	1650	232	398	297	333	5.53
123789-hexachlorodibenzofuran	<15	<74	<89.0	<12.5	<21.5	<16.0	<18.0	<0.30
1234678-heptachlorodibenzofuran	649	3530	4179	589	1008	753	844	14.0
1234789-heptachlorodibenzofuran	118	728	846	119	204	153	171	2.84
Octachlorodibenzofuran	<370	<2900	<3270	<461	<789	<589	<660	<11.0
Total Dioxins & Furans Only			<46449	<6544	<11204	<8373	<9382	<156

Dry Gas Volume Sampled (Nm³***) :	3.798
Dry Gas Volume Sampled (Rm³*) :	4.146
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 22

Covanta - Durham York Energy Centre

Boiler No. 1 BH Outlet - AMESA Monitor

Dioxin and Furan Specific Isomer Emission Data

Test No. 3

Specific Isomer	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<2.3	<4.1	<6.40	<0.88	<1.52	<1.12	<1.26	<0.022
12378-pentachlorodibenzo-p-dioxin	25.7	16.0	41.7	5.76	9.91	7.30	8.24	0.14
123478-hexachlorodibenzo-p-dioxin	58.4	103	161	22.3	38.4	28.3	31.9	0.55
123678-hexachlorodibenzo-p-dioxin	180	293	473	65.3	112	82.9	93.5	1.61
123789-hexachlorodibenzo-p-dioxin	158	333	491	67.8	117	86.0	97.0	1.67
1234678-heptachlorodibenzo-p-dioxin	445	2750	3195	441	759	560	631	10.9
Octachlorodibenzo-p-dioxin	163	3980	4143	572	985	726	819	14.1
2378-tetrachlorodibenzofuran	<14	<7.1	<21.1	<2.91	<5.01	<3.70	<4.17	<0.072
12378-pentachlorodibenzofuran	20.0	9.8	29.8	4.12	7.08	5.22	5.89	0.10
23478-pentachlorodibenzofuran	59.3	46.1	105	14.6	25.0	18.5	20.8	0.36
123478-hexachlorodibenzofuran	220	231	451	62.3	107	79.0	89.1	1.53
123678-hexachlorodibenzofuran	118	123	241	33.3	57.3	42.2	47.6	0.82
234678-hexachlorodibenzofuran	100	284	384	53.0	91.3	67.3	75.9	1.30
123789-hexachlorodibenzofuran	<7.2	<13	<20.2	<2.79	<4.80	<3.54	<3.99	<0.069
1234678-heptachlorodibenzofuran	232	729	961	133	228	168	190	3.27
1234789-heptachlorodibenzofuran	30.0	157	187	25.8	44.4	32.8	36.9	0.64
Octachlorodibenzofuran	<44	<850	<894	<124	<212	<157	<177	<3.04
Total Dioxins & Furans Only			<11806	<1631	<2806	<2068	<2333	<40.1

Dry Gas Volume Sampled (Nm³***) :	3.855
Dry Gas Volume Sampled (Rm³*) :	4.208
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.3
Dry Adjusted Flowrate (Rm³/s**) :	19.4
Wet Reference Flowrate (Rm³/s*) :	17.2

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** At 0°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit),
and the value of the detection limit was used to calculate the emission data.

TABLE 23
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1 pg/m³	Test No. 2 pg/m³	Test No. 3 pg/m³	Average pg/m³	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	<4.20	<1.52	<0.88	<2.20	80.0
12378-pentachlorodibenzo-p-dioxin	83.8	21.6	5.76	37.0	111
123478-hexachlorodibenzo-p-dioxin	343	108	22.3	158	105
123678-hexachlorodibenzo-p-dioxin	1051	312	65.3	476	108
123789-hexachlorodibenzo-p-dioxin	976	310	67.8	451	104
1234678-heptachlorodibenzo-p-dioxin	5730	1989	441	2720	100
Octachlorodibenzo-p-dioxin	4716	1927	572	2405	87.8
2378-tetrachlorodibenzofuran	<31.1	<8.03	<2.91	<14.0	107
12378-pentachlorodibenzofuran	59.9	14.4	4.12	26.1	114
23478-pentachlorodibenzofuran	<206	<57.1	14.6	<92.6	109
123478-hexachlorodibenzofuran	882	256	62.3	400	107
123678-hexachlorodibenzofuran	441	125	33.3	200	107
234678-hexachlorodibenzofuran	714	232	53.0	333	103
123789-hexachlorodibenzofuran	<47.5	<12.5	<2.79	<20.9	112
1234678-heptachlorodibenzofuran	1693	589	133	805	99.7
1234789-heptachlorodibenzofuran	331	119	25.8	159	98.5
Octachlorodibenzofuran	<1123	<461	<124	<569	89.4
Total Dioxins & Furans Only	<18432	<6544	<1631	<8869	97.4

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 24
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<7.21	<2.61	<1.52	<3.78	79.9
12378-pentachlorodibenzo-p-dioxin	144	36.9	9.91	63.5	111
123478-hexachlorodibenzo-p-dioxin	588	185	38.4	270	105
123678-hexachlorodibenzo-p-dioxin	1803	534	112	816	108
123789-hexachlorodibenzo-p-dioxin	1674	530	117	774	104
1234678-heptachlorodibenzo-p-dioxin	9828	3406	759	4665	100
Octachlorodibenzo-p-dioxin	8090	3300	985	4125	87.9
2378-tetrachlorodibenzofuran	<53.3	<13.7	<5.01	<24.0	107
12378-pentachlorodibenzofuran	103	24.6	7.08	44.8	114
23478-pentachlorodibenzofuran	<354	<97.7	25.0	<159	109
123478-hexachlorodibenzofuran	1514	439	107	687	107
123678-hexachlorodibenzofuran	756	214	57.3	342	107
234678-hexachlorodibenzofuran	1225	398	91.3	571	103
123789-hexachlorodibenzofuran	<81.5	<21.5	<4.80	<35.9	112
1234678-heptachlorodibenzofuran	2904	1008	228	1380	99.7
1234789-heptachlorodibenzofuran	567	204	44.4	272	98.5
Octachlorodibenzofuran	<1926	<789	<212	<976	89.4
Total Dioxins & Furans Only	<31617	<11204	<2806	<15209	97.4

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 25
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	<5.34	<1.95	<1.12	<2.80	79.8
12378-pentachlorodibenzo-p-dioxin	106	27.6	7.30	47.1	111
123478-hexachlorodibenzo-p-dioxin	435	138	28.3	201	105
123678-hexachlorodibenzo-p-dioxin	1335	399	82.9	606	108
123789-hexachlorodibenzo-p-dioxin	1240	396	86.0	574	104
1234678-heptachlorodibenzo-p-dioxin	7278	2545	560	3461	100
Octachlorodibenzo-p-dioxin	5991	2466	726	3061	87.6
2378-tetrachlorodibenzofuran	<39.5	<10.3	<3.70	<17.8	107
12378-pentachlorodibenzofuran	76.1	18.4	5.22	33.2	113
23478-pentachlorodibenzofuran	<262	<73.0	18.5	<118	108
123478-hexachlorodibenzofuran	1121	328	79.0	509	107
123678-hexachlorodibenzofuran	560	160	42.2	254	107
234678-hexachlorodibenzofuran	907	297	67.3	424	102
123789-hexachlorodibenzofuran	<60	<16.0	<3.54	<26.6	112
1234678-heptachlorodibenzofuran	2151	753	168	1024	99
1234789-heptachlorodibenzofuran	420	153	32.8	202	98.3
Octachlorodibenzofuran	<1426	<589	<157	<724	89.1
Total Dioxins & Furans Only	<23413	<8373	<2068	<11285	97.2

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 26
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	<6.06	<2.18	<1.26	<3.17	80.3
12378-pentachlorodibenzo-p-dioxin	121	30.9	8.24	53.3	112
123478-hexachlorodibenzo-p-dioxin	494	155	31.9	227	105
123678-hexachlorodibenzo-p-dioxin	1515	447	93.5	685	108
123789-hexachlorodibenzo-p-dioxin	1407	444	97.0	649	105
1234678-heptachlorodibenzo-p-dioxin	8261	2852	631	3915	100
Octachlorodibenzo-p-dioxin	6799	2763	819	3460	88.2
2378-tetrachlorodibenzofuran	<44.8	<11.5	<4.17	<20.2	107
12378-pentachlorodibenzofuran	86.4	20.6	5.89	37.6	114
23478-pentachlorodibenzofuran	<297	<81.8	20.8	<133	109
123478-hexachlorodibenzofuran	1272	368	89.1	576	107
123678-hexachlorodibenzofuran	635	179	47.6	287	107
234678-hexachlorodibenzofuran	1029	333	75.9	480	103
123789-hexachlorodibenzofuran	<68.5	<18.0	<3.99	<30.2	113
1234678-heptachlorodibenzofuran	2441	844	190	1158	100
1234789-heptachlorodibenzofuran	477	171	36.9	228	98.8
Octachlorodibenzofuran	<1619	<660	<177	<819	89.7
Total Dioxins & Furans Only	<26573	<9382	<2333	<12763	97.7

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 27
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/s	ng/s	ng/s	ng/s	%
2378-tetrachlorodibenzo-p-dioxin	<0.099	<0.036	<0.022	<0.052	78.4
12378-pentachlorodibenzo-p-dioxin	1.97	0.51	0.14	0.87	110
123478-hexachlorodibenzo-p-dioxin	8.05	2.57	0.55	3.72	104
123678-hexachlorodibenzo-p-dioxin	24.7	7.42	1.61	11.2	107
123789-hexachlorodibenzo-p-dioxin	22.9	7.37	1.67	10.7	103
1234678-heptachlorodibenzo-p-dioxin	135	47.3	10.9	64.3	99.0
Octachlorodibenzo-p-dioxin	111	45.9	14.1	56.9	86.6
2378-tetrachlorodibenzofuran	<0.73	<0.19	<0.072	<0.33	106
12378-pentachlorodibenzofuran	1.41	0.34	0.10	0.62	113
23478-pentachlorodibenzofuran	<4.84	<1.36	0.36	<2.19	108
123478-hexachlorodibenzofuran	20.7	6.10	1.53	9.46	106
123678-hexachlorodibenzofuran	10.4	2.98	0.82	4.72	106
234678-hexachlorodibenzofuran	16.8	5.53	1.30	7.87	102
123789-hexachlorodibenzofuran	<1.12	<0.30	<0.069	<0.49	111
1234678-heptachlorodibenzofuran	39.8	14.0	3.27	19.0	98.7
1234789-heptachlorodibenzofuran	7.77	2.84	0.64	3.75	97.5
Octachlorodibenzofuran	<26.4	<11.0	<3.04	<13.5	88.2
Total Dioxins & Furans Only	<433	<156	<40.1	<210	96.3

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 28
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<2.20	<3.78	<2.80	<3.17	<0.052
12378-pentachlorodibenzo-p-dioxin	37.0	63.5	47.1	53.3	0.87
123478-hexachlorodibenzo-p-dioxin	158	270	201	227	3.72
123678-hexachlorodibenzo-p-dioxin	476	816	606	685	11.2
123789-hexachlorodibenzo-p-dioxin	451	774	574	649	10.7
1234678-heptachlorodibenzo-p-dioxin	2720	4665	3461	3915	64.3
Octachlorodibenzo-p-dioxin	2405	4125	3061	3460	56.9
2378-tetrachlorodibenzofuran	<14.0	<24.0	<17.8	<20.2	<0.33
12378-pentachlorodibenzofuran	26.1	44.8	33.2	37.6	0.62
23478-pentachlorodibenzofuran	<92.6	<159	<118	<133	<2.19
123478-hexachlorodibenzofuran	400	687	509	576	9.46
123678-hexachlorodibenzofuran	200	342	254	287	4.72
234678-hexachlorodibenzofuran	333	571	424	480	7.87
123789-hexachlorodibenzofuran	<20.9	<35.9	<26.6	<30.2	<0.49
1234678-heptachlorodibenzofuran	805	1380	1024	1158	19.0
1234789-heptachlorodibenzofuran	159	272	202	228	3.75
Octachlorodibenzofuran	<569	<976	<724	<819	<13.5
Total Dioxins & Furans Only	<8869	<15209	<11285	<12763	<210

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 29
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	<4.20	<1.52	<0.88	<2.20
12378-pentachlorodibenzo-p-dioxin	1.000	83.8	21.6	5.76	37.0
123478-hexachlorodibenzo-p-dioxin	0.100	34.3	10.8	2.23	15.8
123678-hexachlorodibenzo-p-dioxin	0.100	105	31.2	6.53	47.6
123789-hexachlorodibenzo-p-dioxin	0.100	97.6	31.0	6.78	45.1
1234678-heptachlorodibenzo-p-dioxin	0.010	57.3	19.9	4.41	27.2
Octachlorodibenzo-p-dioxin	0.0003	1.41	0.58	0.17	0.72
2378-tetrachlorodibenzofuran	0.100	<3.11	<0.80	<0.29	<1.40
12378-pentachlorodibenzofuran	0.030	1.80	0.43	0.12	0.78
23478-pentachlorodibenzofuran	0.300	<61.8	<17.1	4.37	<27.8
123478-hexachlorodibenzofuran	0.100	88.2	25.6	6.23	40.0
123678-hexachlorodibenzofuran	0.100	44.1	12.5	3.33	20.0
234678-hexachlorodibenzofuran	0.100	71.4	23.2	5.30	33.3
123789-hexachlorodibenzofuran	0.100	<4.75	<1.25	<0.28	<2.09
1234678-heptachlorodibenzofuran	0.010	16.9	5.89	1.33	8.05
1234789-heptachlorodibenzofuran	0.010	3.31	1.19	0.26	1.59
Octachlorodibenzofuran	0.0003	<0.34	<0.14	<0.037	<0.17
Total Dioxins & Furans Only		<679	<205	<48.3	<311

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 30
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<7.21	<2.61	<1.52	<3.78
12378-pentachlorodibenzo-p-dioxin	1.000	144	36.9	9.91	63.5
123478-hexachlorodibenzo-p-dioxin	0.100	58.8	18.5	3.84	27.0
123678-hexachlorodibenzo-p-dioxin	0.100	180	53.4	11.2	81.6
123789-hexachlorodibenzo-p-dioxin	0.100	167	53.0	11.7	77.4
1234678-heptachlorodibenzo-p-dioxin	0.010	98.3	34.1	7.59	46.6
Octachlorodibenzo-p-dioxin	0.0003	2.43	0.99	0.30	1.24
2378-tetrachlorodibenzofuran	0.100	<5.33	<1.37	<0.50	<2.40
12378-pentachlorodibenzofuran	0.030	3.08	0.74	0.21	1.34
23478-pentachlorodibenzofuran	0.300	<106	<29.3	7.51	<47.6
123478-hexachlorodibenzofuran	0.100	151	43.9	10.7	68.7
123678-hexachlorodibenzofuran	0.100	75.6	21.4	5.73	34.2
234678-hexachlorodibenzofuran	0.100	122	39.8	9.13	57.1
123789-hexachlorodibenzofuran	0.100	<8.15	<2.15	<0.48	<3.59
1234678-heptachlorodibenzofuran	0.010	29.0	10.1	2.28	13.8
1234789-heptachlorodibenzofuran	0.010	5.67	2.04	0.44	2.72
Octachlorodibenzofuran	0.0003	<0.58	<0.24	<0.064	<0.29
Total Dioxins & Furans Only		<1165	<351	<83.1	<533

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 31
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<5.34	<1.95	<1.12	<2.80
12378-pentachlorodibenzo-p-dioxin	1.000	106	27.6	7.30	47.1
123478-hexachlorodibenzo-p-dioxin	0.100	43.5	13.8	2.83	20.1
123678-hexachlorodibenzo-p-dioxin	0.100	133	39.9	8.29	60.6
123789-hexachlorodibenzo-p-dioxin	0.100	124	39.6	8.60	57.4
1234678-heptachlorodibenzo-p-dioxin	0.010	72.8	25.5	5.60	34.6
Octachlorodibenzo-p-dioxin	0.0003	1.80	0.74	0.22	0.92
2378-tetrachlorodibenzofuran	0.100	<3.95	<1.03	<0.37	<1.78
12378-pentachlorodibenzofuran	0.030	2.28	0.55	0.16	1.00
23478-pentachlorodibenzofuran	0.300	<78.6	<21.9	5.54	<35.3
123478-hexachlorodibenzofuran	0.100	112	32.8	7.90	50.9
123678-hexachlorodibenzofuran	0.100	56.0	16.0	4.22	25.4
234678-hexachlorodibenzofuran	0.100	90.7	29.7	6.73	42.4
123789-hexachlorodibenzofuran	0.100	<6.03	<1.60	<0.35	<2.66
1234678-heptachlorodibenzofuran	0.010	21.5	7.53	1.68	10.2
1234789-heptachlorodibenzofuran	0.010	4.20	1.53	0.33	2.02
Octachlorodibenzofuran	0.0003	<0.43	<0.18	<0.047	<0.22
Total Dioxins & Furans Only		<863	<262	<61.3	<395

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 31A
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using Half the Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	4.86	0.97	0.56	2.13
12378-pentachlorodibenzo-p-dioxin	1.000	106	27.6	7.30	47.1
123478-hexachlorodibenzo-p-dioxin	0.100	43.5	13.8	2.83	20.1
123678-hexachlorodibenzo-p-dioxin	0.100	133	39.9	8.29	60.6
123789-hexachlorodibenzo-p-dioxin	0.100	124	39.6	8.60	57.4
1234678-heptachlorodibenzo-p-dioxin	0.010	72.8	25.5	5.60	34.6
Octachlorodibenzo-p-dioxin	0.0003	1.80	0.74	0.22	0.92
2378-tetrachlorodibenzofuran	0.100	1.97	0.51	0.18	0.89
12378-pentachlorodibenzofuran	0.030	2.28	0.55	0.16	1.00
23478-pentachlorodibenzofuran	0.300	51.1	17.8	5.54	24.8
123478-hexachlorodibenzofuran	0.100	112	32.8	7.90	50.9
123678-hexachlorodibenzofuran	0.100	56.0	16.0	4.22	25.4
234678-hexachlorodibenzofuran	0.100	90.7	29.7	6.73	42.4
123789-hexachlorodibenzofuran	0.100	3.02	0.80	0.18	1.33
1234678-heptachlorodibenzofuran	0.010	21.5	7.53	1.68	10.2
1234789-heptachlorodibenzofuran	0.010	4.20	1.53	0.33	2.02
Octachlorodibenzofuran	0.0003	0.21	0.088	0.023	0.11
Total Dioxins & Furans Only		830	256	60.3	382

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 31B
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<5.34	<1.95	<1.12	<2.80
12378-pentachlorodibenzo-p-dioxin	0.500	53.2	13.8	3.65	23.6
123478-hexachlorodibenzo-p-dioxin	0.100	43.5	13.8	2.83	20.1
123678-hexachlorodibenzo-p-dioxin	0.100	133	39.9	8.29	60.6
123789-hexachlorodibenzo-p-dioxin	0.100	124	39.6	8.60	57.4
1234678-heptachlorodibenzo-p-dioxin	0.010	72.8	25.5	5.60	34.6
Octachlorodibenzo-p-dioxin	0.001	5.99	2.47	0.73	3.06
2378-tetrachlorodibenzofuran	0.100	<3.95	<1.03	<0.37	<1.78
12378-pentachlorodibenzofuran	0.050	3.80	0.92	0.26	1.66
23478-pentachlorodibenzofuran	0.500	<131	<36.5	9.23	<58.9
123478-hexachlorodibenzofuran	0.100	112	32.8	7.90	50.9
123678-hexachlorodibenzofuran	0.100	56.0	16.0	4.22	25.4
234678-hexachlorodibenzofuran	0.100	90.7	29.7	6.73	42.4
123789-hexachlorodibenzofuran	0.100	<6.03	<1.60	<0.35	<2.66
1234678-heptachlorodibenzofuran	0.010	21.5	7.53	1.68	10.2
1234789-heptachlorodibenzofuran	0.010	4.20	1.53	0.33	2.02
Octachlorodibenzofuran	0.001	<1.43	<0.59	<0.16	<0.72
Total Dioxins & Furans		<869	<265	<62.0	<399
In-Stack Emission Limit					60

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

NATO/CCMS (1989) Toxicity Equivalency Factors

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 32
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	<6.06	<2.18	<1.26	<3.17
12378-pentachlorodibenzo-p-dioxin	1.000	121	30.9	8.24	53.3
123478-hexachlorodibenzo-p-dioxin	0.100	49.4	15.5	3.19	22.7
123678-hexachlorodibenzo-p-dioxin	0.100	152	44.7	9.35	68.5
123789-hexachlorodibenzo-p-dioxin	0.100	141	44.4	9.70	64.9
1234678-heptachlorodibenzo-p-dioxin	0.010	82.6	28.5	6.31	39.1
Octachlorodibenzo-p-dioxin	0.0003	2.04	0.83	0.25	1.04
2378-tetrachlorodibenzofuran	0.100	<4.48	<1.15	<0.42	<2.02
12378-pentachlorodibenzofuran	0.030	2.59	0.62	0.18	1.13
23478-pentachlorodibenzofuran	0.300	<89.2	<24.5	6.25	<40.0
123478-hexachlorodibenzofuran	0.100	127	36.8	8.91	57.6
123678-hexachlorodibenzofuran	0.100	63.5	17.9	4.76	28.7
234678-hexachlorodibenzofuran	0.100	103	33.3	7.59	48.0
123789-hexachlorodibenzofuran	0.100	<6.85	<1.80	<0.40	<3.02
1234678-heptachlorodibenzofuran	0.010	24.4	8.44	1.90	11.6
1234789-heptachlorodibenzofuran	0.010	4.77	1.71	0.37	2.28
Octachlorodibenzofuran	0.0003	<0.49	<0.20	<0.053	<0.25
Total Dioxins & Furans Only		<980	<294	<69.1	<447

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 33
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.099	<0.036	<0.022	<0.052
12378-pentachlorodibenzo-p-dioxin	1.000	1.97	0.51	0.14	0.87
123478-hexachlorodibenzo-p-dioxin	0.100	0.81	0.26	0.055	0.37
123678-hexachlorodibenzo-p-dioxin	0.100	2.47	0.74	0.16	1.12
123789-hexachlorodibenzo-p-dioxin	0.100	2.29	0.74	0.17	1.07
1234678-heptachlorodibenzo-p-dioxin	0.010	1.35	0.47	0.11	0.64
Octachlorodibenzo-p-dioxin	0.0003	0.033	0.014	0.0042	0.017
2378-tetrachlorodibenzofuran	0.100	<0.073	<0.019	<0.0072	<0.033
12378-pentachlorodibenzofuran	0.030	0.042	0.010	0.0030	0.019
23478-pentachlorodibenzofuran	0.300	<1.45	<0.41	0.11	<0.66
123478-hexachlorodibenzofuran	0.100	2.07	0.61	0.15	0.95
123678-hexachlorodibenzofuran	0.100	1.04	0.30	0.082	0.47
234678-hexachlorodibenzofuran	0.100	1.68	0.55	0.13	0.79
123789-hexachlorodibenzofuran	0.100	<0.11	<0.030	<0.0069	<0.049
1234678-heptachlorodibenzofuran	0.010	0.40	0.14	0.033	0.19
1234789-heptachlorodibenzofuran	0.010	0.078	0.028	0.0064	0.037
Octachlorodibenzofuran	0.0003	<0.0079	<0.0033	<0.00091	<0.0040
Total Dioxins & Furans Only		<16.0	<4.87	<1.19	<7.34

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 34
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	<2.20	<3.78	<2.80	<3.17	<0.052
12378-pentachlorodibenzo-p-dioxin	37.0	63.5	47.1	53.3	0.87
123478-hexachlorodibenzo-p-dioxin	15.8	27.0	20.1	22.7	0.37
123678-hexachlorodibenzo-p-dioxin	47.6	81.6	60.6	68.5	1.12
123789-hexachlorodibenzo-p-dioxin	45.1	77.4	57.4	64.9	1.07
1234678-heptachlorodibenzo-p-dioxin	27.2	46.6	34.6	39.1	0.64
Octachlorodibenzo-p-dioxin	0.72	1.24	0.92	1.04	0.017
2378-tetrachlorodibenzofuran	<1.40	<2.40	<1.78	<2.02	<0.033
12378-pentachlorodibenzofuran	0.78	1.34	1.00	1.13	0.019
23478-pentachlorodibenzofuran	<27.8	<47.6	<35.3	<40.0	<0.66
123478-hexachlorodibenzofuran	40.0	68.7	50.9	57.6	0.95
123678-hexachlorodibenzofuran	20.0	34.2	25.4	28.7	0.47
234678-hexachlorodibenzofuran	33.3	57.1	42.4	48.0	0.79
123789-hexachlorodibenzofuran	<2.09	<3.59	<2.66	<3.02	<0.049
1234678-heptachlorodibenzofuran	8.05	13.8	10.2	11.6	0.19
1234789-heptachlorodibenzofuran	1.59	2.72	2.02	2.28	0.037
Octachlorodibenzofuran	<0.17	<0.29	<0.22	<0.25	<0.0040
Total Dioxins & Furans Only	<311	<533	<395	<447	<7.34

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 35

Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.68	2.88	2.13	2.41	0.040
12378-pentachlorodibenzo-p-dioxin	37.0	63.5	47.1	53.3	0.87
123478-hexachlorodibenzo-p-dioxin	15.8	27.0	20.1	22.7	0.37
123678-hexachlorodibenzo-p-dioxin	47.6	81.6	60.6	68.5	1.12
123789-hexachlorodibenzo-p-dioxin	45.1	77.4	57.4	64.9	1.07
1234678-heptachlorodibenzo-p-dioxin	27.2	46.6	34.6	39.1	0.64
Octachlorodibenzo-p-dioxin	0.72	1.24	0.92	1.04	0.017
2378-tetrachlorodibenzofuran	0.70	1.20	0.89	1.01	0.017
12378-pentachlorodibenzofuran	0.78	1.34	1.00	1.13	0.019
23478-pentachlorodibenzofuran	19.5	33.5	24.8	28.1	0.46
123478-hexachlorodibenzofuran	40.0	68.7	50.9	57.6	0.95
123678-hexachlorodibenzofuran	20.0	34.2	25.4	28.7	0.47
234678-hexachlorodibenzofuran	33.3	57.1	42.4	48.0	0.79
123789-hexachlorodibenzofuran	1.05	1.80	1.33	1.51	0.025
1234678-heptachlorodibenzofuran	8.05	13.8	10.2	11.6	0.19
1234789-heptachlorodibenzofuran	1.59	2.72	2.02	2.28	0.037
Octachlorodibenzofuran	0.085	0.15	0.11	0.12	0.0020
Total Dioxins & Furans Only	300	515	382	432	7.09

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 36
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	AMESA Sample	Probe Rinse	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	6.9	6.3	13.2	1.69	2.90	2.22	2.42	0.044
12378-pentachlorodibenzo-p-dioxin	13.7	91.4	105	13.4	23.1	17.7	19.3	0.35
123478-hexachlorodibenzo-p-dioxin	26.9	385	412	52.6	90.5	69.3	75.4	1.36
123678-hexachlorodibenzo-p-dioxin	81.8	1110	1192	152	262	200	218	3.93
123789-hexachlorodibenzo-p-dioxin	75.6	1220	1296	166	285	218	237	4.27
1234678-heptachlorodibenzo-p-dioxin	464	12000	12464	1593	2740	2097	2283	41.1
Octachlorodibenzo-p-dioxin	403	12500	12903	1649	2836	2171	2363	42.5
2378-tetrachlorodibenzofuran	<18	<33	<51.0	<6.52	<11.2	<8.58	<9.34	<0.17
12378-pentachlorodibenzofuran	17.8	59.8	77.6	9.92	17.1	13.1	14.2	0.26
23478-pentachlorodibenzofuran	30.4	<180	<210	<26.9	<46.2	<35.4	<38.5	<0.69
123478-hexachlorodibenzofuran	77.2	833	910	116	200	153	167	3.00
123678-hexachlorodibenzofuran	39.8	448	488	62.3	107	82.1	89.4	1.61
234678-hexachlorodibenzofuran	45.9	888	934	119	205	157	171	3.08
123789-hexachlorodibenzofuran	<3.2	<89	<92.2	<11.8	<20.3	<15.5	<16.9	<0.30
1234678-heptachlorodibenzofuran	162	2820	2982	381	655	502	546	9.83
1234789-heptachlorodibenzofuran	21.3	751	772	98.7	170	130	141	2.55
Octachlorodibenzofuran	<68	<2900	<2968	<379	<652	<499	<544	<9.79
Total Dioxins & Furans Only			<37870	<4840	<8324	<6370	<6937	<125

Dry Gas Volume Sampled (Nm³***) :	4.168
Dry Gas Volume Sampled (Rm³*) :	4.549
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 37
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	AMESA Sample pg	Probe Rinse pg	Total Collected pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	4.1	<2.2	<6.3	<0.84	<1.42	<1.08	<1.19	<0.021
12378-pentachlorodibenzo-p-dioxin	8.0	16.1	24.1	3.20	5.43	4.12	4.55	0.079
123478-hexachlorodibenzo-p-dioxin	17.8	118	136	18.0	30.6	23.2	25.6	0.44
123678-hexachlorodibenzo-p-dioxin	48.8	335	384	50.9	86.4	65.6	72.4	1.25
123789-hexachlorodibenzo-p-dioxin	43.4	347	390	51.8	87.9	66.7	73.7	1.27
1234678-heptachlorodibenzo-p-dioxin	291	2580	2871	381	647	491	542	9.38
Octachlorodibenzo-p-dioxin	293	3530	3823	507	861	654	722	12.5
2378-tetrachlorodibenzofuran	7.2	6.8	14.0	1.86	3.15	2.39	2.64	0.046
12378-pentachlorodibenzofuran	13.0	8.1	21.1	2.80	4.75	3.61	3.98	0.069
23478-pentachlorodibenzofuran	18.8	42.0	60.8	8.07	13.7	10.4	11.5	0.20
123478-hexachlorodibenzofuran	44.2	237	281	37.3	63.3	48.1	53.1	0.92
123678-hexachlorodibenzofuran	<22	119	<141	<18.7	<31.8	<24.1	<26.6	<0.46
234678-hexachlorodibenzofuran	30.6	292	323	42.8	72.7	55.2	60.9	1.05
123789-hexachlorodibenzofuran	2.9	<16	<18.9	<2.51	<4.26	<3.23	<3.57	<0.062
1234678-heptachlorodibenzofuran	88.1	649	737	97.8	166	126	139	2.41
1234789-heptachlorodibenzofuran	14.5	140	155	20.5	34.8	26.4	29.2	0.50
Octachlorodibenzofuran	<45	<730	<775	<103	<175	<133	<146	<2.53
Total Dioxins & Furans Only			<10161	<1349	<2288	<1737	<1918	<33.2

Dry Gas Volume Sampled (Nm^3***) :	4.068
Dry Gas Volume Sampled (Rm^3*) :	4.440
Actual Flowrate (m^3/s) :	24.6
Dry Reference Flowrate (Rm^3/s*) :	14.5
Dry Adjusted Flowrate (Rm^3/s**) :	19.1
Wet Reference Flowrate (Rm^3/s*) :	17.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 38
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	AMESA Sample	Probe Rinse	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	5.0	5.9	10.9	1.43	2.40	1.86	2.01	0.035
12378-pentachlorodibenzo-p-dioxin	9.0	66.9	75.9	9.95	16.7	12.9	14.0	0.25
123478-hexachlorodibenzo-p-dioxin	19.2	251	270	35.4	59.4	46.0	49.9	0.88
123678-hexachlorodibenzo-p-dioxin	59.3	704	763	100	168	130	141	2.48
123789-hexachlorodibenzo-p-dioxin	52.4	742	794	104	175	135	147	2.58
1234678-heptachlorodibenzo-p-dioxin	373	7230	7603	997	1671	1295	1405	24.7
Octachlorodibenzo-p-dioxin	394	8770	9164	1202	2014	1560	1693	29.8
2378-tetrachlorodibenzofuran	<11	<31	<42.0	<5.51	<9.23	<7.15	<7.76	<0.14
12378-pentachlorodibenzofuran	13.6	42.8	56.4	7.40	12.4	9.60	10.4	0.18
23478-pentachlorodibenzofuran	21.1	126	147	19.3	32.3	25.0	27.2	0.48
123478-hexachlorodibenzofuran	53.8	536	590	77.3	130	100	109	1.92
123678-hexachlorodibenzofuran	<26	287	<313	<41.0	<68.8	<53.3	<57.8	<1.02
234678-hexachlorodibenzofuran	36.4	588	624	81.9	137	106	115	2.03
123789-hexachlorodibenzofuran	<3.2	<51	<54.2	<7.11	<11.9	<9.23	<10.0	<0.18
1234678-heptachlorodibenzofuran	122	1960	2082	273	458	355	385	6.77
1234789-heptachlorodibenzofuran	18.6	497	516	67.6	113	87.8	95.3	1.68
Octachlorodibenzofuran	<65	<2000	<2065	<271	<454	<352	<382	<6.72
Total Dioxins & Furans Only			<25171	<3301	<5531	<4286	<4651	<81.9

Dry Gas Volume Sampled (Nm³***) :	4.169
Dry Gas Volume Sampled (Rm³*) :	4.551
Actual Flowrate (m³/s) :	24.8
Dry Reference Flowrate (Rm³/s*) :	14.8
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 39
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	pg/m^3	pg/m^3	pg/m^3	pg/m^3	%
2378-tetrachlorodibenzo-p-dioxin	1.69	<0.84	1.43	<1.32	33.1
12378-pentachlorodibenzo-p-dioxin	13.4	3.20	9.95	8.86	58.7
123478-hexachlorodibenzo-p-dioxin	52.6	18.0	35.4	35.4	48.9
123678-hexachlorodibenzo-p-dioxin	152	50.9	100	101	50.1
123789-hexachlorodibenzo-p-dioxin	166	51.8	104	107	53.1
1234678-heptachlorodibenzo-p-dioxin	1593	381	997	990	61.2
Octachlorodibenzo-p-dioxin	1649	507	1202	1119	51.4
2378-tetrachlorodibenzofuran	<6.52	1.86	<5.51	<4.63	53.0
12378-pentachlorodibenzofuran	9.92	2.80	7.40	6.70	53.8
23478-pentachlorodibenzofuran	<26.9	8.07	19.3	<18.1	52.3
123478-hexachlorodibenzofuran	116	37.3	77.3	77.0	51.3
123678-hexachlorodibenzofuran	62.3	<18.7	<41.0	<40.7	53.6
234678-hexachlorodibenzofuran	119	42.8	81.9	81.4	47.0
123789-hexachlorodibenzofuran	<11.8	<2.51	<7.11	<7.13	65.0
1234678-heptachlorodibenzofuran	381	97.8	273	251	57.0
1234789-heptachlorodibenzofuran	98.7	20.5	67.6	62.3	63.2
Octachlorodibenzofuran	<379	<103	<271	<251	55.5
Total Dioxins & Furans Only	<4840	<1349	<3301	<3163	55.3

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 40
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	2.90	<1.42	2.40	<2.24	33.7
12378-pentachlorodibenzo-p-dioxin	23.1	5.43	16.7	15.1	59.4
123478-hexachlorodibenzo-p-dioxin	90.5	30.6	59.4	60.2	49.8
123678-hexachlorodibenzo-p-dioxin	262	86.4	168	172	51.1
123789-hexachlorodibenzo-p-dioxin	285	87.9	175	182	54.1
1234678-heptachlorodibenzo-p-dioxin	2740	647	1671	1686	62.1
Octachlorodibenzo-p-dioxin	2836	861	2014	1904	52.1
2378-tetrachlorodibenzofuran	<11.2	3.15	<9.23	<7.86	53.4
12378-pentachlorodibenzofuran	17.1	4.75	12.4	11.4	54.5
23478-pentachlorodibenzofuran	<46.2	13.7	32.3	<30.8	53.1
123478-hexachlorodibenzofuran	200	63.3	130	131	52.2
123678-hexachlorodibenzofuran	107	<31.8	<68.8	<69.3	54.5
234678-hexachlorodibenzofuran	205	72.7	137	138	47.9
123789-hexachlorodibenzofuran	<20.3	<4.26	<11.9	<12.1	65.9
1234678-heptachlorodibenzofuran	655	166	458	426	57.8
1234789-heptachlorodibenzofuran	170	34.8	113	106	64.0
Octachlorodibenzofuran	<652	<175	<454	<427	56.2
Total Dioxins & Furans Only	<8324	<2288	<5531	<5381	56.1

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 41
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	2.22	<1.08	1.86	<1.72	34.0
12378-pentachlorodibenzo-p-dioxin	17.7	4.12	12.9	11.6	59.4
123478-hexachlorodibenzo-p-dioxin	69.3	23.2	46.0	46.2	49.9
123678-hexachlorodibenzo-p-dioxin	200	65.6	130	132	51.1
123789-hexachlorodibenzo-p-dioxin	218	66.7	135	140	54.1
1234678-heptachlorodibenzo-p-dioxin	2097	491	1295	1294	62.0
Octachlorodibenzo-p-dioxin	2171	654	1560	1462	52.2
2378-tetrachlorodibenzofuran	<8.58	2.39	<7.15	<6.04	53.6
12378-pentachlorodibenzofuran	13.1	3.61	9.60	8.76	54.6
23478-pentachlorodibenzofuran	<35.4	10.4	25.0	<23.6	53.2
123478-hexachlorodibenzofuran	153	48.1	100	101	52.2
123678-hexachlorodibenzofuran	82.1	<24.1	<53.3	<53.2	54.5
234678-hexachlorodibenzofuran	157	55.2	106	106	48.0
123789-hexachlorodibenzofuran	<15.5	<3.23	<9.23	<9.32	65.9
1234678-heptachlorodibenzofuran	502	126	355	327	57.8
1234789-heptachlorodibenzofuran	130	26.4	87.8	81.4	64.0
Octachlorodibenzofuran	<499	<133	<352	<328	56.3
Total Dioxins & Furans Only	<6370	<1737	<4286	<4131	56.2

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 42
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	2.42	<1.19	2.01	<1.87	33.4
12378-pentachlorodibenzo-p-dioxin	19.3	4.55	14.0	12.6	59.1
123478-hexachlorodibenzo-p-dioxin	75.4	25.6	49.9	50.3	49.5
123678-hexachlorodibenzo-p-dioxin	218	72.4	141	144	50.7
123789-hexachlorodibenzo-p-dioxin	237	73.7	147	153	53.7
1234678-heptachlorodibenzo-p-dioxin	2283	542	1405	1410	61.7
Octachlorodibenzo-p-dioxin	2363	722	1693	1593	51.8
2378-tetrachlorodibenzofuran	<9.34	2.64	<7.76	<6.58	53.2
12378-pentachlorodibenzofuran	14.2	3.98	10.4	9.54	54.2
23478-pentachlorodibenzofuran	<38.5	11.5	27.2	<25.7	52.8
123478-hexachlorodibenzofuran	167	53.1	109	110	51.8
123678-hexachlorodibenzofuran	89.4	<26.6	<57.8	<57.9	54.1
234678-hexachlorodibenzofuran	171	60.9	115	116	47.6
123789-hexachlorodibenzofuran	<16.9	<3.57	<10.0	<10.2	65.6
1234678-heptachlorodibenzofuran	546	139	385	357	57.5
1234789-heptachlorodibenzofuran	141	29.2	95.3	88.6	63.7
Octachlorodibenzofuran	<544	<146	<382	<357	55.9
Total Dioxins & Furans Only	<6937	<1918	<4651	<4502	55.8

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 43
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	0.044	<0.021	0.035	<0.033	35.1
12378-pentachlorodibenzo-p-dioxin	0.35	0.079	0.25	0.22	60.4
123478-hexachlorodibenzo-p-dioxin	1.36	0.44	0.88	0.89	51.2
123678-hexachlorodibenzo-p-dioxin	3.93	1.25	2.48	2.56	52.4
123789-hexachlorodibenzo-p-dioxin	4.27	1.27	2.58	2.71	55.4
1234678-heptachlorodibenzo-p-dioxin	41.1	9.38	24.7	25.1	63.3
Octachlorodibenzo-p-dioxin	42.5	12.5	29.8	28.3	53.4
2378-tetrachlorodibenzofuran	<0.17	0.046	<0.14	<0.12	54.4
12378-pentachlorodibenzofuran	0.26	0.069	0.18	0.17	55.6
23478-pentachlorodibenzofuran	<0.69	0.20	0.48	<0.46	54.3
123478-hexachlorodibenzofuran	3.00	0.92	1.92	1.95	53.5
123678-hexachlorodibenzofuran	1.61	<0.46	<1.02	<1.03	55.8
234678-hexachlorodibenzofuran	3.08	1.05	2.03	2.05	49.3
123789-hexachlorodibenzofuran	<0.30	<0.062	<0.18	<0.18	67.1
1234678-heptachlorodibenzofuran	9.83	2.41	6.77	6.34	58.9
1234789-heptachlorodibenzofuran	2.55	0.50	1.68	1.58	65.0
Octachlorodibenzofuran	<9.79	<2.53	<6.72	<6.34	57.4
Total Dioxins & Furans Only	<125	<33.2	<81.9	<80.0	57.4

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 44
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<1.32	<2.24	<1.72	<1.87	<0.033
12378-pentachlorodibenzo-p-dioxin	8.86	15.1	11.6	12.6	0.22
123478-hexachlorodibenzo-p-dioxin	35.4	60.2	46.2	50.3	0.89
123678-hexachlorodibenzo-p-dioxin	101	172	132	144	2.56
123789-hexachlorodibenzo-p-dioxin	107	182	140	153	2.71
1234678-heptachlorodibenzo-p-dioxin	990	1686	1294	1410	25.1
Octachlorodibenzo-p-dioxin	1119	1904	1462	1593	28.3
2378-tetrachlorodibenzofuran	<4.63	<7.86	<6.04	<6.58	<0.12
12378-pentachlorodibenzofuran	6.70	11.4	8.76	9.54	0.17
23478-pentachlorodibenzofuran	<18.1	<30.8	<23.6	<25.7	<0.46
123478-hexachlorodibenzofuran	77.0	131	101	110	1.95
123678-hexachlorodibenzofuran	<40.7	<69.3	<53.2	<57.9	<1.03
234678-hexachlorodibenzofuran	81.4	138	106	116	2.05
123789-hexachlorodibenzofuran	<7.13	<12.1	<9.32	<10.2	<0.18
1234678-heptachlorodibenzofuran	251	426	327	357	6.34
1234789-heptachlorodibenzofuran	62.3	106	81.4	88.6	1.58
Octachlorodibenzofuran	<251	<427	<328	<357	<6.34
Total Dioxins & Furans Only	<3163	<5381	<4131	<4502	<80.0

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 45
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	1.69	<0.84	1.43	<1.32
12378-pentachlorodibenzo-p-dioxin	1.000	13.4	3.20	9.95	8.86
123478-hexachlorodibenzo-p-dioxin	0.100	5.26	1.80	3.54	3.54
123678-hexachlorodibenzo-p-dioxin	0.100	15.2	5.09	10.0	10.1
123789-hexachlorodibenzo-p-dioxin	0.100	16.6	5.18	10.4	10.7
1234678-heptachlorodibenzo-p-dioxin	0.010	15.9	3.81	9.97	9.90
Octachlorodibenzo-p-dioxin	0.0003	0.49	0.15	0.36	0.34
2378-tetrachlorodibenzofuran	0.100	<0.65	0.19	<0.55	<0.46
12378-pentachlorodibenzofuran	0.030	0.30	0.084	0.22	0.20
23478-pentachlorodibenzofuran	0.300	<8.07	2.42	5.79	<5.42
123478-hexachlorodibenzofuran	0.100	11.6	3.73	7.73	7.70
123678-hexachlorodibenzofuran	0.100	6.23	<1.87	<4.10	<4.07
234678-hexachlorodibenzofuran	0.100	11.9	4.28	8.19	8.14
123789-hexachlorodibenzofuran	0.100	<1.18	<0.25	<0.71	<0.71
1234678-heptachlorodibenzofuran	0.010	3.81	0.98	2.73	2.51
1234789-heptachlorodibenzofuran	0.010	0.99	0.21	0.68	0.62
Octachlorodibenzofuran	0.0003	<0.11	<0.031	<0.081	<0.075
Total Dioxins & Furans Only		<113	<34.1	<76.5	<74.7

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46

Covanta - Durham York Energy Centre

Boiler No. 2 BH Outlet - AMESA Monitor

Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	2.90	<1.42	2.40	<2.24
12378-pentachlorodibenzo-p-dioxin	1.000	23.1	5.43	16.7	15.1
123478-hexachlorodibenzo-p-dioxin	0.100	9.05	3.06	5.94	6.02
123678-hexachlorodibenzo-p-dioxin	0.100	26.2	8.64	16.8	17.2
123789-hexachlorodibenzo-p-dioxin	0.100	28.5	8.79	17.5	18.2
1234678-heptachlorodibenzo-p-dioxin	0.010	27.4	6.47	16.7	16.9
Octachlorodibenzo-p-dioxin	0.0003	0.85	0.26	0.60	0.57
2378-tetrachlorodibenzofuran	0.100	<1.12	0.32	<0.92	<0.79
12378-pentachlorodibenzofuran	0.030	0.51	0.14	0.37	0.34
23478-pentachlorodibenzofuran	0.300	<13.9	4.11	9.70	<9.23
123478-hexachlorodibenzofuran	0.100	20.0	6.33	13.0	13.1
123678-hexachlorodibenzofuran	0.100	10.7	<3.18	<6.88	<6.93
234678-hexachlorodibenzofuran	0.100	20.5	7.27	13.7	13.8
123789-hexachlorodibenzofuran	0.100	<2.03	<0.43	<1.19	<1.21
1234678-heptachlorodibenzofuran	0.010	6.55	1.66	4.58	4.26
1234789-heptachlorodibenzofuran	0.010	1.70	0.35	1.13	1.06
Octachlorodibenzofuran	0.0003	<0.20	<0.052	<0.14	<0.13
Total Dioxins & Furans Only		<195	<57.9	<128	<127

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	2.22	<1.08	1.86	<1.72
12378-pentachlorodibenzo-p-dioxin	1.000	17.7	4.12	12.9	11.6
123478-hexachlorodibenzo-p-dioxin	0.100	6.93	2.32	4.60	4.62
123678-hexachlorodibenzo-p-dioxin	0.100	20.0	6.56	13.0	13.2
123789-hexachlorodibenzo-p-dioxin	0.100	21.8	6.67	13.5	14.0
1234678-heptachlorodibenzo-p-dioxin	0.010	21.0	4.91	12.9	12.9
Octachlorodibenzo-p-dioxin	0.0003	0.65	0.20	0.47	0.44
2378-tetrachlorodibenzofuran	0.100	<0.86	0.24	<0.72	<0.60
12378-pentachlorodibenzofuran	0.030	0.39	0.11	0.29	0.26
23478-pentachlorodibenzofuran	0.300	<10.6	3.12	7.51	<7.08
123478-hexachlorodibenzofuran	0.100	15.3	4.81	10.0	10.1
123678-hexachlorodibenzofuran	0.100	8.21	<2.41	<5.33	<5.32
234678-hexachlorodibenzofuran	0.100	15.7	5.52	10.6	10.6
123789-hexachlorodibenzofuran	0.100	<1.55	<0.32	<0.92	<0.93
1234678-heptachlorodibenzofuran	0.010	5.02	1.26	3.55	3.27
1234789-heptachlorodibenzofuran	0.010	1.30	0.26	0.88	0.81
Octachlorodibenzofuran	0.0003	<0.15	<0.040	<0.11	<0.098
Total Dioxins & Furans Only		<149	<43.9	<99.3	<97.5

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47A
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using Half the Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	2.22	0.89	1.86	1.66
12378-pentachlorodibenzo-p-dioxin	1.000	17.7	4.12	12.9	11.6
123478-hexachlorodibenzo-p-dioxin	0.100	6.93	2.32	4.60	4.62
123678-hexachlorodibenzo-p-dioxin	0.100	20.0	6.56	13.0	13.2
123789-hexachlorodibenzo-p-dioxin	0.100	21.8	6.67	13.5	14.0
1234678-heptachlorodibenzo-p-dioxin	0.010	21.0	4.91	12.9	12.9
Octachlorodibenzo-p-dioxin	0.0003	0.65	0.20	0.47	0.44
2378-tetrachlorodibenzofuran	0.100	0.43	0.24	0.36	0.34
12378-pentachlorodibenzofuran	0.030	0.39	0.11	0.29	0.26
23478-pentachlorodibenzofuran	0.300	6.08	3.12	7.51	5.57
123478-hexachlorodibenzofuran	0.100	15.3	4.81	10.0	10.1
123678-hexachlorodibenzofuran	0.100	8.21	2.22	5.11	5.18
234678-hexachlorodibenzofuran	0.100	15.7	5.52	10.6	10.6
123789-hexachlorodibenzofuran	0.100	0.78	0.19	0.46	0.47
1234678-heptachlorodibenzofuran	0.010	5.02	1.26	3.55	3.27
1234789-heptachlorodibenzofuran	0.010	1.30	0.26	0.88	0.81
Octachlorodibenzofuran	0.0003	0.075	0.020	0.053	0.049
Total Dioxins & Furans Only		144	43.4	98.2	95.1

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 47B
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	2.22	<1.08	1.86	<1.72
12378-pentachlorodibenzo-p-dioxin	0.500	8.84	2.06	6.46	5.79
123478-hexachlorodibenzo-p-dioxin	0.100	6.93	2.32	4.60	4.62
123678-hexachlorodibenzo-p-dioxin	0.100	20.0	6.56	13.0	13.2
123789-hexachlorodibenzo-p-dioxin	0.100	21.8	6.67	13.5	14.0
1234678-heptachlorodibenzo-p-dioxin	0.010	21.0	4.91	12.9	12.9
Octachlorodibenzo-p-dioxin	0.001	2.17	0.65	1.56	1.46
2378-tetrachlorodibenzofuran	0.100	<0.86	0.24	<0.72	<0.60
12378-pentachlorodibenzofuran	0.050	0.65	0.18	0.48	0.44
23478-pentachlorodibenzofuran	0.500	<17.7	5.20	12.5	<11.8
123478-hexachlorodibenzofuran	0.100	15.3	4.81	10.0	10.1
123678-hexachlorodibenzofuran	0.100	8.21	<2.41	<5.33	<5.32
234678-hexachlorodibenzofuran	0.100	15.7	5.52	10.6	10.6
123789-hexachlorodibenzofuran	0.100	<1.55	<0.32	<0.92	<0.93
1234678-heptachlorodibenzofuran	0.010	5.02	1.26	3.55	3.27
1234789-heptachlorodibenzofuran	0.010	1.30	0.26	0.88	0.81
Octachlorodibenzofuran	0.001	<0.50	<0.13	<0.35	<0.33
Total Dioxins & Furans		<150	<44.6	<99.4	<97.9
In-Stack Emission Limit					60

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

NATO/CCMS (1989) Toxicity Equivalency Factors

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 48

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	2.42	<1.19	2.01	<1.87
12378-pentachlorodibenzo-p-dioxin	1.000	19.3	4.55	14.0	12.6
123478-hexachlorodibenzo-p-dioxin	0.100	7.54	2.56	4.99	5.03
123678-hexachlorodibenzo-p-dioxin	0.100	21.8	7.24	14.1	14.4
123789-hexachlorodibenzo-p-dioxin	0.100	23.7	7.37	14.7	15.3
1234678-heptachlorodibenzo-p-dioxin	0.010	22.8	5.42	14.0	14.1
Octachlorodibenzo-p-dioxin	0.0003	0.71	0.22	0.51	0.48
2378-tetrachlorodibenzofuran	0.100	<0.93	0.26	<0.78	<0.66
12378-pentachlorodibenzofuran	0.030	0.43	0.12	0.31	0.29
23478-pentachlorodibenzofuran	0.300	<11.6	3.44	8.15	<7.72
123478-hexachlorodibenzofuran	0.100	16.7	5.31	10.9	11.0
123678-hexachlorodibenzofuran	0.100	8.94	<2.66	<5.78	<5.79
234678-hexachlorodibenzofuran	0.100	17.1	6.09	11.5	11.6
123789-hexachlorodibenzofuran	0.100	<1.69	<0.36	<1.00	<1.02
1234678-heptachlorodibenzofuran	0.010	5.46	1.39	3.85	3.57
1234789-heptachlorodibenzofuran	0.010	1.41	0.29	0.95	0.89
Octachlorodibenzofuran	0.0003	<0.16	<0.044	<0.11	<0.11
Total Dioxins & Furans Only		<163	<48.5	<108	<106

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 49
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	0.044	<0.021	0.035	<0.033
12378-pentachlorodibenzo-p-dioxin	1.000	0.35	0.079	0.25	0.22
123478-hexachlorodibenzo-p-dioxin	0.100	0.14	0.044	0.088	0.089
123678-hexachlorodibenzo-p-dioxin	0.100	0.39	0.13	0.25	0.26
123789-hexachlorodibenzo-p-dioxin	0.100	0.43	0.13	0.26	0.27
1234678-heptachlorodibenzo-p-dioxin	0.010	0.41	0.094	0.25	0.25
Octachlorodibenzo-p-dioxin	0.0003	0.013	0.0037	0.0089	0.0085
2378-tetrachlorodibenzofuran	0.100	<0.017	0.0046	<0.014	<0.012
12378-pentachlorodibenzofuran	0.030	0.0077	0.0021	0.0055	0.0051
23478-pentachlorodibenzofuran	0.300	<0.21	0.060	0.14	<0.14
123478-hexachlorodibenzofuran	0.100	0.30	0.092	0.19	0.19
123678-hexachlorodibenzofuran	0.100	0.16	<0.046	<0.10	<0.10
234678-hexachlorodibenzofuran	0.100	0.31	0.11	0.20	0.21
123789-hexachlorodibenzofuran	0.100	<0.030	<0.0062	<0.018	<0.018
1234678-heptachlorodibenzofuran	0.010	0.098	0.024	0.068	0.063
1234789-heptachlorodibenzofuran	0.010	0.025	0.0050	0.017	0.016
Octachlorodibenzofuran	0.0003	<0.0029	<0.00076	<0.0020	<0.0019
Total Dioxins & Furans Only		<2.93	<0.84	<1.90	<1.89

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 50
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	<1.32	<2.24	<1.72	<1.87	<0.033
12378-pentachlorodibenzo-p-dioxin	8.86	15.1	11.6	12.6	0.22
123478-hexachlorodibenzo-p-dioxin	3.54	6.02	4.62	5.03	0.089
123678-hexachlorodibenzo-p-dioxin	10.1	17.2	13.2	14.4	0.26
123789-hexachlorodibenzo-p-dioxin	10.7	18.2	14.0	15.3	0.27
1234678-heptachlorodibenzo-p-dioxin	9.90	16.9	12.9	14.1	0.25
Octachlorodibenzo-p-dioxin	0.34	0.57	0.44	0.48	0.0085
2378-tetrachlorodibenzofuran	<0.46	<0.79	<0.60	<0.66	<0.012
12378-pentachlorodibenzofuran	0.20	0.34	0.26	0.29	0.0051
23478-pentachlorodibenzofuran	<5.42	<9.23	<7.08	<7.72	<0.14
123478-hexachlorodibenzofuran	7.70	13.1	10.1	11.0	0.19
123678-hexachlorodibenzofuran	<4.07	<6.93	<5.32	<5.79	<0.10
234678-hexachlorodibenzofuran	8.14	13.8	10.6	11.6	0.21
123789-hexachlorodibenzofuran	<0.71	<1.21	<0.93	<1.02	<0.018
1234678-heptachlorodibenzofuran	2.51	4.26	3.27	3.57	0.063
1234789-heptachlorodibenzofuran	0.62	1.06	0.81	0.89	0.016
Octachlorodibenzofuran	<0.075	<0.13	<0.098	<0.11	<0.0019
Total Dioxins & Furans Only	<74.7	<127	<97.5	<106	<1.89

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 51

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.27	2.16	1.66	1.80	0.032
12378-pentachlorodibenzo-p-dioxin	8.86	15.1	11.6	12.6	0.22
123478-hexachlorodibenzo-p-dioxin	3.54	6.02	4.62	5.03	0.089
123678-hexachlorodibenzo-p-dioxin	10.1	17.2	13.2	14.4	0.26
123789-hexachlorodibenzo-p-dioxin	10.7	18.2	14.0	15.3	0.27
1234678-heptachlorodibenzo-p-dioxin	9.90	16.9	12.9	14.1	0.25
Octachlorodibenzo-p-dioxin	0.34	0.57	0.44	0.48	0.0085
2378-tetrachlorodibenzofuran	0.26	0.45	0.34	0.37	0.0066
12378-pentachlorodibenzofuran	0.20	0.34	0.26	0.29	0.0051
23478-pentachlorodibenzofuran	4.27	7.25	5.57	6.07	0.11
123478-hexachlorodibenzofuran	7.70	13.1	10.1	11.0	0.19
123678-hexachlorodibenzofuran	3.96	6.75	5.18	5.64	0.10
234678-hexachlorodibenzofuran	8.14	13.8	10.6	11.6	0.21
123789-hexachlorodibenzofuran	0.36	0.62	0.47	0.52	0.0092
1234678-heptachlorodibenzofuran	2.51	4.26	3.27	3.57	0.063
1234789-heptachlorodibenzofuran	0.62	1.06	0.81	0.89	0.016
Octachlorodibenzofuran	0.038	0.064	0.049	0.054	0.00095
Total Dioxins & Furans Only	72.8	124	95.1	104	1.84

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

AMESA Dioxin and Furan Emission Data
Calculated with AMESA Cartridge Only
(55 pages)

TABLE 1
Covanta - Durham York Energy Centre
AMESA Monitor
Dioxin and Furan Test Schedule

Boiler No. 1 BH Outlet

Test Number	Test Date	Sampling Period Start	Finish	Sampling Time min
1	May 9, 2016	10:04	16:17	373
2	May 10, 2016	8:49	15:08	379
3	May 11, 2016	8:24	14:31	367

Boiler No. 2 BH Outlet

Test Number	Test Date	Sampling Period Start	Finish	Sampling Time min
1	May 6, 2016	8:48	15:00	372
2	May 9, 2016	10:04	16:21	377
3	May 10, 2016	8:54	15:12	378

TABLE 2
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	902	0.13	0.22	0.16	0.19	3.05
Pentachlorodibenzo-p-dioxins	22900	3.30	5.65	4.19	4.75	77.5
Hexachlorodibenzo-p-dioxins	44000	6.33	10.9	8.05	9.13	149
Heptachlorodibenzo-p-dioxins	24200	3.48	5.98	4.43	5.02	81.9
Octachlorodibenzo-p-dioxin	7560	1.09	1.87	1.38	1.57	25.6
Total	99562	14.3	24.6	18.2	20.7	337

Furans

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	1700	0.24	0.42	0.31	0.35	5.75
Pentachlorodibenzofurans	9880	1.42	2.44	1.81	2.05	33.4
Hexachlorodibenzofurans	15000	2.16	3.70	2.74	3.11	50.7
Heptachlorodibenzofurans	7100	1.02	1.75	1.30	1.47	24.0
Octachlorodibenzofuran	<1900	<0.27	<0.47	<0.35	<0.39	<6.43
Total	<35580	<5.12	<8.79	<6.51	<7.38	<120

Dry Gas Volume Sampled (Nm³***) :	3.710
Dry Gas Volume Sampled (Rm³*) :	4.050
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** At 0°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 3
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	128	0.018	0.031	0.023	0.026	0.43
Pentachlorodibenzo-p-dioxins	3300	0.46	0.80	0.59	0.67	11.1
Hexachlorodibenzo-p-dioxins	6710	0.95	1.62	1.21	1.36	22.5
Heptachlorodibenzo-p-dioxins	4620	0.65	1.11	0.83	0.93	15.5
Octachlorodibenzo-p-dioxin	1680	0.24	0.41	0.30	0.34	5.63
Total	16438	2.32	3.97	2.96	3.32	55.1

Furans

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	302	0.043	0.073	0.054	0.061	1.01
Pentachlorodibenzofurans	1320	0.19	0.32	0.24	0.27	4.43
Hexachlorodibenzofurans	2050	0.29	0.49	0.37	0.41	6.87
Heptachlorodibenzofurans	1150	0.16	0.28	0.21	0.23	3.86
Octachlorodibenzofuran	<370	<0.052	<0.089	<0.067	<0.075	<1.24
Total	<5192	<0.73	<1.25	<0.94	<1.05	<17.4

Dry Gas Volume Sampled (Nm³***) :	3.798
Dry Gas Volume Sampled (Rm³*) :	4.146
Actual Flowrate (m³/s) :	23.8
Dry Reference Flowrate (Rm³/s*) :	13.9
Dry Adjusted Flowrate (Rm³/s**) :	18.6
Wet Reference Flowrate (Rm³/s*) :	16.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 4
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	25.6	0.0035	0.0061	0.0045	0.0051	0.087
Pentachlorodibenzo-p-dioxins	1310	0.18	0.31	0.23	0.26	4.45
Hexachlorodibenzo-p-dioxins	2920	0.40	0.69	0.51	0.58	9.92
Heptachlorodibenzo-p-dioxins	1030	0.14	0.24	0.18	0.20	3.50
Octachlorodibenzo-p-dioxin	163	0.023	0.039	0.029	0.032	0.55
Total	5449	0.75	1.29	0.95	1.08	18.5

Furans

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	65.4	0.0090	0.016	0.011	0.013	0.22
Pentachlorodibenzofurans	570	0.079	0.14	0.10	0.11	1.94
Hexachlorodibenzofurans	1020	0.14	0.24	0.18	0.20	3.47
Heptachlorodibenzofurans	375	0.052	0.089	0.066	0.074	1.27
Octachlorodibenzofuran	<44	<0.0061	<0.010	<0.0077	<0.0087	<0.15
Total	<2074	<0.29	<0.49	<0.36	<0.41	<7.05

Dry Gas Volume Sampled (Nm³***) :	3.855
Dry Gas Volume Sampled (Rm³*) :	4.208
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.3
Dry Adjusted Flowrate (Rm³/s**) :	19.4
Wet Reference Flowrate (Rm³/s*) :	17.2

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 5
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m^3	ng/m^3	ng/m^3	ng/m^3	%
Tetrachlorodibenzo-p-dioxins	0.13	0.018	0.0035	0.050	137
Pentachlorodibenzo-p-dioxins	3.30	0.46	0.18	1.31	131
Hexachlorodibenzo-p-dioxins	6.33	0.95	0.40	2.56	128
Heptachlorodibenzo-p-dioxins	3.48	0.65	0.14	1.43	126
Octachlorodibenzo-p-dioxin	1.09	0.24	0.023	0.45	126
Total	14.3	2.32	0.75	5.80	128

Furans

Congener Group	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/m^3	ng/m^3	ng/m^3	ng/m^3	%
Tetrachlorodibenzofurans	0.24	0.043	0.0090	0.099	129
Pentachlorodibenzofurans	1.42	0.19	0.079	0.56	133
Hexachlorodibenzofurans	2.16	0.29	0.14	0.86	130
Heptachlorodibenzofurans	1.02	0.16	0.052	0.41	129
Octachlorodibenzofuran	<0.27	<0.052	<0.0061	<0.11	129
Total	<5.12	<0.73	<0.29	<2.05	131

TABLE 6
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.22	0.031	0.0061	0.087	137
Pentachlorodibenzo-p-dioxins	5.65	0.80	0.31	2.25	131
Hexachlorodibenzo-p-dioxins	10.9	1.62	0.69	4.39	128
Heptachlorodibenzo-p-dioxins	5.98	1.11	0.24	2.45	126
Octachlorodibenzo-p-dioxin	1.87	0.41	0.039	0.77	126
Total	24.6	3.97	1.29	9.95	128

Furans

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.42	0.073	0.016	0.17	129
Pentachlorodibenzofurans	2.44	0.32	0.14	0.96	133
Hexachlorodibenzofurans	3.70	0.49	0.24	1.48	130
Heptachlorodibenzofurans	1.75	0.28	0.089	0.71	129
Octachlorodibenzofuran	<0.47	<0.089	<0.010	<0.19	129
Total	<8.79	<1.25	<0.49	<3.51	131

* At 25°C and 1 atmosphere

TABLE 7

Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.16	0.023	0.0045	0.064	137
Pentachlorodibenzo-p-dioxins	4.19	0.59	0.23	1.67	131
Hexachlorodibenzo-p-dioxins	8.05	1.21	0.51	3.26	128
Heptachlorodibenzo-p-dioxins	4.43	0.83	0.18	1.81	126
Octachlorodibenzo-p-dioxin	1.38	0.30	0.029	0.57	125
Total	18.2	2.96	0.95	7.37	128

Furans

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.31	0.054	0.011	0.13	129
Pentachlorodibenzofurans	1.81	0.24	0.10	0.71	133
Hexachlorodibenzofurans	2.74	0.37	0.18	1.10	130
Heptachlorodibenzofurans	1.30	0.21	0.066	0.52	129
Octachlorodibenzofuran	<0.35	<0.067	<0.0077	<0.14	129
Total	<6.51	<0.94	<0.36	<2.60	130

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 8
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm^3*	ng/Rm^3*	ng/Rm^3*	ng/Rm^3*	%
Tetrachlorodibenzo-p-dioxins	0.19	0.026	0.0051	0.073	137
Pentachlorodibenzo-p-dioxins	4.75	0.67	0.26	1.89	131
Hexachlorodibenzo-p-dioxins	9.13	1.36	0.58	3.69	128
Heptachlorodibenzo-p-dioxins	5.02	0.93	0.20	2.05	127
Octachlorodibenzo-p-dioxin	1.57	0.34	0.032	0.65	126
Total	20.7	3.32	1.08	8.35	128

Furans

Congener Group	Wet reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm^3*	ng/Rm^3*	ng/Rm^3*	ng/Rm^3*	%
Tetrachlorodibenzofurans	0.35	0.061	0.013	0.14	129
Pentachlorodibenzofurans	2.05	0.27	0.11	0.81	133
Hexachlorodibenzofurans	3.11	0.41	0.20	1.24	131
Heptachlorodibenzofurans	1.47	0.23	0.074	0.59	129
Octachlorodibenzofuran	<0.39	<0.075	<0.0087	<0.16	130
Total	<7.38	<1.05	<0.41	<2.95	131

* At 25°C and 1 atmosphere

TABLE 9
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	3.05	0.43	0.087	1.19	136
Pentachlorodibenzo-p-dioxins	77.5	11.1	4.45	31.0	130
Hexachlorodibenzo-p-dioxins	149	22.5	9.92	60.4	127
Heptachlorodibenzo-p-dioxins	81.9	15.5	3.50	33.6	126
Octachlorodibenzo-p-dioxin	25.6	5.63	0.55	10.6	125
Total	337	55.1	18.5	137	127

Furans

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzofurans	5.75	1.01	0.22	2.33	128
Pentachlorodibenzofurans	33.4	4.43	1.94	13.3	132
Hexachlorodibenzofurans	50.7	6.87	3.47	20.4	129
Heptachlorodibenzofurans	24.0	3.86	1.27	9.72	128
Octachlorodibenzofuran	<6.43	<1.24	<0.15	<2.61	129
Total	<120	<17.4	<7.05	<48.3	130

TABLE 10
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	0.050	0.087	0.064	0.073	1.19
Pentachlorodibenzo-p-dioxins	1.31	2.25	1.67	1.89	31.0
Hexachlorodibenzo-p-dioxins	2.56	4.39	3.26	3.69	60.4
Heptachlorodibenzo-p-dioxins	1.43	2.45	1.81	2.05	33.6
Octachlorodibenzo-p-dioxin	0.45	0.77	0.57	0.65	10.6
Total	5.80	9.95	7.37	8.35	137

Furans

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	0.099	0.17	0.13	0.14	2.33
Pentachlorodibenzofurans	0.56	0.96	0.71	0.81	13.3
Hexachlorodibenzofurans	0.86	1.48	1.10	1.24	20.4
Heptachlorodibenzofurans	0.41	0.71	0.52	0.59	9.72
Octachlorodibenzofuran	<0.11	<0.19	<0.14	<0.16	<2.61
Total	<2.05	<3.51	<2.60	<2.95	<48.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 11
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	149	0.019	0.033	0.025	0.027	0.49
Pentachlorodibenzo-p-dioxins	673	0.086	0.15	0.11	0.12	2.22
Hexachlorodibenzo-p-dioxins	1450	0.19	0.32	0.24	0.27	4.78
Heptachlorodibenzo-p-dioxins	1080	0.14	0.24	0.18	0.20	3.56
Octachlorodibenzo-p-dioxin	403	0.052	0.089	0.068	0.074	1.33
Total	3755	0.48	0.83	0.63	0.69	12.4

Furans

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	262	0.033	0.058	0.044	0.048	0.86
Pentachlorodibenzofurans	332	0.042	0.073	0.056	0.061	1.09
Hexachlorodibenzofurans	376	0.048	0.083	0.063	0.069	1.24
Heptachlorodibenzofurans	279	0.036	0.061	0.047	0.051	0.92
Octachlorodibenzofuran	<68	<0.0087	<0.015	<0.011	<0.012	<0.22
Total	<1317	<0.17	<0.29	<0.22	<0.24	<4.34

Dry Gas Volume Sampled (Nm³***) :	4.168
Dry Gas Volume Sampled (Rm³*) :	4.549
Actual Flowrate (m³/s) :	25.8
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.0

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 12
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	90.7	0.012	0.020	0.016	0.017	0.30
Pentachlorodibenzo-p-dioxins	377	0.050	0.085	0.064	0.071	1.23
Hexachlorodibenzo-p-dioxins	847	0.11	0.19	0.14	0.16	2.77
Heptachlorodibenzo-p-dioxins	655	0.087	0.15	0.11	0.12	2.14
Octachlorodibenzo-p-dioxin	293	0.039	0.066	0.050	0.055	0.96
Total	2263	0.30	0.51	0.39	0.43	7.39

Furans

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	185	0.025	0.042	0.032	0.035	0.60
Pentachlorodibenzofurans	212	0.028	0.048	0.036	0.040	0.69
Hexachlorodibenzofurans	187	0.025	0.042	0.032	0.035	0.61
Heptachlorodibenzofurans	150	0.020	0.034	0.026	0.028	0.49
Octachlorodibenzofuran	<45	<0.0060	<0.010	<0.0077	<0.0085	<0.15
Total	<779	<0.10	<0.18	<0.13	<0.15	<2.54

Dry Gas Volume Sampled (Nm³***) :	4.068
Dry Gas Volume Sampled (Rm³*) :	4.440
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.5
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.3

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** At 0°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 13
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	135	0.018	0.030	0.023	0.025	0.44
Pentachlorodibenzo-p-dioxins	379	0.050	0.083	0.065	0.070	1.23
Hexachlorodibenzo-p-dioxins	972	0.13	0.21	0.17	0.18	3.16
Heptachlorodibenzo-p-dioxins	850	0.11	0.19	0.14	0.16	2.76
Octachlorodibenzo-p-dioxin	394	0.052	0.087	0.067	0.073	1.28
Total	2730	0.36	0.60	0.46	0.50	8.88

Furans

Congener Group	AMESA Sample pg	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	224	0.029	0.049	0.038	0.041	0.73
Pentachlorodibenzofurans	230	0.030	0.051	0.039	0.043	0.75
Hexachlorodibenzofurans	231	0.030	0.051	0.039	0.043	0.75
Heptachlorodibenzofurans	213	0.028	0.047	0.036	0.039	0.69
Octachlorodibenzofuran	<65	<0.0085	<0.014	<0.011	<0.012	<0.21
Total	<963	<0.13	<0.21	<0.16	<0.18	<3.13

Dry Gas Volume Sampled (Nm³***) :	4.169
Dry Gas Volume Sampled (Rm³*) :	4.551
Actual Flowrate (m³/s) :	24.8
Dry Reference Flowrate (Rm³/s*) :	14.8
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** At 0°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 14
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.019	0.012	0.018	0.016	22.9
Pentachlorodibenzo-p-dioxins	0.086	0.050	0.050	0.062	33.7
Hexachlorodibenzo-p-dioxins	0.19	0.11	0.13	0.14	27.1
Heptachlorodibenzo-p-dioxins	0.14	0.087	0.11	0.11	22.8
Octachlorodibenzo-p-dioxin	0.052	0.039	0.052	0.047	15.5
Total	0.48	0.30	0.36	0.38	24.2

Furans

Congener Group	Actual Concentration Test No. 1 ng/m³	Test No. 2 ng/m³	Test No. 3 ng/m³	Average ng/m³	Coefficient of Variation %
Tetrachlorodibenzofurans	0.033	0.025	0.029	0.029	15.3
Pentachlorodibenzofurans	0.042	0.028	0.030	0.034	23.0
Hexachlorodibenzofurans	0.048	0.025	0.030	0.034	35.3
Heptachlorodibenzofurans	0.036	0.020	0.028	0.028	28.3
Octachlorodibenzofuran	<0.0087	<0.0060	<0.0085	<0.0077	19.7
Total	<0.17	<0.10	<0.13	<0.13	24.8

TABLE 15
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.033	0.020	0.030	0.028	23.2
Pentachlorodibenzo-p-dioxins	0.15	0.085	0.083	0.11	35.0
Hexachlorodibenzo-p-dioxins	0.32	0.19	0.21	0.24	28.3
Heptachlorodibenzo-p-dioxins	0.24	0.15	0.19	0.19	23.6
Octachlorodibenzo-p-dioxin	0.089	0.066	0.087	0.080	15.6
Total	0.83	0.51	0.60	0.64	25.2

Furans

Congener Group	Dry Reference Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.058	0.042	0.049	0.049	16.1
Pentachlorodibenzofurans	0.073	0.048	0.051	0.057	24.2
Hexachlorodibenzofurans	0.083	0.042	0.051	0.059	36.5
Heptachlorodibenzofurans	0.061	0.034	0.047	0.047	29.1
Octachlorodibenzofuran	<0.015	<0.010	<0.014	<0.013	19.9
Total	<0.29	<0.18	<0.21	<0.23	25.8

* At 25°C and 1 atmosphere

TABLE 16
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.025	0.016	0.023	0.021	23.7
Pentachlorodibenzo-p-dioxins	0.11	0.064	0.065	0.081	34.8
Hexachlorodibenzo-p-dioxins	0.24	0.14	0.17	0.18	28.3
Heptachlorodibenzo-p-dioxins	0.18	0.11	0.14	0.15	23.9
Octachlorodibenzo-p-dioxin	0.068	0.050	0.067	0.062	16.3
Total	0.63	0.39	0.46	0.49	25.3

Furans

Congener Group	Dry Adjusted Concentration Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	Coefficient of Variation %
Tetrachlorodibenzofurans	0.044	0.032	0.038	0.038	16.4
Pentachlorodibenzofurans	0.056	0.036	0.039	0.044	24.2
Hexachlorodibenzofurans	0.063	0.032	0.039	0.045	36.5
Heptachlorodibenzofurans	0.047	0.026	0.036	0.036	29.3
Octachlorodibenzofuran	<0.011	<0.0077	<0.011	<0.010	20.5
Total	<0.22	<0.13	<0.16	<0.17	25.9

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 17
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.027	0.017	0.025	0.023	23.0
Pentachlorodibenzo-p-dioxins	0.12	0.071	0.070	0.088	34.5
Hexachlorodibenzo-p-dioxins	0.27	0.16	0.18	0.20	27.9
Heptachlorodibenzo-p-dioxins	0.20	0.12	0.16	0.16	23.3
Octachlorodibenzo-p-dioxin	0.074	0.055	0.073	0.067	15.5
Total	0.69	0.43	0.50	0.54	24.8

Furans

Congener Group	Wet reference Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzofurans	0.048	0.035	0.041	0.041	15.8
Pentachlorodibenzofurans	0.061	0.040	0.043	0.048	23.8
Hexachlorodibenzofurans	0.069	0.035	0.043	0.049	36.0
Heptachlorodibenzofurans	0.051	0.028	0.039	0.040	28.8
Octachlorodibenzofuran	<0.012	<0.0085	<0.012	<0.011	19.8
Total	<0.24	<0.15	<0.18	<0.19	25.4

* At 25°C and 1 atmosphere

TABLE 18
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzo-p-dioxins	0.49	0.30	0.44	0.41	24.7
Pentachlorodibenzo-p-dioxins	2.22	1.23	1.23	1.56	36.5
Hexachlorodibenzo-p-dioxins	4.78	2.77	3.16	3.57	29.9
Heptachlorodibenzo-p-dioxins	3.56	2.14	2.76	2.82	25.3
Octachlorodibenzo-p-dioxin	1.33	0.96	1.28	1.19	17.0
Total	12.4	7.39	8.88	9.55	26.8

Furans

Congener Group	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
Tetrachlorodibenzofurans	0.86	0.60	0.73	0.73	17.7
Pentachlorodibenzofurans	1.09	0.69	0.75	0.84	25.8
Hexachlorodibenzofurans	1.24	0.61	0.75	0.87	38.1
Heptachlorodibenzofurans	0.92	0.49	0.69	0.70	30.7
Octachlorodibenzofuran	<0.22	<0.15	<0.21	<0.19	21.3
Total	<4.34	<2.54	<3.13	<3.34	27.5

TABLE 19
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	0.016	0.028	0.021	0.023	0.41
Pentachlorodibenzo-p-dioxins	0.062	0.11	0.081	0.088	1.56
Hexachlorodibenzo-p-dioxins	0.14	0.24	0.18	0.20	3.57
Heptachlorodibenzo-p-dioxins	0.11	0.19	0.15	0.16	2.82
Octachlorodibenzo-p-dioxin	0.047	0.080	0.062	0.067	1.19
Total	0.38	0.64	0.49	0.54	9.55

Furans

Congener Group	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate ng/s
Tetrachlorodibenzofurans	0.029	0.049	0.038	0.041	0.73
Pentachlorodibenzofurans	0.034	0.057	0.044	0.048	0.84
Hexachlorodibenzofurans	0.034	0.059	0.045	0.049	0.87
Heptachlorodibenzofurans	0.028	0.047	0.036	0.040	0.70
Octachlorodibenzofuran	<0.0077	<0.013	<0.010	<0.011	<0.19
Total	<0.13	<0.23	<0.17	<0.19	<3.34

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

TABLE 20
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	AMESA Sample pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	24.0	3.46	5.93	4.39	4.98	0.081
12378-pentachlorodibenzo-p-dioxin	396	57.0	97.8	72.4	82.2	1.34
123478-hexachlorodibenzo-p-dioxin	1070	154	264	196	222	3.62
123678-hexachlorodibenzo-p-dioxin	3090	445	763	565	641	10.5
123789-hexachlorodibenzo-p-dioxin	2770	399	684	507	575	9.37
1234678-heptachlorodibenzo-p-dioxin	11600	1670	2865	2121	2408	39.2
Octachlorodibenzo-p-dioxin	7560	1088	1867	1382	1569	25.6
2378-tetrachlorodibenzofuran	<150	<21.6	<37.0	<27.4	<31.1	<0.51
12378-pentachlorodibenzofuran	335	48.2	82.7	61.3	69.5	1.13
23478-pentachlorodibenzofuran	<1000	<144	<247	<183	<208	<3.38
123478-hexachlorodibenzofuran	3350	482	827	613	695	11.3
123678-hexachlorodibenzofuran	1630	235	403	298	338	5.51
234678-hexachlorodibenzofuran	2210	318	546	404	459	7.48
123789-hexachlorodibenzofuran	<130	<18.7	<32.1	<23.8	<27.0	<0.44
1234678-heptachlorodibenzofuran	4130	595	1020	755	857	14.0
1234789-heptachlorodibenzofuran	698	100	172	128	145	2.36
Octachlorodibenzofuran	<1900	<274	<469	<347	<394	<6.43
Total Dioxins & Furans Only	<42043	<6053	<10382	<7688	<8726	<142

Dry Gas Volume Sampled (Nm³***) :	3.710
Dry Gas Volume Sampled (Rm³*) :	4.050
Actual Flowrate (m³/s) :	23.5
Dry Reference Flowrate (Rm³/s*) :	13.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	16.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 21
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	AMESA Sample pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<5.8	<0.82	<1.40	<1.05	<1.17	<0.019
12378-pentachlorodibenzo-p-dioxin	57.4	8.09	13.8	10.3	11.6	0.19
123478-hexachlorodibenzo-p-dioxin	149	21.0	35.9	26.9	30.1	0.50
123678-hexachlorodibenzo-p-dioxin	433	61.0	104	78.1	87.5	1.45
123789-hexachlorodibenzo-p-dioxin	409	57.6	98.7	73.7	82.6	1.37
1234678-heptachlorodibenzo-p-dioxin	2120	299	511	382	428	7.11
Octachlorodibenzo-p-dioxin	1680	237	405	303	339	5.63
2378-tetrachlorodibenzofuran	<35	<4.93	<8.44	<6.31	<7.07	<0.12
12378-pentachlorodibenzofuran	52.0	7.33	12.5	9.37	10.5	0.17
23478-pentachlorodibenzofuran	<150	<21.1	<36.2	<27.0	<30.3	<0.50
123478-hexachlorodibenzofuran	450	63.4	109	81.1	90.9	1.51
123678-hexachlorodibenzofuran	220	31.0	53.1	39.7	44.4	0.74
234678-hexachlorodibenzofuran	260	36.6	62.7	46.9	52.5	0.87
123789-hexachlorodibenzofuran	<15	<2.11	<3.62	<2.70	<3.03	<0.050
1234678-heptachlorodibenzofuran	649	91.4	157	117	131	2.18
1234789-heptachlorodibenzofuran	118	16.6	28.5	21.3	23.8	0.40
Octachlorodibenzofuran	<370	<52.1	<89.3	<66.7	<74.7	<1.24
Total Dioxins & Furans Only	<7173	<1011	<1730	<1293	<1449	<24.1

Dry Gas Volume Sampled (Nm^3***) :	3.798
Dry Gas Volume Sampled (Rm^3*) :	4.146
Actual Flowrate (m^3/s) :	23.8
Dry Reference Flowrate (Rm^3/s*) :	13.9
Dry Adjusted Flowrate (Rm^3/s**) :	18.6
Wet Reference Flowrate (Rm^3/s*) :	16.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

*** At 0°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 22
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	AMESA Sample pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<2.3	<0.32	<0.55	<0.40	<0.45	<0.0078
12378-pentachlorodibenzo-p-dioxin	25.7	3.55	6.11	4.50	5.08	0.087
123478-hexachlorodibenzo-p-dioxin	58.4	8.07	13.9	10.2	11.5	0.20
123678-hexachlorodibenzo-p-dioxin	180	24.9	42.8	31.5	35.6	0.61
123789-hexachlorodibenzo-p-dioxin	158	21.8	37.5	27.7	31.2	0.54
1234678-heptachlorodibenzo-p-dioxin	445	61.5	106	78.0	87.9	1.51
Octachlorodibenzo-p-dioxin	163	22.5	38.7	28.6	32.2	0.55
2378-tetrachlorodibenzofuran	<14	<1.93	<3.33	<2.45	<2.77	<0.048
12378-pentachlorodibenzofuran	20.0	2.76	4.75	3.50	3.95	0.068
23478-pentachlorodibenzofuran	59.3	8.19	14.1	10.4	11.7	0.20
123478-hexachlorodibenzofuran	220	30.4	52.3	38.5	43.5	0.75
123678-hexachlorodibenzofuran	118	16.3	28.0	20.7	23.3	0.40
234678-hexachlorodibenzofuran	100	13.8	23.8	17.5	19.8	0.34
123789-hexachlorodibenzofuran	<7.2	<0.99	<1.71	<1.26	<1.42	<0.024
1234678-heptachlorodibenzofuran	232	32.1	55.1	40.6	45.8	0.79
1234789-heptachlorodibenzofuran	30.0	4.14	7.13	5.26	5.93	0.10
Octachlorodibenzofuran	<44	<6.08	<10.5	<7.71	<8.69	<0.15
Total Dioxins & Furans Only	<1877	<259	<446	<329	<371	<6.38

Dry Gas Volume Sampled (Nm³***) :	3.855
Dry Gas Volume Sampled (Rm³*) :	4.208
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.3
Dry Adjusted Flowrate (Rm³/s**) :	19.4
Wet Reference Flowrate (Rm³/s*) :	17.2

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 23
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1 pg/m³	Test No. 2 pg/m³	Test No. 3 pg/m³	Average pg/m³	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	3.46	<0.82	<0.32	<1.53	110
12378-pentachlorodibenzo-p-dioxin	57.0	8.09	3.55	22.9	130
123478-hexachlorodibenzo-p-dioxin	154	21.0	8.07	61.0	132
123678-hexachlorodibenzo-p-dioxin	445	61.0	24.9	177	132
123789-hexachlorodibenzo-p-dioxin	399	57.6	21.8	159	131
1234678-heptachlorodibenzo-p-dioxin	1670	299	61.5	677	128
Octachlorodibenzo-p-dioxin	1088	237	22.5	449	126
2378-tetrachlorodibenzofuran	<21.6	<4.93	<1.93	<9.49	112
12378-pentachlorodibenzofuran	48.2	7.33	2.76	19.4	129
23478-pentachlorodibenzofuran	<144	<21.1	8.19	<57.8	130
123478-hexachlorodibenzofuran	482	63.4	30.4	192	131
123678-hexachlorodibenzofuran	235	31.0	16.3	94.0	130
234678-hexachlorodibenzofuran	318	36.6	13.8	123	138
123789-hexachlorodibenzofuran	<18.7	<2.11	<0.99	<7.27	136
1234678-heptachlorodibenzofuran	595	91.4	32.1	239	129
1234789-heptachlorodibenzofuran	100	16.6	4.14	40.4	130
Octachlorodibenzofuran	<274	<52.1	<6.08	<111	129
Total Dioxins & Furans Only	<6053	<1011	<259	<2441	129

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 24
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	5.93	<1.40	<0.55	<2.62	110
12378-pentachlorodibenzo-p-dioxin	97.8	13.8	6.11	39.2	130
123478-hexachlorodibenzo-p-dioxin	264	35.9	13.9	105	132
123678-hexachlorodibenzo-p-dioxin	763	104	42.8	303	132
123789-hexachlorodibenzo-p-dioxin	684	98.7	37.5	273	131
1234678-heptachlorodibenzo-p-dioxin	2865	511	106	1161	128
Octachlorodibenzo-p-dioxin	1867	405	38.7	770	126
2378-tetrachlorodibenzofuran	<37.0	<8.44	<3.33	<16.3	112
12378-pentachlorodibenzofuran	82.7	12.5	4.75	33.3	129
23478-pentachlorodibenzofuran	<247	<36.2	14.1	<99.1	130
123478-hexachlorodibenzofuran	827	109	52.3	329	131
123678-hexachlorodibenzofuran	403	53.1	28.0	161	130
234678-hexachlorodibenzofuran	546	62.7	23.8	211	138
123789-hexachlorodibenzofuran	<32.1	<3.62	<1.71	<12.5	136
1234678-heptachlorodibenzofuran	1020	157	55.1	411	129
1234789-heptachlorodibenzofuran	172	28.5	7.13	69.3	130
Octachlorodibenzofuran	<469	<89.3	<10.5	<190	129
Total Dioxins & Furans Only	<10382	<1730	<446	<4186	129

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 25

Covanta - Durham York Energy Centre

Boiler No. 1 BH Outlet - AMESA Monitor

Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	4.39	<1.05	<0.40	<1.95	110
12378-pentachlorodibenzo-p-dioxin	72.4	10.3	4.50	29.1	129
123478-hexachlorodibenzo-p-dioxin	196	26.9	10.2	77.6	132
123678-hexachlorodibenzo-p-dioxin	565	78.1	31.5	225	131
123789-hexachlorodibenzo-p-dioxin	507	73.7	27.7	203	130
1234678-heptachlorodibenzo-p-dioxin	2121	382	78.0	860	128
Octachlorodibenzo-p-dioxin	1382	303	28.6	571	125
2378-tetrachlorodibenzofuran	<27.4	<6.31	<2.45	<12.1	111
12378-pentachlorodibenzofuran	61.3	9.37	3.50	24.7	129
23478-pentachlorodibenzofuran	<183	<27.0	10.4	<73.4	130
123478-hexachlorodibenzofuran	613	81.1	38.5	244	131
123678-hexachlorodibenzofuran	298	39.7	20.7	119	130
234678-hexachlorodibenzofuran	404	46.9	17.5	156	138
123789-hexachlorodibenzofuran	<23.8	<2.70	<1.26	<9.25	136
1234678-heptachlorodibenzofuran	755	117	40.6	304	129
1234789-heptachlorodibenzofuran	128	21.3	5.26	51.4	129
Octachlorodibenzofuran	<347	<66.7	<7.71	<141	129
Total Dioxins & Furans Only	<7688	<1293	<329	<3103	129

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 26
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	4.98	<1.17	<0.45	<2.20	110
12378-pentachlorodibenzo-p-dioxin	82.2	11.6	5.08	33.0	130
123478-hexachlorodibenzo-p-dioxin	222	30.1	11.5	87.9	133
123678-hexachlorodibenzo-p-dioxin	641	87.5	35.6	255	132
123789-hexachlorodibenzo-p-dioxin	575	82.6	31.2	230	131
1234678-heptachlorodibenzo-p-dioxin	2408	428	87.9	975	129
Octachlorodibenzo-p-dioxin	1569	339	32.2	647	126
2378-tetrachlorodibenzofuran	<31.1	<7.07	<2.77	<13.7	112
12378-pentachlorodibenzofuran	69.5	10.5	3.95	28.0	129
23478-pentachlorodibenzofuran	<208	<30.3	11.7	<83.2	130
123478-hexachlorodibenzofuran	695	90.9	43.5	277	131
123678-hexachlorodibenzofuran	338	44.4	23.3	135	130
234678-hexachlorodibenzofuran	459	52.5	19.8	177	138
123789-hexachlorodibenzofuran	<27.0	<3.03	<1.42	<10.5	137
1234678-heptachlorodibenzofuran	857	131	45.8	345	129
1234789-heptachlorodibenzofuran	145	23.8	5.93	58.2	130
Octachlorodibenzofuran	<394	<74.7	<8.69	<159	130
Total Dioxins & Furans Only	<8726	<1449	<371	<3515	129

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 27
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	0.081	<0.019	<0.0078	<0.036	109
12378-pentachlorodibenzo-p-dioxin	1.34	0.19	0.087	0.54	129
123478-hexachlorodibenzo-p-dioxin	3.62	0.50	0.20	1.44	132
123678-hexachlorodibenzo-p-dioxin	10.5	1.45	0.61	4.17	131
123789-hexachlorodibenzo-p-dioxin	9.37	1.37	0.54	3.76	130
1234678-heptachlorodibenzo-p-dioxin	39.2	7.11	1.51	16.0	128
Octachlorodibenzo-p-dioxin	25.6	5.63	0.55	10.6	125
2378-tetrachlorodibenzofuran	<0.51	<0.12	<0.048	<0.22	111
12378-pentachlorodibenzofuran	1.13	0.17	0.068	0.46	128
23478-pentachlorodibenzofuran	<3.38	<0.50	0.20	<1.36	129
123478-hexachlorodibenzofuran	11.3	1.51	0.75	4.53	130
123678-hexachlorodibenzofuran	5.51	0.74	0.40	2.22	129
234678-hexachlorodibenzofuran	7.48	0.87	0.34	2.90	137
123789-hexachlorodibenzofuran	<0.44	<0.050	<0.024	<0.17	136
1234678-heptachlorodibenzofuran	14.0	2.18	0.79	5.65	128
1234789-heptachlorodibenzofuran	2.36	0.40	0.10	0.95	129
Octachlorodibenzofuran	<6.43	<1.24	<0.15	<2.61	129
Total Dioxins & Furans Only	<142	<24.1	<6.38	<57.6	128

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 28

Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<1.53	<2.62	<1.95	<2.20	<0.036
12378-pentachlorodibenzo-p-dioxin	22.9	39.2	29.1	33.0	0.54
123478-hexachlorodibenzo-p-dioxin	61.0	105	77.6	87.9	1.44
123678-hexachlorodibenzo-p-dioxin	177	303	225	255	4.17
123789-hexachlorodibenzo-p-dioxin	159	273	203	230	3.76
1234678-heptachlorodibenzo-p-dioxin	677	1161	860	975	16.0
Octachlorodibenzo-p-dioxin	449	770	571	647	10.6
2378-tetrachlorodibenzofuran	<9.49	<16.3	<12.1	<13.7	<0.22
12378-pentachlorodibenzofuran	19.4	33.3	24.7	28.0	0.46
23478-pentachlorodibenzofuran	<57.8	<99.1	<73.4	<83.2	<1.36
123478-hexachlorodibenzofuran	192	329	244	277	4.53
123678-hexachlorodibenzofuran	94.0	161	119	135	2.22
234678-hexachlorodibenzofuran	123	211	156	177	2.90
123789-hexachlorodibenzofuran	<7.27	<12.5	<9.25	<10.5	<0.17
1234678-heptachlorodibenzofuran	239	411	304	345	5.65
1234789-heptachlorodibenzofuran	40.4	69.3	51.4	58.2	0.95
Octachlorodibenzofuran	<111	<190	<141	<159	<2.61
Total Dioxins & Furans Only	<2441	<4186	<3103	<3515	<57.6

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 29
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	3.46	<0.82	<0.32	<1.53
12378-pentachlorodibenzo-p-dioxin	1.000	57.0	8.09	3.55	22.9
123478-hexachlorodibenzo-p-dioxin	0.100	15.4	2.10	0.81	6.10
123678-hexachlorodibenzo-p-dioxin	0.100	44.5	6.10	2.49	17.7
123789-hexachlorodibenzo-p-dioxin	0.100	39.9	5.76	2.18	15.9
1234678-heptachlorodibenzo-p-dioxin	0.010	16.7	2.99	0.61	6.77
Octachlorodibenzo-p-dioxin	0.0003	0.33	0.071	0.0068	0.13
2378-tetrachlorodibenzofuran	0.100	<2.16	<0.49	<0.19	<0.95
12378-pentachlorodibenzofuran	0.030	1.45	0.22	0.083	0.58
23478-pentachlorodibenzofuran	0.300	<43.2	<6.34	2.46	<17.3
123478-hexachlorodibenzofuran	0.100	48.2	6.34	3.04	19.2
123678-hexachlorodibenzofuran	0.100	23.5	3.10	1.63	9.40
234678-hexachlorodibenzofuran	0.100	31.8	3.66	1.38	12.3
123789-hexachlorodibenzofuran	0.100	<1.87	<0.21	<0.099	<0.73
1234678-heptachlorodibenzofuran	0.010	5.95	0.91	0.32	2.39
1234789-heptachlorodibenzofuran	0.010	1.00	0.17	0.041	0.40
Octachlorodibenzofuran	0.0003	<0.082	<0.016	<0.0018	<0.033
Total Dioxins & Furans Only		<336	<47.4	<19.2	<134

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 30
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	5.93	<1.40	<0.55	<2.62
12378-pentachlorodibenzo-p-dioxin	1.000	97.8	13.8	6.11	39.2
123478-hexachlorodibenzo-p-dioxin	0.100	26.4	3.59	1.39	10.5
123678-hexachlorodibenzo-p-dioxin	0.100	76.3	10.4	4.28	30.3
123789-hexachlorodibenzo-p-dioxin	0.100	68.4	9.87	3.75	27.3
1234678-heptachlorodibenzo-p-dioxin	0.010	28.6	5.11	1.06	11.6
Octachlorodibenzo-p-dioxin	0.0003	0.56	0.12	0.012	0.23
2378-tetrachlorodibenzofuran	0.100	<3.70	<0.84	<0.33	<1.63
12378-pentachlorodibenzofuran	0.030	2.48	0.38	0.14	1.00
23478-pentachlorodibenzofuran	0.300	<74.1	<10.9	4.23	<29.7
123478-hexachlorodibenzofuran	0.100	82.7	10.9	5.23	32.9
123678-hexachlorodibenzofuran	0.100	40.3	5.31	2.80	16.1
234678-hexachlorodibenzofuran	0.100	54.6	6.27	2.38	21.1
123789-hexachlorodibenzofuran	0.100	<3.21	<0.36	<0.17	<1.25
1234678-heptachlorodibenzofuran	0.010	10.2	1.57	0.55	4.11
1234789-heptachlorodibenzofuran	0.010	1.72	0.28	0.071	0.69
Octachlorodibenzofuran	0.0003	<0.14	<0.027	<0.0031	<0.057
Total Dioxins & Furans Only		<577	<81.1	<33.1	<230

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 31
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	4.39	<1.05	<0.40	<1.95
12378-pentachlorodibenzo-p-dioxin	1.000	72.4	10.3	4.50	29.1
123478-hexachlorodibenzo-p-dioxin	0.100	19.6	2.69	1.02	7.76
123678-hexachlorodibenzo-p-dioxin	0.100	56.5	7.81	3.15	22.5
123789-hexachlorodibenzo-p-dioxin	0.100	50.7	7.37	2.77	20.3
1234678-heptachlorodibenzo-p-dioxin	0.010	21.2	3.82	0.78	8.60
Octachlorodibenzo-p-dioxin	0.0003	0.41	0.091	0.0086	0.17
2378-tetrachlorodibenzofuran	0.100	<2.74	<0.63	<0.25	<1.21
12378-pentachlorodibenzofuran	0.030	1.84	0.28	0.11	0.74
23478-pentachlorodibenzofuran	0.300	<54.9	<8.11	3.12	<22.0
123478-hexachlorodibenzofuran	0.100	61.3	8.11	3.85	24.4
123678-hexachlorodibenzofuran	0.100	29.8	3.97	2.07	11.9
234678-hexachlorodibenzofuran	0.100	40.4	4.69	1.75	15.6
123789-hexachlorodibenzofuran	0.100	<2.38	<0.27	<0.13	<0.92
1234678-heptachlorodibenzofuran	0.010	7.55	1.17	0.41	3.04
1234789-heptachlorodibenzofuran	0.010	1.28	0.21	0.053	0.51
Octachlorodibenzofuran	0.0003	<0.10	<0.020	<0.0023	<0.042
Total Dioxins & Furans Only		<427	<60.6	<24.4	<171

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 31A
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using Half the Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	4.39	0.52	0.20	1.70
12378-pentachlorodibenzo-p-dioxin	1.000	72.4	10.3	4.50	29.1
123478-hexachlorodibenzo-p-dioxin	0.100	19.6	2.69	1.02	7.76
123678-hexachlorodibenzo-p-dioxin	0.100	56.5	7.81	3.15	22.5
123789-hexachlorodibenzo-p-dioxin	0.100	50.7	7.37	2.77	20.3
1234678-heptachlorodibenzo-p-dioxin	0.010	21.2	3.82	0.78	8.60
Octachlorodibenzo-p-dioxin	0.0003	0.41	0.091	0.0086	0.17
2378-tetrachlorodibenzofuran	0.100	1.37	0.32	0.12	0.60
12378-pentachlorodibenzofuran	0.030	1.84	0.28	0.11	0.74
23478-pentachlorodibenzofuran	0.300	27.4	4.06	3.12	11.5
123478-hexachlorodibenzofuran	0.100	61.3	8.11	3.85	24.4
123678-hexachlorodibenzofuran	0.100	29.8	3.97	2.07	11.9
234678-hexachlorodibenzofuran	0.100	40.4	4.69	1.75	15.6
123789-hexachlorodibenzofuran	0.100	2.38	0.14	0.063	0.86
1234678-heptachlorodibenzofuran	0.010	7.55	1.17	0.41	3.04
1234789-heptachlorodibenzofuran	0.010	1.28	0.21	0.053	0.51
Octachlorodibenzofuran	0.0003	0.052	0.010	0.0012	0.021
Total Dioxins & Furans Only		399	55.6	24.0	159

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 31B

Covanta - Durham York Energy Centre

Boiler No. 1 BH Outlet - AMESA Monitor

Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations

Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	4.39	<1.05	<0.40	<1.95
12378-pentachlorodibenzo-p-dioxin	0.500	36.2	5.2	2.25	14.5
123478-hexachlorodibenzo-p-dioxin	0.100	19.6	2.69	1.02	7.76
123678-hexachlorodibenzo-p-dioxin	0.100	56.5	7.81	3.15	22.5
123789-hexachlorodibenzo-p-dioxin	0.100	50.7	7.37	2.77	20.3
1234678-heptachlorodibenzo-p-dioxin	0.010	21.2	3.82	0.78	8.60
Octachlorodibenzo-p-dioxin	0.001	1.38	0.30	0.029	0.57
2378-tetrachlorodibenzofuran	0.100	<2.74	<0.63	<0.25	<1.21
12378-pentachlorodibenzofuran	0.050	3.06	0.47	0.18	1.24
23478-pentachlorodibenzofuran	0.500	<91.4	<13.5	5.19	<36.7
123478-hexachlorodibenzofuran	0.100	61.3	8.11	3.85	24.4
123678-hexachlorodibenzofuran	0.100	29.8	3.97	2.07	11.9
234678-hexachlorodibenzofuran	0.100	40.4	4.69	1.75	15.6
123789-hexachlorodibenzofuran	0.100	<2.38	<0.27	<0.13	<0.92
1234678-heptachlorodibenzofuran	0.010	7.55	1.17	0.41	3.04
1234789-heptachlorodibenzofuran	0.010	1.28	0.21	0.053	0.51
Octachlorodibenzofuran	0.001	<0.35	<0.067	<0.0077	<0.14
Total Dioxins & Furans		<430	<61.3	<24.3	<172
In-Stack Emission Limit					60

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

NATO/CCMS (1989) Toxicity Equivalency Factors

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 32
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	4.98	<1.17	<0.45	<2.20
12378-pentachlorodibenzo-p-dioxin	1.000	82.2	11.6	5.08	33.0
123478-hexachlorodibenzo-p-dioxin	0.100	22.2	3.01	1.15	8.79
123678-hexachlorodibenzo-p-dioxin	0.100	64.1	8.75	3.56	25.5
123789-hexachlorodibenzo-p-dioxin	0.100	57.5	8.26	3.12	23.0
1234678-heptachlorodibenzo-p-dioxin	0.010	24.1	4.28	0.88	9.75
Octachlorodibenzo-p-dioxin	0.0003	0.47	0.10	0.0097	0.19
2378-tetrachlorodibenzofuran	0.100	<3.11	<0.71	<0.28	<1.37
12378-pentachlorodibenzofuran	0.030	2.09	0.32	0.12	0.84
23478-pentachlorodibenzofuran	0.300	<62.3	<9.1	3.52	<25.0
123478-hexachlorodibenzofuran	0.100	69.5	9.09	4.35	27.7
123678-hexachlorodibenzofuran	0.100	33.8	4.44	2.33	13.5
234678-hexachlorodibenzofuran	0.100	45.9	5.25	1.98	17.7
123789-hexachlorodibenzofuran	0.100	<2.70	<0.30	<0.14	<1.05
1234678-heptachlorodibenzofuran	0.010	8.57	1.31	0.46	3.45
1234789-heptachlorodibenzofuran	0.010	1.45	0.24	0.059	0.58
Octachlorodibenzofuran	0.0003	<0.12	<0.022	<0.0026	<0.048
Total Dioxins & Furans Only		<485	<67.9	<27.5	<193

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 33
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	0.081	<0.019	<0.0078	<0.036
12378-pentachlorodibenzo-p-dioxin	1.000	1.34	0.19	0.087	0.54
123478-hexachlorodibenzo-p-dioxin	0.100	0.36	0.050	0.020	0.14
123678-hexachlorodibenzo-p-dioxin	0.100	1.05	0.15	0.061	0.42
123789-hexachlorodibenzo-p-dioxin	0.100	0.94	0.14	0.054	0.38
1234678-heptachlorodibenzo-p-dioxin	0.010	0.39	0.071	0.015	0.16
Octachlorodibenzo-p-dioxin	0.0003	0.0077	0.0017	0.00017	0.0032
2378-tetrachlorodibenzofuran	0.100	<0.051	<0.012	<0.0048	<0.022
12378-pentachlorodibenzofuran	0.030	0.034	0.0052	0.0020	0.014
23478-pentachlorodibenzofuran	0.300	<1.01	<0.15	0.060	<0.41
123478-hexachlorodibenzofuran	0.100	1.13	0.15	0.075	0.45
123678-hexachlorodibenzofuran	0.100	0.55	0.074	0.040	0.22
234678-hexachlorodibenzofuran	0.100	0.75	0.087	0.034	0.29
123789-hexachlorodibenzofuran	0.100	<0.044	<0.0050	<0.0024	<0.017
1234678-heptachlorodibenzofuran	0.010	0.14	0.022	0.0079	0.056
1234789-heptachlorodibenzofuran	0.010	0.024	0.0040	0.0010	0.0095
Octachlorodibenzofuran	0.0003	<0.0019	<0.00037	<0.000045	<0.00078
Total Dioxins & Furans Only		<7.91	<1.13	<0.47	<3.17

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 34
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	<1.53	<2.62	<1.95	<2.20	<0.036
12378-pentachlorodibenzo-p-dioxin	22.9	39.2	29.1	33.0	0.54
123478-hexachlorodibenzo-p-dioxin	6.10	10.5	7.76	8.79	0.14
123678-hexachlorodibenzo-p-dioxin	17.7	30.3	22.5	25.5	0.42
123789-hexachlorodibenzo-p-dioxin	15.9	27.3	20.3	23.0	0.38
1234678-heptachlorodibenzo-p-dioxin	6.77	11.6	8.60	9.75	0.16
Octachlorodibenzo-p-dioxin	0.13	0.23	0.17	0.19	0.0032
2378-tetrachlorodibenzofuran	<0.95	<1.63	<1.21	<1.37	<0.022
12378-pentachlorodibenzofuran	0.58	1.00	0.74	0.84	0.014
23478-pentachlorodibenzofuran	<17.3	<29.7	<22.0	<25.0	<0.41
123478-hexachlorodibenzofuran	19.2	32.9	24.4	27.7	0.45
123678-hexachlorodibenzofuran	9.40	16.1	11.9	13.5	0.22
234678-hexachlorodibenzofuran	12.3	21.1	15.6	17.7	0.29
123789-hexachlorodibenzofuran	<0.73	<1.25	<0.92	<1.05	<0.017
1234678-heptachlorodibenzofuran	2.39	4.11	3.04	3.45	0.056
1234789-heptachlorodibenzofuran	0.40	0.69	0.51	0.58	0.0095
Octachlorodibenzofuran	<0.033	<0.057	<0.042	<0.048	<0.00078
Total Dioxins & Furans Only	<134	<230	<171	<193	<3.17

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 35
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.34	2.30	1.70	1.93	0.032
12378-pentachlorodibenzo-p-dioxin	22.9	39.2	29.1	33.0	0.54
123478-hexachlorodibenzo-p-dioxin	6.10	10.5	7.76	8.79	0.14
123678-hexachlorodibenzo-p-dioxin	17.7	30.3	22.5	25.5	0.42
123789-hexachlorodibenzo-p-dioxin	15.9	27.3	20.3	23.0	0.38
1234678-heptachlorodibenzo-p-dioxin	6.77	11.6	8.60	9.75	0.16
Octachlorodibenzo-p-dioxin	0.13	0.23	0.17	0.19	0.0032
2378-tetrachlorodibenzofuran	0.47	0.81	0.60	0.68	0.011
12378-pentachlorodibenzofuran	0.58	1.00	0.74	0.84	0.014
23478-pentachlorodibenzofuran	9.07	15.6	11.5	13.1	0.21
123478-hexachlorodibenzofuran	19.2	32.9	24.4	27.7	0.45
123678-hexachlorodibenzofuran	9.40	16.1	11.9	13.5	0.22
234678-hexachlorodibenzofuran	12.3	21.1	15.6	17.7	0.29
123789-hexachlorodibenzofuran	0.68	1.16	0.86	0.97	0.016
1234678-heptachlorodibenzofuran	2.39	4.11	3.04	3.45	0.056
1234789-heptachlorodibenzofuran	0.40	0.69	0.51	0.58	0.0095
Octachlorodibenzofuran	0.017	0.028	0.021	0.024	0.00039
Total Dioxins & Furans Only	125	215	159	181	2.96

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 36
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	AMESA Sample pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3**	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	6.9	0.88	1.52	1.16	1.26	0.023
12378-pentachlorodibenzo-p-dioxin	13.7	1.75	3.01	2.30	2.51	0.045
123478-hexachlorodibenzo-p-dioxin	26.9	3.44	5.91	4.53	4.93	0.089
123678-hexachlorodibenzo-p-dioxin	81.8	10.5	18.0	13.8	15.0	0.27
123789-hexachlorodibenzo-p-dioxin	75.6	9.66	16.6	12.7	13.8	0.25
1234678-heptachlorodibenzo-p-dioxin	464	59.3	102	78.1	85.0	1.53
Octachlorodibenzo-p-dioxin	403	51.5	88.6	67.8	73.8	1.33
2378-tetrachlorodibenzofuran	<18	<2.30	<3.96	<3.03	<3.30	<0.059
12378-pentachlorodibenzofuran	17.8	2.27	3.91	2.99	3.26	0.059
23478-pentachlorodibenzofuran	30.4	3.88	6.68	5.11	5.57	0.10
123478-hexachlorodibenzofuran	77.2	9.87	17.0	13.0	14.1	0.25
123678-hexachlorodibenzofuran	39.8	5.09	8.75	6.70	7.29	0.13
234678-hexachlorodibenzofuran	45.9	5.87	10.1	7.72	8.41	0.15
123789-hexachlorodibenzofuran	<3.2	<0.41	<0.70	<0.54	<0.59	<0.011
1234678-heptachlorodibenzofuran	162	20.7	35.6	27.3	29.7	0.53
1234789-heptachlorodibenzofuran	21.3	2.72	4.68	3.58	3.90	0.070
Octachlorodibenzofuran	<68	<8.69	<14.9	<11.4	<12.5	<0.22
Total Dioxins & Furans Only	<1556	<199	<342	<262	<285	<5.13

Dry Gas Volume Sampled (Nm^3***) :	4.168
Dry Gas Volume Sampled (Rm^3*) :	4.549
Actual Flowrate (m^3/s) :	25.8
Dry Reference Flowrate (Rm^3/s*) :	15.0
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.0

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 37
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	AMESA Sample pg	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	4.1	0.54	0.92	0.70	0.77	0.013
12378-pentachlorodibenzo-p-dioxin	8.0	1.06	1.80	1.37	1.51	0.026
123478-hexachlorodibenzo-p-dioxin	17.8	2.36	4.01	3.04	3.36	0.058
123678-hexachlorodibenzo-p-dioxin	48.8	6.48	11.0	8.34	9.21	0.16
123789-hexachlorodibenzo-p-dioxin	43.4	5.76	9.77	7.42	8.19	0.14
1234678-heptachlorodibenzo-p-dioxin	291	38.6	65.5	49.8	54.9	0.95
Octachlorodibenzo-p-dioxin	293	38.9	66.0	50.1	55.3	0.96
2378-tetrachlorodibenzofuran	7.2	0.96	1.62	1.23	1.36	0.024
12378-pentachlorodibenzofuran	13.0	1.73	2.93	2.22	2.45	0.042
23478-pentachlorodibenzofuran	18.8	2.50	4.23	3.21	3.55	0.061
123478-hexachlorodibenzofuran	44.2	5.87	9.95	7.56	8.34	0.14
123678-hexachlorodibenzofuran	<22	<2.92	<4.95	<3.76	<4.15	<0.072
234678-hexachlorodibenzofuran	30.6	4.06	6.89	5.23	5.78	0.10
123789-hexachlorodibenzofuran	2.9	0.38	0.65	0.50	0.55	0.0095
1234678-heptachlorodibenzofuran	88.1	11.7	19.8	15.1	16.6	0.29
1234789-heptachlorodibenzofuran	14.5	1.92	3.27	2.48	2.74	0.047
Octachlorodibenzofuran	<45	<5.97	<10.1	<7.69	<8.49	<0.15
Total Dioxins & Furans Only	<992	<132	<223	<170	<187	<3.24

Dry Gas Volume Sampled (Nm³***) :	4.068
Dry Gas Volume Sampled (Rm³*) :	4.440
Actual Flowrate (m³/s) :	24.6
Dry Reference Flowrate (Rm³/s*) :	14.5
Dry Adjusted Flowrate (Rm³/s**) :	19.1
Wet Reference Flowrate (Rm³/s*) :	17.3

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 38
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	AMESA Sample pg	Actual Concentration pg/m^3	Dry Reference Concentration pg/Rm^3*	Dry Adjusted Concentration pg/Rm^3***	Wet Reference Concentration pg/Rm^3*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	5.0	0.66	1.10	0.85	0.92	0.016
12378-pentachlorodibenzo-p-dioxin	9.0	1.18	1.98	1.53	1.66	0.029
123478-hexachlorodibenzo-p-dioxin	19.2	2.52	4.22	3.27	3.55	0.062
123678-hexachlorodibenzo-p-dioxin	59.3	7.78	13.0	10.1	11.0	0.19
123789-hexachlorodibenzo-p-dioxin	52.4	6.87	11.5	8.92	9.68	0.17
1234678-heptachlorodibenzo-p-dioxin	373	48.9	82.0	63.5	68.9	1.21
Octachlorodibenzo-p-dioxin	394	51.7	86.6	67.1	72.8	1.28
2378-tetrachlorodibenzofuran	<11	<1.44	<2.42	<1.87	<2.03	<0.036
12378-pentachlorodibenzofuran	13.6	1.78	2.99	2.32	2.51	0.044
23478-pentachlorodibenzofuran	21.1	2.77	4.64	3.59	3.90	0.069
123478-hexachlorodibenzofuran	53.8	7.06	11.8	9.16	9.94	0.17
123678-hexachlorodibenzofuran	<26	<3.41	<5.71	<4.43	<4.80	<0.085
234678-hexachlorodibenzofuran	36.4	4.77	8.00	6.20	6.73	0.12
123789-hexachlorodibenzofuran	<3.2	<0.42	<0.70	<0.54	<0.59	<0.010
1234678-heptachlorodibenzofuran	122	16.0	26.8	20.8	22.5	0.40
1234789-heptachlorodibenzofuran	18.6	2.44	4.09	3.17	3.44	0.060
Octachlorodibenzofuran	<65	<8.52	<14.3	<11.1	<12.0	<0.21
Total Dioxins & Furans Only	<1283	<168	<282	<218	<237	<4.17

Dry Gas Volume Sampled (Nm^3***) :	4.169
Dry Gas Volume Sampled (Rm^3*) :	4.551
Actual Flowrate (m^3/s) :	24.8
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.1
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere
** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume
*** At 0°C and 1 atmosphere
Note: "<" indicates that the analyte was not detected (was less than the analytical detection limit), and the value of the detection limit was used to calculate the emission data.

TABLE 39
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	pg/m^3	pg/m^3	pg/m^3	pg/m^3	%
2378-tetrachlorodibenzo-p-dioxin	0.88	0.54	0.66	0.69	24.8
12378-pentachlorodibenzo-p-dioxin	1.75	1.06	1.18	1.33	27.7
123478-hexachlorodibenzo-p-dioxin	3.44	2.36	2.52	2.77	21.0
123678-hexachlorodibenzo-p-dioxin	10.5	6.48	7.78	8.24	24.6
123789-hexachlorodibenzo-p-dioxin	9.66	5.76	6.87	7.43	27.0
1234678-heptachlorodibenzo-p-dioxin	59.3	38.6	48.9	48.9	21.1
Octachlorodibenzo-p-dioxin	51.5	38.9	51.7	47.4	15.5
2378-tetrachlorodibenzofuran	<2.30	0.96	<1.44	<1.57	43.5
12378-pentachlorodibenzofuran	2.27	1.73	1.78	1.93	15.6
23478-pentachlorodibenzofuran	3.88	2.50	2.77	3.05	24.1
123478-hexachlorodibenzofuran	9.87	5.87	7.06	7.60	27.0
123678-hexachlorodibenzofuran	5.09	<2.92	<3.41	<3.81	29.8
234678-hexachlorodibenzofuran	5.87	4.06	4.77	4.90	18.5
123789-hexachlorodibenzofuran	<0.41	0.38	<0.42	<0.40	4.4
1234678-heptachlorodibenzofuran	20.7	11.7	16.0	16.1	27.9
1234789-heptachlorodibenzofuran	2.72	1.92	2.44	2.36	17.1
Octachlorodibenzofuran	<8.69	<5.97	<8.52	<7.73	19.7
Total Dioxins & Furans Only	<199	<132	<168	<166	20.2

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 40
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	1.52	0.92	1.10	1.18	25.8
12378-pentachlorodibenzo-p-dioxin	3.01	1.80	1.98	2.26	28.9
123478-hexachlorodibenzo-p-dioxin	5.91	4.01	4.22	4.71	22.1
123678-hexachlorodibenzo-p-dioxin	18.0	11.0	13.0	14.0	25.7
123789-hexachlorodibenzo-p-dioxin	16.6	9.77	11.5	12.6	28.1
1234678-heptachlorodibenzo-p-dioxin	102	65.5	82.0	83.2	22.0
Octachlorodibenzo-p-dioxin	88.6	66.0	86.6	80.4	15.6
2378-tetrachlorodibenzofuran	<3.96	1.62	<2.42	<2.67	44.5
12378-pentachlorodibenzofuran	3.91	2.93	2.99	3.28	16.8
23478-pentachlorodibenzofuran	6.68	4.23	4.64	5.18	25.3
123478-hexachlorodibenzofuran	17.0	9.95	11.8	12.9	28.1
123678-hexachlorodibenzofuran	8.75	<4.95	<5.71	<6.47	31.0
234678-hexachlorodibenzofuran	10.1	6.89	8.00	8.33	19.5
123789-hexachlorodibenzofuran	<0.70	0.65	<0.70	<0.69	4.2
1234678-heptachlorodibenzofuran	35.6	19.8	26.8	27.4	28.8
1234789-heptachlorodibenzofuran	4.68	3.27	4.09	4.01	17.7
Octachlorodibenzofuran	<14.9	<10.1	<14.3	<13.1	19.9
Total Dioxins & Furans Only	<342	<223	<282	<282	21.0

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 41
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	1.16	0.70	0.85	0.90	25.9
12378-pentachlorodibenzo-p-dioxin	2.30	1.37	1.53	1.73	28.8
123478-hexachlorodibenzo-p-dioxin	4.53	3.04	3.27	3.61	22.1
123678-hexachlorodibenzo-p-dioxin	13.8	8.34	10.1	10.7	25.7
123789-hexachlorodibenzo-p-dioxin	12.7	7.42	8.92	9.69	28.2
1234678-heptachlorodibenzo-p-dioxin	78.1	49.8	63.5	63.8	22.2
Octachlorodibenzo-p-dioxin	67.8	50.1	67.1	61.7	16.3
2378-tetrachlorodibenzofuran	<3.03	1.23	<1.87	<2.04	44.5
12378-pentachlorodibenzofuran	2.99	2.22	2.32	2.51	16.8
23478-pentachlorodibenzofuran	5.11	3.21	3.59	3.97	25.3
123478-hexachlorodibenzofuran	13.0	7.56	9.16	9.90	28.2
123678-hexachlorodibenzofuran	6.70	<3.76	<4.43	<4.96	31.0
234678-hexachlorodibenzofuran	7.72	5.23	6.20	6.38	19.7
123789-hexachlorodibenzofuran	<0.54	0.50	<0.54	<0.53	5.1
1234678-heptachlorodibenzofuran	27.3	15.1	20.8	21.0	29.0
1234789-heptachlorodibenzofuran	3.58	2.48	3.17	3.08	18.1
Octachlorodibenzofuran	<11.4	<7.69	<11.1	<10.1	20.5
Total Dioxins & Furans Only	<262	<170	<218	<217	21.3

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 42
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Wet Reference Concentrations

Specific Isomer	Wet Reference Concentration Test No. 1 pg/Rm³*	Test No. 2 pg/Rm³*	Test No. 3 pg/Rm³*	Average pg/Rm³*	Coefficient of Variation %
2378-tetrachlorodibenzo-p-dioxin	1.26	0.77	0.92	0.99	25.4
12378-pentachlorodibenzo-p-dioxin	2.51	1.51	1.66	1.89	28.4
123478-hexachlorodibenzo-p-dioxin	4.93	3.36	3.55	3.95	21.7
123678-hexachlorodibenzo-p-dioxin	15.0	9.21	11.0	11.7	25.3
123789-hexachlorodibenzo-p-dioxin	13.8	8.19	9.68	10.6	27.7
1234678-heptachlorodibenzo-p-dioxin	85.0	54.9	68.9	69.6	21.6
Octachlorodibenzo-p-dioxin	73.8	55.3	72.8	67.3	15.5
2378-tetrachlorodibenzofuran	<3.30	1.36	<2.03	<2.23	44.1
12378-pentachlorodibenzofuran	3.26	2.45	2.51	2.74	16.4
23478-pentachlorodibenzofuran	5.57	3.55	3.90	4.34	24.9
123478-hexachlorodibenzofuran	14.1	8.34	9.94	10.8	27.7
123678-hexachlorodibenzofuran	7.29	<4.15	<4.80	<5.42	30.6
234678-hexachlorodibenzofuran	8.41	5.78	6.73	6.97	19.1
123789-hexachlorodibenzofuran	<0.59	0.55	<0.59	<0.57	4.2
1234678-heptachlorodibenzofuran	29.7	16.6	22.5	22.9	28.5
1234789-heptachlorodibenzofuran	3.90	2.74	3.44	3.36	17.5
Octachlorodibenzofuran	<12.5	<8.49	<12.0	<11.0	19.8
Total Dioxins & Furans Only	<285	<187	<237	<236	20.6

* At 25°C and 1 atmosphere

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 43
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate Test No. 1	Test No. 2	Test No. 3	Average	Coefficient of Variation
	ng/s	ng/s	ng/s	ng/s	%
2378-tetrachlorodibenzo-p-dioxin	0.023	0.013	0.016	0.017	27.5
12378-pentachlorodibenzo-p-dioxin	0.045	0.026	0.029	0.034	30.5
123478-hexachlorodibenzo-p-dioxin	0.089	0.058	0.062	0.070	23.7
123678-hexachlorodibenzo-p-dioxin	0.27	0.16	0.19	0.21	27.3
123789-hexachlorodibenzo-p-dioxin	0.25	0.14	0.17	0.19	29.8
1234678-heptachlorodibenzo-p-dioxin	1.53	0.95	1.21	1.23	23.6
Octachlorodibenzo-p-dioxin	1.33	0.96	1.28	1.19	17.0
2378-tetrachlorodibenzofuran	<0.059	0.024	<0.036	<0.040	46.1
12378-pentachlorodibenzofuran	0.059	0.042	0.044	0.048	18.4
23478-pentachlorodibenzofuran	0.10	0.061	0.069	0.077	26.9
123478-hexachlorodibenzofuran	0.25	0.14	0.17	0.19	29.7
123678-hexachlorodibenzofuran	0.13	<0.072	<0.085	<0.096	32.6
234678-hexachlorodibenzofuran	0.15	0.10	0.12	0.12	21.1
123789-hexachlorodibenzofuran	<0.011	0.0095	<0.010	<0.010	5.8
1234678-heptachlorodibenzofuran	0.53	0.29	0.40	0.41	30.4
1234789-heptachlorodibenzofuran	0.070	0.047	0.060	0.059	19.3
Octachlorodibenzofuran	<0.22	<0.15	<0.21	<0.19	21.3
Total Dioxins & Furans Only	<5.13	<3.24	<4.17	<4.18	22.6

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 44
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m³	Dry Reference Concentration pg/Rm³*	Dry Adjusted Concentration pg/Rm³**	Wet Reference Concentration pg/Rm³*	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	0.69	1.18	0.90	0.99	0.017
12378-pentachlorodibenzo-p-dioxin	1.33	2.26	1.73	1.89	0.034
123478-hexachlorodibenzo-p-dioxin	2.77	4.71	3.61	3.95	0.070
123678-hexachlorodibenzo-p-dioxin	8.24	14.0	10.7	11.7	0.21
123789-hexachlorodibenzo-p-dioxin	7.43	12.6	9.69	10.6	0.19
1234678-heptachlorodibenzo-p-dioxin	48.9	83.2	63.8	69.6	1.23
Octachlorodibenzo-p-dioxin	47.4	80.4	61.7	67.3	1.19
2378-tetrachlorodibenzofuran	<1.57	<2.67	<2.04	<2.23	<0.040
12378-pentachlorodibenzofuran	1.93	3.28	2.51	2.74	0.048
23478-pentachlorodibenzofuran	3.05	5.18	3.97	4.34	0.077
123478-hexachlorodibenzofuran	7.60	12.9	9.90	10.8	0.19
123678-hexachlorodibenzofuran	<3.81	<6.47	<4.96	<5.42	<0.096
234678-hexachlorodibenzofuran	4.90	8.33	6.38	6.97	0.12
123789-hexachlorodibenzofuran	<0.40	<0.69	<0.53	<0.57	<0.010
1234678-heptachlorodibenzofuran	16.1	27.4	21.0	22.9	0.41
1234789-heptachlorodibenzofuran	2.36	4.01	3.08	3.36	0.059
Octachlorodibenzofuran	<7.73	<13.1	<10.1	<11.0	<0.19
Total Dioxins & Furans Only	<166	<282	<217	<236	<4.18

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 45
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration Test No. 1 pg TEQ/m³	Test No. 2 pg TEQ/m³	Test No. 3 pg TEQ/m³	Average pg TEQ/m³
2378-tetrachlorodibenzo-p-dioxin	1.000	0.88	0.54	0.66	0.69
12378-pentachlorodibenzo-p-dioxin	1.000	1.75	1.06	1.18	1.33
123478-hexachlorodibenzo-p-dioxin	0.100	0.34	0.24	0.25	0.28
123678-hexachlorodibenzo-p-dioxin	0.100	1.05	0.65	0.78	0.82
123789-hexachlorodibenzo-p-dioxin	0.100	0.97	0.58	0.69	0.74
1234678-heptachlorodibenzo-p-dioxin	0.010	0.59	0.39	0.49	0.49
Octachlorodibenzo-p-dioxin	0.0003	0.015	0.012	0.016	0.014
2378-tetrachlorodibenzofuran	0.100	<0.23	0.096	<0.14	<0.16
12378-pentachlorodibenzofuran	0.030	0.068	0.052	0.054	0.058
23478-pentachlorodibenzofuran	0.300	1.17	0.75	0.83	0.91
123478-hexachlorodibenzofuran	0.100	0.99	0.59	0.71	0.76
123678-hexachlorodibenzofuran	0.100	0.51	<0.29	<0.34	<0.38
234678-hexachlorodibenzofuran	0.100	0.59	0.41	0.48	0.49
123789-hexachlorodibenzofuran	0.100	<0.041	0.038	<0.042	<0.040
1234678-heptachlorodibenzofuran	0.010	0.21	0.12	0.16	0.16
1234789-heptachlorodibenzofuran	0.010	0.027	0.019	0.024	0.024
Octachlorodibenzofuran	0.0003	<0.0026	<0.0018	<0.0026	<0.0023
Total Dioxins & Furans Only		<9.42	<5.82	<6.84	<7.36

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 46
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	1.52	0.92	1.10	1.18
12378-pentachlorodibenzo-p-dioxin	1.000	3.01	1.80	1.98	2.26
123478-hexachlorodibenzo-p-dioxin	0.100	0.59	0.40	0.42	0.47
123678-hexachlorodibenzo-p-dioxin	0.100	1.80	1.10	1.30	1.40
123789-hexachlorodibenzo-p-dioxin	0.100	1.66	0.98	1.15	1.26
1234678-heptachlorodibenzo-p-dioxin	0.010	1.02	0.66	0.82	0.83
Octachlorodibenzo-p-dioxin	0.0003	0.027	0.020	0.026	0.024
2378-tetrachlorodibenzofuran	0.100	<0.40	0.16	<0.24	<0.27
12378-pentachlorodibenzofuran	0.030	0.12	0.088	0.090	0.098
23478-pentachlorodibenzofuran	0.300	2.00	1.27	1.39	1.56
123478-hexachlorodibenzofuran	0.100	1.70	1.00	1.18	1.29
123678-hexachlorodibenzofuran	0.100	0.87	<0.50	<0.57	<0.65
234678-hexachlorodibenzofuran	0.100	1.01	0.69	0.80	0.83
123789-hexachlorodibenzofuran	0.100	<0.070	0.065	<0.070	<0.069
1234678-heptachlorodibenzofuran	0.010	0.36	0.20	0.27	0.27
1234789-heptachlorodibenzofuran	0.010	0.047	0.033	0.041	0.040
Octachlorodibenzofuran	0.0003	<0.0045	<0.0030	<0.0043	<0.0039
Total Dioxins & Furans Only		<16.2	<9.88	<11.5	<12.5

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	1.16	0.70	0.85	0.90
12378-pentachlorodibenzo-p-dioxin	1.000	2.30	1.37	1.53	1.73
123478-hexachlorodibenzo-p-dioxin	0.100	0.45	0.30	0.33	0.36
123678-hexachlorodibenzo-p-dioxin	0.100	1.38	0.83	1.01	1.07
123789-hexachlorodibenzo-p-dioxin	0.100	1.27	0.74	0.89	0.97
1234678-heptachlorodibenzo-p-dioxin	0.010	0.78	0.50	0.64	0.64
Octachlorodibenzo-p-dioxin	0.0003	0.020	0.015	0.020	0.018
2378-tetrachlorodibenzofuran	0.100	<0.30	0.12	<0.19	<0.20
12378-pentachlorodibenzofuran	0.030	0.090	0.067	0.069	0.075
23478-pentachlorodibenzofuran	0.300	1.53	0.96	1.08	1.19
123478-hexachlorodibenzofuran	0.100	1.30	0.76	0.92	0.99
123678-hexachlorodibenzofuran	0.100	0.67	<0.38	<0.44	<0.50
234678-hexachlorodibenzofuran	0.100	0.77	0.52	0.62	0.64
123789-hexachlorodibenzofuran	0.100	<0.054	0.050	<0.054	<0.053
1234678-heptachlorodibenzofuran	0.010	0.27	0.15	0.21	0.21
1234789-heptachlorodibenzofuran	0.010	0.036	0.025	0.032	0.031
Octachlorodibenzofuran	0.0003	<0.0034	<0.0023	<0.0033	<0.0030
Total Dioxins & Furans Only		<12.4	<7.50	<8.88	<9.59

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 47A
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using Half the Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	1.16	0.70	0.85	0.90
12378-pentachlorodibenzo-p-dioxin	1.000	2.30	1.37	1.53	1.73
123478-hexachlorodibenzo-p-dioxin	0.100	0.45	0.30	0.33	0.36
123678-hexachlorodibenzo-p-dioxin	0.100	1.38	0.83	1.01	1.07
123789-hexachlorodibenzo-p-dioxin	0.100	1.27	0.74	0.89	0.97
1234678-heptachlorodibenzo-p-dioxin	0.010	0.78	0.50	0.64	0.64
Octachlorodibenzo-p-dioxin	0.0003	0.020	0.015	0.020	0.018
2378-tetrachlorodibenzofuran	0.100	0.15	0.12	0.094	0.12
12378-pentachlorodibenzofuran	0.030	0.090	0.067	0.069	0.075
23478-pentachlorodibenzofuran	0.300	1.53	0.96	1.08	1.19
123478-hexachlorodibenzofuran	0.100	1.30	0.76	0.92	0.99
123678-hexachlorodibenzofuran	0.100	0.67	0.19	0.22	0.36
234678-hexachlorodibenzofuran	0.100	0.77	0.52	0.62	0.64
123789-hexachlorodibenzofuran	0.100	0.027	0.050	0.027	0.035
1234678-heptachlorodibenzofuran	0.010	0.27	0.15	0.21	0.21
1234789-heptachlorodibenzofuran	0.010	0.036	0.025	0.032	0.031
Octachlorodibenzofuran	0.0003	0.0017	0.0012	0.0017	0.0015
Total Dioxins & Furans Only		12.2	7.31	8.53	9.35

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

TABLE 47B
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Dry Adjusted Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	1.16	0.70	0.85	0.90
12378-pentachlorodibenzo-p-dioxin	0.500	1.15	0.68	0.77	0.87
123478-hexachlorodibenzo-p-dioxin	0.100	0.45	0.30	0.33	0.36
123678-hexachlorodibenzo-p-dioxin	0.100	1.38	0.83	1.01	1.07
123789-hexachlorodibenzo-p-dioxin	0.100	1.27	0.74	0.89	0.97
1234678-heptachlorodibenzo-p-dioxin	0.010	0.78	0.50	0.64	0.64
Octachlorodibenzo-p-dioxin	0.001	0.068	0.050	0.067	0.062
2378-tetrachlorodibenzofuran	0.100	<0.30	0.12	<0.19	<0.20
12378-pentachlorodibenzofuran	0.050	0.15	0.11	0.12	0.13
23478-pentachlorodibenzofuran	0.500	2.56	1.61	1.80	1.99
123478-hexachlorodibenzofuran	0.100	1.30	0.76	0.92	0.99
123678-hexachlorodibenzofuran	0.100	0.67	<0.38	<0.44	<0.50
234678-hexachlorodibenzofuran	0.100	0.77	0.52	0.62	0.64
123789-hexachlorodibenzofuran	0.100	<0.054	0.050	<0.054	<0.053
1234678-heptachlorodibenzofuran	0.010	0.27	0.15	0.21	0.21
1234789-heptachlorodibenzofuran	0.010	0.036	0.025	0.032	0.031
Octachlorodibenzofuran	0.001	<0.011	<0.0077	<0.011	<0.010
Total Dioxins & Furans		<12.4	<7.54	<8.93	<9.62
In-Stack Emission Limit					60

* At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

NATO/CCMS (1989) Toxicity Equivalency Factors

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 48
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Wet Reference Concentration Test No. 1 pg TEQ/Rm³*	Test No. 2 pg TEQ/Rm³*	Test No. 3 pg TEQ/Rm³*	Average pg TEQ/Rm³*
2378-tetrachlorodibenzo-p-dioxin	1.000	1.26	0.77	0.92	0.99
12378-pentachlorodibenzo-p-dioxin	1.000	2.51	1.51	1.66	1.89
123478-hexachlorodibenzo-p-dioxin	0.100	0.49	0.34	0.35	0.39
123678-hexachlorodibenzo-p-dioxin	0.100	1.50	0.92	1.10	1.17
123789-hexachlorodibenzo-p-dioxin	0.100	1.38	0.82	0.97	1.06
1234678-heptachlorodibenzo-p-dioxin	0.010	0.85	0.55	0.69	0.70
Octachlorodibenzo-p-dioxin	0.0003	0.022	0.017	0.022	0.020
2378-tetrachlorodibenzofuran	0.100	<0.33	0.14	<0.20	<0.22
12378-pentachlorodibenzofuran	0.030	0.098	0.074	0.075	0.082
23478-pentachlorodibenzofuran	0.300	1.67	1.06	1.17	1.30
123478-hexachlorodibenzofuran	0.100	1.41	0.83	0.99	1.08
123678-hexachlorodibenzofuran	0.100	0.73	<0.42	<0.48	<0.54
234678-hexachlorodibenzofuran	0.100	0.84	0.58	0.67	0.70
123789-hexachlorodibenzofuran	0.100	<0.059	0.055	<0.059	<0.057
1234678-heptachlorodibenzofuran	0.010	0.30	0.17	0.23	0.23
1234789-heptachlorodibenzofuran	0.010	0.039	0.027	0.034	0.034
Octachlorodibenzofuran	0.0003	<0.0037	<0.0025	<0.0036	<0.0033
Total Dioxins & Furans Only		<13.5	<8.28	<9.64	<10.5

* At 25°C and 1 atmosphere

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 49
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Dioxin and Furan Toxicity Equivalent Emission Rates

Specific Isomer	Toxicity Equivalency Factor	Emission Rate Test No. 1 ng TEQ/s	Test No. 2 ng TEQ/s	Test No. 3 ng TEQ/s	Average ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	1.000	0.023	0.013	0.016	0.017
12378-pentachlorodibenzo-p-dioxin	1.000	0.045	0.026	0.029	0.034
123478-hexachlorodibenzo-p-dioxin	0.100	0.0089	0.0058	0.0062	0.0070
123678-hexachlorodibenzo-p-dioxin	0.100	0.027	0.016	0.019	0.021
123789-hexachlorodibenzo-p-dioxin	0.100	0.025	0.014	0.017	0.019
1234678-heptachlorodibenzo-p-dioxin	0.010	0.015	0.0095	0.012	0.012
Octachlorodibenzo-p-dioxin	0.0003	0.00040	0.00029	0.00038	0.00036
2378-tetrachlorodibenzofuran	0.100	<0.0059	0.0024	<0.0036	<0.0040
12378-pentachlorodibenzofuran	0.030	0.0018	0.0013	0.0013	0.0015
23478-pentachlorodibenzofuran	0.300	0.030	0.018	0.021	0.023
123478-hexachlorodibenzofuran	0.100	0.025	0.014	0.017	0.019
123678-hexachlorodibenzofuran	0.100	0.013	<0.0072	<0.0085	<0.0096
234678-hexachlorodibenzofuran	0.100	0.015	0.010	0.012	0.012
123789-hexachlorodibenzofuran	0.100	<0.0011	0.00095	<0.0010	<0.0010
1234678-heptachlorodibenzofuran	0.010	0.0053	0.0029	0.0040	0.0041
1234789-heptachlorodibenzofuran	0.010	0.00070	0.00047	0.00060	0.00059
Octachlorodibenzofuran	0.0003	<0.000067	<0.000044	<0.000063	<0.000058
Total Dioxins & Furans Only		<0.24	<0.14	<0.17	<0.19

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 50
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	0.69	1.18	0.90	0.99	0.017
12378-pentachlorodibenzo-p-dioxin	1.33	2.26	1.73	1.89	0.034
123478-hexachlorodibenzo-p-dioxin	0.28	0.47	0.36	0.39	0.0070
123678-hexachlorodibenzo-p-dioxin	0.82	1.40	1.07	1.17	0.021
123789-hexachlorodibenzo-p-dioxin	0.74	1.26	0.97	1.06	0.019
1234678-heptachlorodibenzo-p-dioxin	0.49	0.83	0.64	0.70	0.012
Octachlorodibenzo-p-dioxin	0.014	0.024	0.018	0.020	0.00036
2378-tetrachlorodibenzofuran	<0.16	<0.27	<0.20	<0.22	<0.0040
12378-pentachlorodibenzofuran	0.058	0.098	0.075	0.082	0.0015
23478-pentachlorodibenzofuran	0.91	1.56	1.19	1.30	0.023
123478-hexachlorodibenzofuran	0.76	1.29	0.99	1.08	0.019
123678-hexachlorodibenzofuran	<0.38	<0.65	<0.50	<0.54	<0.0096
234678-hexachlorodibenzofuran	0.49	0.83	0.64	0.70	0.012
123789-hexachlorodibenzofuran	<0.040	<0.069	<0.053	<0.057	<0.0010
1234678-heptachlorodibenzofuran	0.16	0.27	0.21	0.23	0.0041
1234789-heptachlorodibenzofuran	0.024	0.040	0.031	0.034	0.00059
Octachlorodibenzofuran	<0.0023	<0.0039	<0.0030	<0.0033	<0.000058
Total Dioxins & Furans Only	<7.36	<12.5	<9.59	<10.5	<0.19

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: "<" indicates that the analyte was not detected and the value of the detection limit was used to calculate the emission data.

TABLE 51
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet - AMESA Monitor
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	0.69	1.18	0.90	0.99	0.017
12378-pentachlorodibenzo-p-dioxin	1.33	2.26	1.73	1.89	0.034
123478-hexachlorodibenzo-p-dioxin	0.28	0.47	0.36	0.39	0.0070
123678-hexachlorodibenzo-p-dioxin	0.82	1.40	1.07	1.17	0.021
123789-hexachlorodibenzo-p-dioxin	0.74	1.26	0.97	1.06	0.019
1234678-heptachlorodibenzo-p-dioxin	0.49	0.83	0.64	0.70	0.012
Octachlorodibenzo-p-dioxin	0.014	0.024	0.018	0.020	0.00036
2378-tetrachlorodibenzofuran	0.094	0.16	0.12	0.13	0.0024
12378-pentachlorodibenzofuran	0.058	0.098	0.075	0.082	0.0015
23478-pentachlorodibenzofuran	0.91	1.56	1.19	1.30	0.023
123478-hexachlorodibenzofuran	0.76	1.29	0.99	1.08	0.019
123678-hexachlorodibenzofuran	0.28	0.47	0.36	0.39	0.0070
234678-hexachlorodibenzofuran	0.49	0.83	0.64	0.70	0.012
123789-hexachlorodibenzofuran	0.027	0.045	0.035	0.038	0.00066
1234678-heptachlorodibenzofuran	0.16	0.27	0.21	0.23	0.0041
1234789-heptachlorodibenzofuran	0.024	0.040	0.031	0.034	0.00059
Octachlorodibenzofuran	0.0012	0.0020	0.0015	0.0016	0.000029
Total Dioxins & Furans Only	7.18	12.2	9.35	10.2	0.18

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen by volume

World Health Organization Toxicity Equivalency Factors as detailed in O. Reg. 419/05.

Note: The value of half the detection limit was used to calculate emission data for those analytes not detected.

AMESA Analytical Report
(38 pages)

Maxxam
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Your P.O. #: 21656-J2227
Your Project #: 21656
Site Location: COVANTA

Attention:Chris Belore

ORTECH Environmental
804 Southdown Road
Mississauga, ON
L5J 2Y4

Report Date: 2016/06/03
Report #: R4014596
Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B696222
Received: 2016/05/12, 12:30

Sample Matrix: Stack Sampling Train
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
2,3,7,8-TCDF Confirmation (M23)	13	N/A	2016/06/02	BRL SOP-00404	EPA M23/23A m
Dioxins/Furans in Air (Method 23)	14	2016/05/17	2016/05/28	BRL SOP-00404	EPA M23/23A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
Project Manager - Air Toxics, Source Evaluation
03 Jun 2016 15:44:14 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, Project Manager - Air Toxics, Source Evaluation
Email: CJohnson@maxxam.ca
Phone# (905)817-5769
==
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.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ898							
Sampling Date		2016/05/03				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-PRETEST-U1-160503	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<4.2	4.2	20	4.0	1.00	4.20	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	94.3	3.3	20	4.0	1.00	94.3	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	934	4.8	20	4.0	0.100	93.4	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	3290	4.9	20	4.0	0.100	329	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	3200 (1)	4.3	20	4.0	0.100	320	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	74900 (2)	40	200	6.0	0.0100	749	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	172000 (2)	24	2000	6.0	0.000300	51.6	N/A	4510009
Total Tetra CDD *	pg	76.9	4.2	20	N/A	N/A	N/A	6	4510009
Total Penta CDD *	pg	3110	3.3	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	38400	4.7	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	154000 (2)	40	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	68.3	3.1	20	4.0	0.0300	2.05	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	223	3.1	20	4.0	0.300	66.9	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	2860 (1)	2.2	20	4.0	0.100	286	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	1710	2.0	20	4.0	0.100	171	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	2750	2.2	20	4.0	0.100	275	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<160 (3)	160	20	4.0	0.100	16.0	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	21300 (2)	32	200	6.0	0.0100	213	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	4420 (2)	39	200	4.0	0.0100	44.2	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<31000 (3)	31000	200	10	0.000300	9.30	N/A	4510009
Total Tetra CDF **	pg	115	4.2	20	N/A	N/A	N/A	8	4510009
Total Penta CDF **	pg	1760	3.1	20	N/A	N/A	N/A	13	4510009
Total Hexa CDF **	pg	13800	2.2	20	N/A	N/A	N/A	12	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Merged Peak
(2) ** From 10X Dilution **
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ898							
Sampling Date		2016/05/03				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-PRETEST-U1-160503	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	38000 (1)	35	200	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<27 (2)	27	20	N/A	0.100	2.70	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	2730	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	126 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	121	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	116	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	127 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) ** From 10X Dilution **

(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference..

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

Maxxam
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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ899							
Sampling Date		2016/05/03				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-PRETEST-U2-160503	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	51.5	4.8	20	4.0	1.00	51.5	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	1060	4.6	20	4.0	1.00	1060	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	5210 (1)	17	200	4.0	0.100	521	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	15300 (1)	17	200	4.0	0.100	1530	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	15600 (2)	16	200	4.0	0.100	1560	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	142000 (1)	37	200	6.0	0.0100	1420	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	153000 (1)	40	2000	6.0	0.000300	45.9	N/A	4510009
Total Tetra CDD *	pg	1390	4.8	20	N/A	N/A	N/A	12	4510009
Total Penta CDD *	pg	24500	4.6	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	189000 (1)	17	200	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	292000 (1)	37	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	653	3.2	20	4.0	0.0300	19.6	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	<2200 (3)	2200	20	4.0	0.300	660	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	10000 (4)	19	200	4.0	0.100	1000	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	5240 (1)	18	200	4.0	0.100	524	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	11800 (1)	19	200	4.0	0.100	1180	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	811 (1)	21	200	4.0	0.100	81.1	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	36100 (1)	30	200	6.0	0.0100	361	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	8000 (1)	37	200	4.0	0.0100	80.0	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<28000 (3)	28000	200	10	0.000300	8.40	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) ** From 10X Dilution **
(2) ** From 10X Dilution **

EMPC / Merged Peak
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.
(4)
** From 10X Dilution **
EMPC / Merged Peak

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ899							
Sampling Date		2016/05/03				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-PRETEST-U2-160503	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Tetra CDF **	pg	1990	6.2	20	N/A	N/A	N/A	15	4510009
Total Penta CDF **	pg	11800	3.2	20	N/A	N/A	N/A	13	4510009
Total Hexa CDF **	pg	46700 (1)	19	200	N/A	N/A	N/A	11	4510009
Total Hepta CDF **	pg	67200 (1)	33	200	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<280 (2)	280	20	N/A	0.100	28.0	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	10100	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	124 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	114 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	114 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	115 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	126 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) ** From 10X Dilution **
(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ901							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U1-160509-T1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<5.2	5.2	20	4.0	1.00	5.20	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	186	4.9	20	4.0	1.00	186	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	1310 (1)	26	200	4.0	0.100	131	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	4210 (1)	26	200	4.0	0.100	421	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	4010 (2)	23	200	4.0	0.100	401	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	28200 (1)	19	200	6.0	0.0100	282	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	25200	4.7	200	6.0	0.000300	7.56	N/A	4510009
Total Tetra CDD *	pg	76.2	5.2	20	N/A	N/A	N/A	4	4510009
Total Penta CDD *	pg	5590	4.9	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	50100 (1)	25	200	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	56600 (1)	19	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	81.1	4.4	20	4.0	0.0300	2.43	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	432	4.4	20	4.0	0.300	130	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	2780 (3)	6.6	20	4.0	0.100	278	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	1430	6.1	20	4.0	0.100	143	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	2750	6.7	20	4.0	0.100	275	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<200 (4)	200	20	4.0	0.100	20.0	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	7630 (1)	18	200	6.0	0.0100	76.3	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	1600 (1)	22	200	4.0	0.0100	16.0	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<5900 (4)	5900	200	10	0.000300	1.77	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) ** From 10X Dilution **
(2) ** From 10X Dilution **

EMPC / Merged Peak
(3) EMPC / Merged Peak
(4) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ901							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U1-160509-T1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Tetra CDF **	pg	103	4.1	20	N/A	N/A	N/A	5	4510009
Total Penta CDF **	pg	2590	4.4	20	N/A	N/A	N/A	14	4510009
Total Hexa CDF **	pg	12200	6.6	20	N/A	N/A	N/A	12	4510009
Total Hepta CDF **	pg	14200 (1)	20	200	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<66 (2)	66	20	N/A	0.100	6.60	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	2380	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	115 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	118 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	122 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) ** From 10X Dilution **
(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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ORTECH Environmental
Client Project #: 21656
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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ903							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160509-18	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	24.0 (1)	3.9	20	4.0	1.00	24.0	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	396	5.3	20	4.0	1.00	396	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	1070	3.1	20	4.0	0.100	107	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	3090	3.1	20	4.0	0.100	309	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	2770 (2)	2.8	20	4.0	0.100	277	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	11600 (3)	22	200	6.0	0.0100	116	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	7560	3.8	200	6.0	0.000300	2.27	N/A	4510009
Total Tetra CDD *	pg	902	3.9	20	N/A	N/A	N/A	13	4510009
Total Penta CDD *	pg	22900	5.3	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	44000	3.0	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	24200 (3)	22	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	335	6.2	20	4.0	0.0300	10.1	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	<1000 (4)	1000	20	4.0	0.300	300	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	3350 (2)	5.7	20	4.0	0.100	335	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	1630	5.2	20	4.0	0.100	163	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	2210	5.7	20	4.0	0.100	221	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<130 (4)	130	20	4.0	0.100	13.0	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	4130 (3)	19	200	6.0	0.0100	41.3	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	698 (3)	24	200	4.0	0.0100	6.98	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<1900 (4)	1900	200	10	0.000300	0.570	N/A	4510009
Total Tetra CDF **	pg	1700	3.5	20	N/A	N/A	N/A	16	4510009
Total Penta CDF **	pg	9880	6.2	20	N/A	N/A	N/A	14	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) EMPC / Merged Peak
(3) ** From 10X Dilution **
(4) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ903							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160509-18	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hexa CDF **	pg	15000	5.7	20	N/A	N/A	N/A	13	4510009
Total Hepta CDF **	pg	7100 (1)	21	200	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<150 (2)	150	20	N/A	0.100	15.0	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	2340	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	120 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	116 (1)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDD *	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDF **	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234789 HeptaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	123	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-23478 PentaCDF **	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4510009
Cl37-2378 TetraCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) ** From 10X Dilution **
(2) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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

Maxxam
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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ904							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U1-160510-T2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<5.0	5.0	20	4.0	1.00	5.00	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	95.7	7.6	20	4.0	1.00	95.7	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	618	3.6	20	4.0	0.100	61.8	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	1780	3.7	20	4.0	0.100	178	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	1790 (1)	3.3	20	4.0	0.100	179	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	12000 (2)	23	200	6.0	0.0100	120	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	12000	2.8	200	6.0	0.000300	3.60	N/A	4510009
Total Tetra CDD *	pg	196	5.0	20	N/A	N/A	N/A	6	4510009
Total Penta CDD *	pg	3830	7.6	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	22200	3.5	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	23600 (2)	23	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	50.1	4.4	20	4.0	0.0300	1.50	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	255	4.4	20	4.0	0.300	76.5	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	1370 (1)	7.2	20	4.0	0.100	137	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	668	6.6	20	4.0	0.100	66.8	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	1390	7.2	20	4.0	0.100	139	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<74 (3)	74	20	4.0	0.100	7.40	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	3530	2.5	20	6.0	0.0100	35.3	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	728	3.1	20	4.0	0.0100	7.28	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<2900 (3)	2900	200	10	0.000300	0.870	N/A	4510009
Total Tetra CDF **	pg	276	3.3	20	N/A	N/A	N/A	11	4510009
Total Penta CDF **	pg	1780	4.4	20	N/A	N/A	N/A	14	4510009
Total Hexa CDF **	pg	6240	7.2	20	N/A	N/A	N/A	12	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / Merged Peak

(2) ** From 10X Dilution **

(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ904							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U1-160510-T2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	6520	2.8	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<22 (1)	22	20	N/A	0.100	2.20	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	1120	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	120 (2)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	116	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

(2) ** From 10X Dilution **

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Maxxam Job #: B696222
Report Date: 2016/06/03

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Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ907							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160510-19	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<5.8	5.8	20	4.0	1.00	5.80	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	57.4	4.4	20	4.0	1.00	57.4	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	149	4.8	20	4.0	0.100	14.9	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	433	4.9	20	4.0	0.100	43.3	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	409 (1)	4.3	20	4.0	0.100	40.9	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	2120	4.1	20	6.0	0.0100	21.2	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	1680	3.2	200	6.0	0.000300	0.504	N/A	4510009
Total Tetra CDD *	pg	128	5.8	20	N/A	N/A	N/A	6	4510009
Total Penta CDD *	pg	3300	4.4	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	6710	4.6	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	4620	4.1	20	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	52.0	2.7	20	4.0	0.0300	1.56	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	<150 (2)	150	20	4.0	0.300	45.0	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	450 (1)	2.1	20	4.0	0.100	45.0	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	220	1.9	20	4.0	0.100	22.0	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	260	2.1	20	4.0	0.100	26.0	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<15 (3)	15	20	4.0	0.100	1.50	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	649	1.3	20	6.0	0.0100	6.49	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	118	1.6	20	4.0	0.0100	1.18	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / Merged Peak

(2) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ907							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160510-19	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
1,2,3,4,6,7,8,9-Octa CDF **	pg	<370 (1)	370	200	10	0.000300	0.111	N/A	4510009
Total Tetra CDF **	pg	302	3.6	20	N/A	N/A	N/A	12	4510009
Total Penta CDF **	pg	1320	2.7	20	N/A	N/A	N/A	14	4510009
Total Hexa CDF **	pg	2050	2.1	20	N/A	N/A	N/A	13	4510009
Total Hepta CDF **	pg	1150	1.4	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<35 (2)	35	20	N/A	0.100	3.50	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	336	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234789 HeptaCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	116	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	125	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-23478 PentaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.
(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ907							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160510-19	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-2378 TetraCDD *	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4510009
Cl37-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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ORTECH Environmental
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Site Location: COVANTA
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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ908							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U1-160511-T3	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<4.1	4.1	20	4.0	1.00	4.10	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	16.0	3.0	20	4.0	1.00	16.0	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	103	2.3	20	4.0	0.100	10.3	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	293	2.4	20	4.0	0.100	29.3	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	333 (1)	2.1	20	4.0	0.100	33.3	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	2750	5.0	20	6.0	0.0100	27.5	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	3980	2.7	200	6.0	0.000300	1.19	N/A	4510009
Total Tetra CDD *	pg	28.3	4.1	20	N/A	N/A	N/A	3	4510009
Total Penta CDD *	pg	623	3.0	20	N/A	N/A	N/A	11	4510009
Total Hexa CDD *	pg	3940	2.3	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	5570	5.0	20	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	9.8	3.8	20	4.0	0.0300	0.294	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	46.1	3.8	20	4.0	0.300	13.8	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	231 (1)	4.1	20	4.0	0.100	23.1	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	123	3.8	20	4.0	0.100	12.3	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	284	4.1	20	4.0	0.100	28.4	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<13 (2)	13	20	4.0	0.100	1.30	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	729	1.4	20	6.0	0.0100	7.29	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	157	1.7	20	4.0	0.0100	1.57	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<850 (3)	850	200	10	0.000300	0.255	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Merged Peak
(2) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ908							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U1-160511-T3	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Tetra CDF **	pg	41.0	3.3	20	N/A	N/A	N/A	4	4510009
Total Penta CDF **	pg	263	3.8	20	N/A	N/A	N/A	11	4510009
Total Hexa CDF **	pg	1150	4.1	20	N/A	N/A	N/A	11	4510009
Total Hepta CDF **	pg	1320	1.6	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<7.1 (1)	7.1	20	N/A	0.100	0.710	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	211	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	113	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ909							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160511-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<2.3	2.3	20	4.0	1.00	2.30	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	25.7	2.2	20	4.0	1.00	25.7	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	58.4	2.2	20	4.0	0.100	5.84	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	180	2.3	20	4.0	0.100	18.0	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	158 (1)	2.0	20	4.0	0.100	15.8	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	445	2.1	20	6.0	0.0100	4.45	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	163	2.2	200	6.0	0.000300	0.0489	N/A	4510009
Total Tetra CDD *	pg	25.6	2.3	20	N/A	N/A	N/A	4	4510009
Total Penta CDD *	pg	1310	2.2	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	2920	2.2	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	1030	2.1	20	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	20.0	2.3	20	4.0	0.0300	0.600	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	59.3	2.3	20	4.0	0.300	17.8	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	220	2.2	20	4.0	0.100	22.0	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	118	2.1	20	4.0	0.100	11.8	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	100	2.2	20	4.0	0.100	10.0	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<7.2 (2)	7.2	20	4.0	0.100	0.720	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	232	2.1	20	6.0	0.0100	2.32	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	30.0	2.5	20	4.0	0.0100	0.300	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<44 (2)	44	200	10	0.000300	0.0132	N/A	4510009
Total Tetra CDF **	pg	65.4	2.4	20	N/A	N/A	N/A	6	4510009
Total Penta CDF **	pg	570	2.3	20	N/A	N/A	N/A	14	4510009
Total Hexa CDF **	pg	1020	2.2	20	N/A	N/A	N/A	11	4510009
Total Hepta CDF **	pg	375	2.3	20	N/A	N/A	N/A	4	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / Merged Peak

(2) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ909							
Sampling Date		2016/05/11				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 1 160511-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Confirmation 2,3,7,8-Tetra CDF **	pg	<14 (1)	14	20	N/A	0.100	1.40	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	139	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDF **	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234789 HeptaCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-23478 PentaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
Cl37-2378 TetraCDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

Maxxam
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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ910							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U2-160505-T1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	6.3	2.1	20	4.0	1.00	6.30	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	91.4	2.1	20	4.0	1.00	91.4	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	385	2.4	20	4.0	0.100	38.5	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	1110	2.5	20	4.0	0.100	111	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	1220 (1)	2.2	20	4.0	0.100	122	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	12000 (2)	21	200	6.0	0.0100	120	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	12500	2.9	200	6.0	0.000300	3.75	N/A	4510009
Total Tetra CDD *	pg	170	2.1	20	N/A	N/A	N/A	9	4510009
Total Penta CDD *	pg	2500	2.1	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	13800	2.3	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	24300 (2)	21	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	59.8	2.3	20	4.0	0.0300	1.79	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	<180 (3)	180	20	4.0	0.300	54.0	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	833 (1)	2.6	20	4.0	0.100	83.3	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	448	2.3	20	4.0	0.100	44.8	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	888	2.6	20	4.0	0.100	88.8	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<89 (3)	89	20	4.0	0.100	8.90	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	2820	2.2	20	6.0	0.0100	28.2	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	751	2.6	20	4.0	0.0100	7.51	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<2900 (3)	2900	200	10	0.000300	0.870	N/A	4510009
Total Tetra CDF **	pg	252	2.2	20	N/A	N/A	N/A	14	4510009
Total Penta CDF **	pg	1050	2.2	20	N/A	N/A	N/A	14	4510009
Total Hexa CDF **	pg	3870	2.6	20	N/A	N/A	N/A	12	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Merged Peak
(2) Results from 10xdiln
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ910							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U2-160505-T1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	5360	2.4	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<33 (1)	33	20	N/A	0.100	3.30	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	814	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	119 (2)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

(2) Results from 10xdiln

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

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ911							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 2 160505-17	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	6.9 (1)	2.2	20	4.0	1.00	6.90	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	13.7	2.1	20	4.0	1.00	13.7	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	26.9	2.2	20	4.0	0.100	2.69	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	81.8	2.2	20	4.0	0.100	8.18	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	75.6 (2)	1.9	20	4.0	0.100	7.56	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	464	2.1	20	6.0	0.0100	4.64	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	403	2.2	200	6.0	0.000300	0.121	N/A	4510009
Total Tetra CDD *	pg	149	2.2	20	N/A	N/A	N/A	9	4510009
Total Penta CDD *	pg	673	2.1	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	1450	2.1	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	1080	2.1	20	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	17.8	2.2	20	4.0	0.0300	0.534	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	30.4	2.2	20	4.0	0.300	9.12	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	77.2 (2)	2.2	20	4.0	0.100	7.72	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	39.8	2.1	20	4.0	0.100	3.98	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	45.9	2.2	20	4.0	0.100	4.59	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<3.2 (3)	3.2	20	4.0	0.100	0.320	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	162	2.0	20	6.0	0.0100	1.62	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	21.3	2.4	20	4.0	0.0100	0.213	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<68 (4)	68	200	10	0.000300	0.0204	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical

(2) EMPC / Merged Peak

(3) EEMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(4) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

Maxxam
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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ911							
Sampling Date		2016/05/05				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 2 160505-17	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Tetra CDF **	pg	262	2.3	20	N/A	N/A	N/A	13	4510009
Total Penta CDF **	pg	332	2.2	20	N/A	N/A	N/A	12	4510009
Total Hexa CDF **	pg	376	2.2	20	N/A	N/A	N/A	12	4510009
Total Hepta CDF **	pg	279	2.1	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<18 (1)	18	20	N/A	0.100	1.80	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	73.7	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDF **	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234789 HeptaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-23478 PentaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4510009
Cl37-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ912							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U2-160509-T2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	<2.2	2.2	20	4.0	1.00	2.20	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	16.1	2.2	20	4.0	1.00	16.1	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	118	2.4	20	4.0	0.100	11.8	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	335	2.4	20	4.0	0.100	33.5	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	347 (1)	2.2	20	4.0	0.100	34.7	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	2580	2.2	20	6.0	0.0100	25.8	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	3530	2.1	200	6.0	0.000300	1.06	N/A	4510009
Total Tetra CDD *	pg	<15 (2)	15	20	N/A	N/A	N/A	0	4510009
Total Penta CDD *	pg	478	2.2	20	N/A	N/A	N/A	10	4510009
Total Hexa CDD *	pg	4090	2.3	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	5260	2.2	20	N/A	N/A	N/A	2	4510009
2,3,7,8-Tetra CDF **	pg	6.8	2.2	20	4.0	0.100	0.680	N/A	4510009
1,2,3,7,8-Penta CDF **	pg	8.1	2.3	20	4.0	0.0300	0.243	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	42.0	2.3	20	4.0	0.300	12.6	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	237 (1)	2.1	20	4.0	0.100	23.7	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	119	1.9	20	4.0	0.100	11.9	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	292	2.1	20	4.0	0.100	29.2	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<16 (3)	16	20	4.0	0.100	1.60	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	649	2.0	20	6.0	0.0100	6.49	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	140	2.5	20	4.0	0.0100	1.40	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<730 (3)	730	200	10	0.000300	0.219	N/A	4510009
Total Tetra CDF **	pg	6.8	2.2	20	N/A	N/A	N/A	1	4510009
Total Penta CDF **	pg	240	2.3	20	N/A	N/A	N/A	12	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
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QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Merged Peak
(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Maxxam Job #: B696222
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Client Project #: 21656
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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ912							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U2-160509-T2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hexa CDF **	pg	1110	2.1	20	N/A	N/A	N/A	10	4510009
Total Hepta CDF **	pg	1170	2.2	20	N/A	N/A	N/A	4	4510009
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	213	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
* CDD = Chloro Dibenzo-p-Dioxin

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ913							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 2 160509-19	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	4.1 (1)	2.2	20	4.0	1.00	4.10	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	8.0 (1)	2.4	20	4.0	1.00	8.00	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	17.8	2.4	20	4.0	0.100	1.78	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	48.8	2.4	20	4.0	0.100	4.88	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	43.4 (2)	2.2	20	4.0	0.100	4.34	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	291	2.2	20	6.0	0.0100	2.91	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	293	2.3	200	6.0	0.000300	0.0879	N/A	4510009
Total Tetra CDD *	pg	90.7	2.2	20	N/A	N/A	N/A	6	4510009
Total Penta CDD *	pg	377	2.4	20	N/A	N/A	N/A	8	4510009
Total Hexa CDD *	pg	847	2.3	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	655	2.2	20	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	13.0	2.1	20	4.0	0.0300	0.390	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	18.8	2.1	20	4.0	0.300	5.64	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	44.2 (2)	2.0	20	4.0	0.100	4.42	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	<22 (3)	22	20	4.0	0.100	2.20	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	30.6	2.0	20	4.0	0.100	3.06	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	2.9	2.2	20	4.0	0.100	0.290	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	88.1	2.0	20	6.0	0.0100	0.881	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	14.5	2.4	20	4.0	0.0100	0.145	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<45 (3)	45	200	10	0.000300	0.0135	N/A	4510009
Total Tetra CDF **	pg	185	2.2	20	N/A	N/A	N/A	11	4510009
Total Penta CDF **	pg	212	2.1	20	N/A	N/A	N/A	11	4510009
Total Hexa CDF **	pg	187	2.0	20	N/A	N/A	N/A	9	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical
(2) EMPC / Merged Peak
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Report Date: 2016/06/03

ORTECH Environmental
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Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ913							
Sampling Date		2016/05/09				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 2 160509-19	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	150	2.2	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	7.2 (1)	2.0	20	N/A	0.100	0.720	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	43.9	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	130	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDD *	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234789 HeptaCDF **	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-23478 PentaCDF **	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4510009
Cl37-2378 TetraCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
** CDF = Chloro Dibenzo-p-Furan
N/A = Not Applicable
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(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ915							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U2-160510-T3	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	5.9	2.3	20	4.0	1.00	5.90	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	66.9	2.3	20	4.0	1.00	66.9	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	251	2.4	20	4.0	0.100	25.1	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	704	2.5	20	4.0	0.100	70.4	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	742 (1)	2.2	20	4.0	0.100	74.2	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	7230 (2)	24	200	6.0	0.0100	72.3	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	8770	2.1	200	6.0	0.000300	2.63	N/A	4510009
Total Tetra CDD *	pg	234	2.3	20	N/A	N/A	N/A	9	4510009
Total Penta CDD *	pg	1890	2.3	20	N/A	N/A	N/A	12	4510009
Total Hexa CDD *	pg	8860	2.4	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	14700 (2)	24	200	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	42.8	2.1	20	4.0	0.0300	1.28	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	126	2.1	20	4.0	0.300	37.8	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	536 (1)	2.2	20	4.0	0.100	53.6	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	287	2.1	20	4.0	0.100	28.7	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	588	2.3	20	4.0	0.100	58.8	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<51 (3)	51	20	4.0	0.100	5.10	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	1960	3.1	20	6.0	0.0100	19.6	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	497	3.8	20	4.0	0.0100	4.97	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<2000 (3)	2000	200	10	0.000300	0.600	N/A	4510009
Total Tetra CDF **	pg	365	2.1	20	N/A	N/A	N/A	13	4510009
Total Penta CDF **	pg	965	2.1	20	N/A	N/A	N/A	15	4510009
Total Hexa CDF **	pg	2590	2.2	20	N/A	N/A	N/A	12	4510009

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) EMPC / Merged Peak
(2) Results from 10xdiln
(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ915							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	AMESA-PR-U2-160510-T3	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	3710	3.4	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<31 (1)	31	20	N/A	0.100	3.10	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	531	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	135	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	120 (2)	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	117	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

(2) Results from 10xdiln

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EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ916							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 2 160510-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg	5.0 (1)	2.3	20	4.0	1.00	5.00	N/A	4510009
1,2,3,7,8-Penta CDD *	pg	9.0	2.2	20	4.0	1.00	9.00	N/A	4510009
1,2,3,4,7,8-Hexa CDD *	pg	19.2	2.2	20	4.0	0.100	1.92	N/A	4510009
1,2,3,6,7,8-Hexa CDD *	pg	59.3	2.2	20	4.0	0.100	5.93	N/A	4510009
1,2,3,7,8,9-Hexa CDD *	pg	52.4 (2)	2.0	20	4.0	0.100	5.24	N/A	4510009
1,2,3,4,6,7,8-Hepta CDD *	pg	373	2.0	20	6.0	0.0100	3.73	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDD *	pg	394	2.3	200	6.0	0.000300	0.118	N/A	4510009
Total Tetra CDD *	pg	135	2.3	20	N/A	N/A	N/A	8	4510009
Total Penta CDD *	pg	379	2.2	20	N/A	N/A	N/A	8	4510009
Total Hexa CDD *	pg	972	2.1	20	N/A	N/A	N/A	7	4510009
Total Hepta CDD *	pg	850	2.0	20	N/A	N/A	N/A	2	4510009
1,2,3,7,8-Penta CDF **	pg	13.6	2.4	20	4.0	0.0300	0.408	N/A	4510009
2,3,4,7,8-Penta CDF **	pg	21.1	2.4	20	4.0	0.300	6.33	N/A	4510009
1,2,3,4,7,8-Hexa CDF **	pg	53.8 (2)	2.2	20	4.0	0.100	5.38	N/A	4510009
1,2,3,6,7,8-Hexa CDF **	pg	<26 (3)	26	20	4.0	0.100	2.60	N/A	4510009
2,3,4,6,7,8-Hexa CDF **	pg	36.4	2.2	20	4.0	0.100	3.64	N/A	4510009
1,2,3,7,8,9-Hexa CDF **	pg	<3.2 (3)	3.2	20	4.0	0.100	0.320	N/A	4510009
1,2,3,4,6,7,8-Hepta CDF **	pg	122	2.0	20	6.0	0.0100	1.22	N/A	4510009
1,2,3,4,7,8,9-Hepta CDF **	pg	18.6	2.4	20	4.0	0.0100	0.186	N/A	4510009
1,2,3,4,6,7,8,9-Octa CDF **	pg	<65 (3)	65	200	10	0.000300	0.0195	N/A	4510009
Total Tetra CDF **	pg	224	2.4	20	N/A	N/A	N/A	12	4510009
Total Penta CDF **	pg	230	2.4	20	N/A	N/A	N/A	11	4510009
Total Hexa CDF **	pg	231	2.2	20	N/A	N/A	N/A	11	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / Ratio - Isotopic ratio adjusted to meet theoretical

(2) EMPC / Merged Peak

(3) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

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Site Location: COVANTA
Your P.O. #: 21656-J2227

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)

Maxxam ID		CIQ916							
Sampling Date		2016/05/10				TOXIC EQUIVALENCY		# of	
	UNITS	UNIT 2 160510-20	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Hepta CDF **	pg	213	2.1	20	N/A	N/A	N/A	4	4510009
Confirmation 2,3,7,8-Tetra CDF **	pg	<11 (1)	11	20	N/A	0.100	1.10	N/A	4523344
TOTAL TOXIC EQUIVALENCY	pg	N/A	N/A	N/A	N/A	N/A	52.1	N/A	N/A
Surrogate Recovery (%)									
Confirmation C13-2378 TetraCDF **	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4523344
C13-1234678 HeptaCDD *	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234678 HeptaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123478 HexaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-1234789 HeptaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123678 HexaCDF **	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-12378 PentaCDF **	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-123789 HexaCDF **	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-23478 PentaCDF **	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-2378 TetraCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4510009
C13-Octachlorodibenzo-p-Dioxin	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4510009
Cl37-2378 TetraCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4510009

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) EMPC / DPE - Diphenylether interference present caused the dibenzofuran isomer result (pg) to become "non-detected" as shown by "<". Due to this interference the dibenzofuran isomer result (pg) may be less than the reported detection limit. The TEQ calculation is based on the reported detection limit of each dibenzofuran isomer impacted by the diphenylether interference.

EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ898
Sample ID: AMESA-PR-PRETEST-U1-160503
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ899
Sample ID: AMESA-PR-PRETEST-U2-160503
Matrix: Stack Sampling Train

Collected: 2016/05/03
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ901
Sample ID: AMESA-PR-U1-160509-T1
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ903
Sample ID: UNIT 1 160509-18
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ904
Sample ID: AMESA-PR-U1-160510-T2
Matrix: Stack Sampling Train

Collected: 2016/05/10
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ907
Sample ID: UNIT 1 160510-19
Matrix: Stack Sampling Train

Collected: 2016/05/10
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

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Maxxam Job #: B696222
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ORTECH Environmental
Client Project #: 21656
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Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ908
Sample ID: AMESA-PR-U1-160511-T3
Matrix: Stack Sampling Train

Collected: 2016/05/11
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ909
Sample ID: UNIT 1 160511-20
Matrix: Stack Sampling Train

Collected: 2016/05/11
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ910
Sample ID: AMESA-PR-U2-160505-T1
Matrix: Stack Sampling Train

Collected: 2016/05/05
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ911
Sample ID: UNIT 2 160505-17
Matrix: Stack Sampling Train

Collected: 2016/05/05
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ912
Sample ID: AMESA-PR-U2-160509-T2
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ913
Sample ID: UNIT 2 160509-19
Matrix: Stack Sampling Train

Collected: 2016/05/09
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

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ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

TEST SUMMARY

Maxxam ID: CIQ915
Sample ID: AMESA-PR-U2-160510-T3
Matrix: Stack Sampling Train

Collected: 2016/05/10
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

Maxxam ID: CIQ916
Sample ID: UNIT 2 160510-20
Matrix: Stack Sampling Train

Collected: 2016/05/10
Shipped:
Received: 2016/05/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDF Confirmation (M23)	HRMS/MS	4523344	N/A	2016/06/02	Cathy Xu
Dioxins/Furans in Air (Method 23)	HRMS/MS	4510009	2016/05/17	2016/05/28	Owen Cosby

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ORTECH Environmental
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GENERAL COMMENTS

EPS 1/RM/19 DIOXINS AND FURANS (STACK SAMPLING TRAIN)
SPIKED BLANK Dioxins/Furans in Air (Method 23): ** Native percent recoveries were calculated with respect to the Method Spike **
Results relate only to the items tested.

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ORTECH Environmental
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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4510009	OBC	Spiked Blank	C13-1234678 HeptaCDD	2016/05/27		98	%	25 - 130
			C13-1234678 HeptaCDF	2016/05/27		98	%	25 - 130
			C13-123678 HexaCDD	2016/05/27		105	%	40 - 130
			C13-123678 HexaCDF	2016/05/27		96	%	40 - 130
			C13-12378 PentaCDD	2016/05/27		110	%	40 - 130
			C13-12378 PentaCDF	2016/05/27		101	%	40 - 130
			C13-123789 HexaCDF	2016/05/27		93	%	40 - 130
			C13-2378 TetraCDD	2016/05/27		97	%	40 - 130
			C13-2378 TetraCDF	2016/05/27		96	%	40 - 130
			C13-Octachlorodibenzo-p-Dioxin	2016/05/27		98	%	25 - 130
			2,3,7,8-Tetra CDD	2016/05/27		95	%	80 - 140
			1,2,3,7,8-Penta CDD	2016/05/27		99	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2016/05/27		113	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2016/05/27		96	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2016/05/27		113	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2016/05/27		101	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/27		102	%	80 - 140
			2,3,7,8-Tetra CDF	2016/05/27		99	%	80 - 140
			1,2,3,7,8-Penta CDF	2016/05/27		106	%	80 - 140
			2,3,4,7,8-Penta CDF	2016/05/27		107	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2016/05/27		117	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2016/05/27		107	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2016/05/27		109	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2016/05/27		112	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2016/05/27		98	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2016/05/27		99	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/27		104	%	80 - 140
4510009	OBC	Spiked Blank DUP	C13-1234678 HeptaCDD	2016/05/27		103	%	25 - 130
			C13-1234678 HeptaCDF	2016/05/27		103	%	25 - 130
			C13-123678 HexaCDD	2016/05/27		102	%	40 - 130
			C13-123678 HexaCDF	2016/05/27		98	%	40 - 130
			C13-12378 PentaCDD	2016/05/27		115	%	40 - 130
			C13-12378 PentaCDF	2016/05/27		107	%	40 - 130
			C13-123789 HexaCDF	2016/05/27		91	%	40 - 130
			C13-2378 TetraCDD	2016/05/27		100	%	40 - 130
			C13-2378 TetraCDF	2016/05/27		104	%	40 - 130
			C13-Octachlorodibenzo-p-Dioxin	2016/05/27		101	%	25 - 130
			2,3,7,8-Tetra CDD	2016/05/27		98	%	80 - 140
			1,2,3,7,8-Penta CDD	2016/05/27		98	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2016/05/27		116	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2016/05/27		102	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2016/05/27		115	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2016/05/27		102	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/27		101	%	80 - 140
			2,3,7,8-Tetra CDF	2016/05/27		101	%	80 - 140
			1,2,3,7,8-Penta CDF	2016/05/27		102	%	80 - 140
			2,3,4,7,8-Penta CDF	2016/05/27		105	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2016/05/27		117	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2016/05/27		107	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2016/05/27		117	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2016/05/27		112	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2016/05/27		96	%	80 - 140

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ORTECH Environmental
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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,4,7,8,9-Hepta CDF	2016/05/27		98	%	80 - 140
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/27		103	%	80 - 140
4510009	OBC	RPD	2,3,7,8-Tetra CDD	2016/05/27	NC		%	20
			1,2,3,7,8-Penta CDD	2016/05/27	NC		%	20
			1,2,3,4,7,8-Hexa CDD	2016/05/27	2.6		%	20
			1,2,3,6,7,8-Hexa CDD	2016/05/27	NC		%	20
			1,2,3,7,8,9-Hexa CDD	2016/05/27	1.8		%	20
			1,2,3,4,6,7,8-Hepta CDD	2016/05/27	0.99		%	20
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/27	NC		%	20
			2,3,7,8-Tetra CDF	2016/05/27	NC		%	20
			1,2,3,7,8-Penta CDF	2016/05/27	3.8		%	20
			2,3,4,7,8-Penta CDF	2016/05/27	1.9		%	20
			1,2,3,4,7,8-Hexa CDF	2016/05/27	0		%	20
			1,2,3,6,7,8-Hexa CDF	2016/05/27	0		%	20
			2,3,4,6,7,8-Hexa CDF	2016/05/27	7.1		%	20
			1,2,3,7,8,9-Hexa CDF	2016/05/27	0		%	20
			1,2,3,4,6,7,8-Hepta CDF	2016/05/27	NC		%	20
			1,2,3,4,7,8,9-Hepta CDF	2016/05/27	NC		%	20
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/27	NC		%	20
4510009	OBC	Method Blank	C13-1234678 HeptaCDD	2016/05/28		100	%	25 - 130
			C13-1234678 HeptaCDF	2016/05/28		101	%	25 - 130
			C13-123678 HexaCDD	2016/05/28		98	%	40 - 130
			C13-123678 HexaCDF	2016/05/28		95	%	40 - 130
			C13-12378 PentaCDD	2016/05/28		109	%	40 - 130
			C13-12378 PentaCDF	2016/05/28		106	%	40 - 130
			C13-123789 HexaCDF	2016/05/28		94	%	40 - 130
			C13-2378 TetraCDD	2016/05/28		94	%	40 - 130
			C13-2378 TetraCDF	2016/05/28		95	%	40 - 130
			C13-Octachlorodibenzo-p-Dioxin	2016/05/28		98	%	25 - 130
			2,3,7,8-Tetra CDD	2016/05/28	<3.7, EDL=3.7		pg	
			1,2,3,7,8-Penta CDD	2016/05/28	<2.0, EDL=2.0		pg	
			1,2,3,4,7,8-Hexa CDD	2016/05/28	<2.5, EDL=2.5		pg	
			1,2,3,6,7,8-Hexa CDD	2016/05/28	<2.5, EDL=2.5		pg	
			1,2,3,7,8,9-Hexa CDD	2016/05/28	<2.2, EDL=2.2		pg	
			1,2,3,4,6,7,8-Hepta CDD	2016/05/28	3.0, EDL=1.7		pg	
			1,2,3,4,6,7,8,9-Octa CDD	2016/05/28	5.5, EDL=2.0		pg	
			Total Tetra CDD	2016/05/28	<23, EDL=23 (1)		pg	
			Total Penta CDD	2016/05/28	<15, EDL=15 (1)		pg	
			Total Hexa CDD	2016/05/28	<30, EDL=30 (1)		pg	
			Total Hepta CDD	2016/05/28	5.5, EDL=1.7		pg	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3,7,8-Tetra CDF	2016/05/28	<2.1, EDL=2.1		pg	
			1,2,3,7,8-Penta CDF	2016/05/28	<2.8, EDL=2.8		pg	
			2,3,4,7,8-Penta CDF	2016/05/28	<2.7, EDL=2.7		pg	
			1,2,3,4,7,8-Hexa CDF	2016/05/28	<2.0, EDL=2.0		pg	
			1,2,3,6,7,8-Hexa CDF	2016/05/28	<1.8, EDL=1.8		pg	
			2,3,4,6,7,8-Hexa CDF	2016/05/28	<2.0, EDL=2.0		pg	
			1,2,3,7,8,9-Hexa CDF	2016/05/28	<2.1, EDL=2.1		pg	
			1,2,3,4,6,7,8-Hepta CDF	2016/05/28	<1.7, EDL=1.7		pg	
			1,2,3,4,7,8,9-Hepta CDF	2016/05/28	<2.0, EDL=2.0		pg	
			1,2,3,4,6,7,8,9-Octa CDF	2016/05/28	<2.1, EDL=2.1		pg	
			Total Tetra CDF	2016/05/28	<5.0, EDL=5.0 (1)		pg	
			Total Penta CDF	2016/05/28	<2.7, EDL=2.7		pg	
			Total Hexa CDF	2016/05/28	<2.0, EDL=2.0		pg	
			Total Hepta CDF	2016/05/28	<1.8, EDL=1.8		pg	
4523344	CXU	Method Blank	Confirmation 2,3,7,8-Tetra CDF	2016/06/02	<2.6, EDL=2.6		pg	
			Confirmation C13-2378 TetraCDF	2016/06/02		83	%	40 - 135

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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 #: B696222
Report Date: 2016/06/03

ORTECH Environmental
Client Project #: 21656
Site Location: COVANTA
Your P.O. #: 21656-J2227

VALIDATION SIGNATURE PAGE

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

Kay Shaw

Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

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.

AMESA Run Summary Data
(6 pages)

COVANTA CANADA - STACK UNIT 1
Amesa_860142-P86.020.3-11.05.2016-15:00

Cartridge box no..: 1
Cartridge box name: COVANTA - STACK 1

Measurement no. 18

Startrecord:	S	[.HUMID]	[CO2MAX]	[TRGUGR]	[.O2OGR]	[.O2UGR]	[.VHUGR]	[Start]	[..End]	[....DW]	[.......Substi	[...AW]	[lcpres]	[.leakr]
	S	[..g/m3]	[.....%]	[.Grd.C]	[.....%]	[.....%]	[...m/s]	[.....]	[.....]	[....mm]	[................	[.....]	[...hPa]	[...SLM]
09-05-16/10:04	S	117	5	10	25	0	1	.manual	.manual	5	....	_	134.2	0

Endrecord:	E	[MDurat]	[TGVNMD]	[TGVNGU]	[CONVOL]	[BDFAKT]	[MH2ORG]	[..MO2]	[.MCO2]	[Paramacct	[.End.]	[NEV]	[.......Substi	[...AW]	[.NGUP]	[ISORAT]	[MPSTAT]	[..MTRG]	[...MVH]	[lcpres]	[.leakr]
	E	[.hh:mm]	[....m3]	[....m3]	[.....l]	[......]	[..g/m3]	[....%]	[....%]	[...........]	[.....]	[...]	[................	[.....]	[.....]	[......]	[...hPa]	[.Grd.C]	[...m/s]	[...hPa]	[...SLM]
09-05-16/16:17	E	6:09	3.71	3.64	0.39	0.784	114.767	6.9	11.8	09-05-16/C	.manual	2	....	_	463	99.96	981.6	143.6	15.32	136.1	0

Runtimerecord:	L	[...vHm]	[TGVNMD]	[TGVNGU]	[...O2M]	[..CO2M]	[CONVOL]	[....FM]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]
	L	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[................	[.....]	[.......]
09-05-16/10:34	L	15.3	0.297	0.291	6.7	12	0.0328	119.2	0.789	876.3	25	145	146	27.2	30	1600	1600	99.55	....	_	_
09-05-16/11:04	L	15.5	0.598	0.587	6.5	12.1	0.0665	120.3	0.785	866.5	25	145	146	27.1	30	1600	1600	99.99	....	_	_
09-05-16/11:34	L	15.3	0.898	0.881	6.5	12.1	0.0965	109.4	0.784	856.8	25	146	146	27.1	30	1600	1600	99.98	....	Mainten	_
09-05-16/12:04	L	15.4	1.206	1.184	7.5	11.8	0.1242	95.7	0.783	870.8	25	146	146	27.1	30	1600	1600	100.03	....	_	_
09-05-16/12:34	L	16	1.517	1.488	6.7	11.8	0.1581	117.7	0.781	861.9	25	146	147	26.9	30	1600	1600	99.98	....	_	_
09-05-16/13:04	L	15.9	1.83	1.795	7.4	11.3	0.1906	111.9	0.781	870.1	25	143	147	26.8	30	1600	1600	100.03	....	_	_
09-05-16/13:34	L	15.8	2.142	2.101	7.5	11.4	0.2235	113.7	0.78	883.9	25	142	143	26.5	30	1600	1600	100.03	....	_	_
09-05-16/14:04	L	14.7	2.429	2.384	6.2	12.4	0.2568	123.5	0.782	881.5	25	141	143	26.3	29	1600	1600	100	....	_	_
09-05-16/14:34	L	14.6	2.717	2.666	6.2	12.1	0.2892	120.8	0.783	885.3	25	140	141	26.2	29	1600	1600	100.01	....	_	_
09-05-16/15:04	L	14.6	3.007	2.951	7.3	11.7	0.3204	116.2	0.784	882.3	25	140	141	26.2	29	1600	1600	100	....	_	_
09-05-16/15:34	L	15.1	3.304	3.242	6.8	11.8	0.3529	117.4	0.784	871.1	25	141	143	26.2	29	1600	1600	99.98	....	_	_
09-05-16/16:04	L	15.5	3.611	3.543	7.3	11.2	0.3845	111.8	0.784	869.5	25	142	143	26	29	1600	1600	100	....	_	_

Eventrecord:	X	[....vH]	[TGVNMD]	[TGVNGU]	[....O2]	[...CO2]	[CONVOL]	[.....F]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]	[....Reason]
	X	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[................	[.....]	[.......]	[..........]
09-05-16/16:13	X	16	3.71	3.64	7.1	11.2	0.3948	111	0.784	867	25	142	143	25.9	29	1600	1600	99.98	....	_	_	Manual command
09-05-16/16:14	X	15.9	3.71	3.64	7.1	11.2	0.3948	111	0.784	1017.3	25	142	143	25.9	29	1600	1600	99.98	....	_	_	14: unknown

FA events during measurement: 0

Total FA time .....: 0:00 h:min
Total Fire on time : 6:13 h:min

COVANTA CANADA - STACK UNIT 1
Amesa_860142-P86.020.3-11.05.2016-15:01

Cartridge box no..: 1
Cartridge box name: COVANTA - STACK 1

Measurement no. 19

Startrecord:	S	[.HUMID]	[CO2MAX]	[TRGUGR]	[.O2OGR]	[.O2UGR]	[.VHUGR]	[Start]	[..End]	[....DW]	[.......Substi	[...AW]	[lcpres]	[.leakr]
	S	[..g/m3]	[.....%]	[.Grd.C]	[.....%]	[.....%]	[...m/s]	[.....]	[.....]	[....mm]	[.................	[.....]	[...hPa]	[...SLM]
10-05-16/08:49	S	122	5	10	25	0	1	.manual	.manual	5	....	-	136.5	0

Endrecord:	E	[MDurat]	[TGVNMD]	[TGVNGU]	[CONVOL]	[BDFAKT]	[MH2ORG]	[..MO2]	[.MCO2]	[Paramacct	[.End.]	[NEV]	[.......Substi	[...AW]	[.NGUP]	[ISORAT]	[MPSTAT]	[..MTRG]	[...MVH]	[lcpres]	[.leakr]
	E	[.hh:mm]	[....m3]	[....m3]	[.....l]	[......]	[..g/m3]	[....%]	[....%]	[............]	[.....]	[...]	[.................	[.....]	[.....]	[......]	[...hPa]	[.Grd.C]	[...m/s]	[...hPa]	[...SLM]
10-05-16/15:08	E	6:16	3.798	3.836	0.42	0.814	115.322	7.1	11.8	10-05-16/C	.manual	2	....	-	471	99.96	987.4	143.8	15.35	136	0

Runtimerecord:	L	[...vHm]	[TGVNMD]	[TGVNGU]	[...O2M]	[..CO2M]	[CONVOL]	[....FM]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]
	L	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]
10-05-16/09:19	L	15.4	0.301	0.303	7	11.9	0.034	118.8	0.822	923.6	25	144	146	28.4	31	1600	1600	99.61	....	-	-
10-05-16/09:49	L	15	0.596	0.602	7.1	11.8	0.0669	117.2	0.825	923	25	142	144	26.3	31	1600	1600	100	....	-	-
10-05-16/10:19	L	14.9	0.891	0.9	6.9	12	0.1005	119.1	0.827	924.1	25	141	142	25.9	31	1600	1600	100	....	-	-
10-05-16/10:49	L	15.2	1.19	1.202	6.5	12.3	0.1355	122.1	0.825	903.4	25	142	144	25.8	31	1600	1600	99.99	....	-	-
10-05-16/11:19	L	15.3	1.492	1.507	6.9	11.8	0.1693	117.5	0.822	905	25	143	145	25.7	31	1600	1600	100	....	-	-
10-05-16/11:49	L	15.1	1.8	1.819	8.6	11.8	0.1945	85.5	0.82	906	25	143	144	25.4	31	1600	1600	100.01	....	-	-
10-05-16/12:19	L	15	2.095	2.117	7.1	11.8	0.2275	117.2	0.819	905.9	25	143	144	25.5	31	1600	1600	100.01	....	-	-
10-05-16/12:49	L	15.1	2.394	2.418	6.8	11.8	0.261	118.1	0.818	905.9	25	143	144	25.6	31	1600	1600	100	....	-	-
10-05-16/13:19	L	15.2	2.693	2.721	6.7	12	0.2952	119.6	0.817	902.9	25	143	145	25.6	31	1600	1600	99.99	....	-	-
10-05-16/13:49	L	16.3	3.014	3.045	7.3	11.4	0.3299	113.2	0.816	892.4	25	144	144	25.6	31	1600	1600	99.98	....	-	-
10-05-16/14:19	L	16.3	3.333	3.367	6.8	11.7	0.3654	116.9	0.815	900.1	25	144	147	25.6	31	1600	1600	100.02	....	-	-
10-05-16/14:49	L	15.4	3.634	3.671	6.6	12	0.3997	119.1	0.814	900.2	25	144	146	25.7	31	1600	1600	100	....	-	-

Eventrecord:	X	[....vH]	[TGVNMD]	[TGVNGU]	[....O2]	[...CO2]	[CONVOL]	[.....F]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]	[....Reason]
	X	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]	[..........]
10-05-16/15:05	X	15.5	3.798	3.836	8.1	11	0.4173	110	0.814	902.2	25	143	144	25.7	31	1600	1600	100	....	-	-	Manual command
10-05-16/15:05	X	15.6	3.798	3.836	8.1	10.8	0.4173	110	0.814	1025.3	25	143	144	25.7	31	1600	1600	100	....	-	-	14: unknown

FA events during measurement: 0

Total FA time .....: 0:00 h:min
Total Fire on time : 6:19 h:min

COVANTA CANADA - STACK UNIT 1
Amesa_860142-P86.020.3-11.05.2016-15:02

Cartridge box no..: 1
Cartridge box name: COVANTA - STACK 1

Measurement no. 20

Startrecord:	S	[.HUMID]	[CO2MAX]	[TRGUGR]	[.O2OGR]	[.O2UGR]	[.VHUGR]	[Start]	[..End]	[....DW]	[.......Substi	[...AW]	[lcpres]	[.leakr]
	S	[..g/m3]	[.....%]	[.Grd.C]	[.....%]	[.....%]	[...m/s]	[.....]	[.....]	[....mm]	[.................	[.....]	[...hPa]	[...SLM]
11-05-16/08:24	S	117	5	10	25	0	1	.manual	.manual	5	....	_	136.2	0

Endrecord:	E	[MDurat]	[TGVNMD]	[TGVNGU]	[CONVOL]	[BDFAKT]	[MH2ORG]	[..MO2]	[.MCO2]	[Paramacct	[.End.]	[NEV]	[.......Substi	[...AW]	[.NGUP]	[ISORAT]	[MPSTAT]	[..MTRG]	[...MVH]	[lcpres]	[.leakr]
	E	[.hh:mm]	[....m3]	[....m3]	[.....l]	[......]	[..g/m3]	[....%]	[....%]	[...........]	[.....]	[...]	[.................	[.....]	[.....]	[......]	[...hPa]	[.Grd.C]	[...m/s]	[...hPa]	[...SLM]
11-05-16/14:31	E	6:04	3.855	3.932	0.43	0.827	115.956	6.9	11.9	11-05-16/C	.manual	2	....	_	474	99.96	986.5	143	16.09	135.5	0

Runtimerecord:	L	[...vHm]	[TGVNMD]	[TGVNGU]	[...O2M]	[..CO2M]	[CONVOL]	[....FM]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]
	L	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]
11-05-16/08:54	L	16	0.314	0.319	6.7	12	0.0361	119.8	0.827	921.6	25	140	143	31	34	1600	1600	99.59	....	_	_
11-05-16/09:24	L	16.2	0.633	0.644	6.9	11.7	0.0718	116.9	0.827	923.9	25	143	143	30.2	34	1600	1600	100.01	....	_	_
11-05-16/09:54	L	16.1	0.95	0.968	6.8	11.9	0.1079	118.5	0.827	922.7	25	143	144	30.3	34	1600	1600	100	....	_	_
11-05-16/10:24	L	16.3	1.269	1.293	6.9	11.8	0.1443	118.2	0.827	918.6	25	143	145	30.2	34	1600	1600	100	....	_	_
11-05-16/10:54	L	15.9	1.583	1.613	6.7	12	0.1804	119.4	0.827	928.8	25	142	144	30.2	34	1600	1600	100.02	....	_	_
11-05-16/11:24	L	15.9	1.897	1.934	6.6	12	0.2167	119.8	0.828	924.9	25	141	142	30.2	34	1600	1600	99.99	....	_	_
11-05-16/11:54	L	15.8	2.224	2.267	8.3	11.2	0.2421	82.2	0.827	924.6	25	141	142	30	34	1600	1600	100	....	_	_
11-05-16/12:24	L	16	2.538	2.587	6.7	12	0.2784	119.9	0.828	923.7	25	142	144	29.8	34	1600	1600	100	....	_	_
11-05-16/12:54	L	15.9	2.851	2.907	6.9	11.8	0.3139	117.8	0.828	922.1	25	143	145	29.8	33	1600	1600	100	....	_	_
11-05-16/13:24	L	16.2	3.168	3.231	6.5	12.1	0.3509	120.6	0.828	922.9	25	143	143	29.8	33	1600	1600	100	....	_	_
11-05-16/13:54	L	16.4	3.488	3.557	6.4	12.2	0.3883	122	0.828	911.8	25	143	145	29.8	34	1600	1600	99.98	....	_	_
11-05-16/14:24	L	16.5	3.813	3.889	6.9	11.7	0.4251	117	0.827	925.3	25	142	144	29.9	34	1600	1600	100.03	....	_	_

Eventrecord:	X	[....vH]	[TGVNMD]	[TGVNGU]	[....O2]	[...CO2]	[CONVOL]	[.....F]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]	[....Reason]
	X	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]	[..........]
11-05-16/14:28	X	15.7	3.855	3.932	6.8	11.8	0.4297	119	0.827	926.8	25	142	142	30	34	1600	1600	100.02	....	_	_	Manual command
11-05-16/14:28	X	15.8	3.855	3.932	6.8	11.7	0.4297	118	0.827	1027.2	25	142	142	30	34	1600	1600	100.02	....	_	_	14: unknown

FA events during measurement: 0

Total FA time .....: 0:00 h:min
Total Fire on time : 6:07 h:min

COVANTA CANADA - STACK UNIT 2
Amesa_860154-P86.020.3-11.05.2016-15:02

Cartridge box no..: 1
Cartridge box name: COVANTA - STACK 2

Measurement no. 18

Startrecord:	S	[.HUMID]	[CO2MAX]	[TRGUGR]	[.O2OGR]	[.O2UGR]	[.VHUGR]	[Start]	[..End]	[....DW]	[.......Substi	[...AW]	[lcpres]	[.leakr]
	S	[..g/m3]	[.....%]	[.Grd.C]	[.....%]	[.....%]	[...m/s]	[.....]	[.....]	[....mm]	[.................	[.....]	[...hPa]	[...SLM]
06-05-16/08:48	S	117	5	10	25	0	1	.manual	.manual	5	....	_	145	0

Endrecord:	E	[MDurat]	[TGVNMD]	[TGVNGU]	[CONVOL]	[BDFAKT]	[MH2ORG]	[..MO2]	[.MCO2]	[Paramacct	[.End.]	[NEV]	[.......Substi	[...AW]	[.NGUP]	[ISORAT]	[MPSTAT]	[..MTRG]	[...MVH]	[lcpres]	[.leakr]
	E	[.hh:mm]	[....m3]	[....m3]	[.....l]	[......]	[..g/m3]	[....%]	[....%]	[...........]	[.....]	[...]	[.................	[.....]	[.....]	[......]	[...hPa]	[.Grd.C]	[...m/s]	[...hPa]	[...SLM]
06-05-16/15:00	E	6:09	4.168	3.987	0.43	0.753	112.87	6.6	11.6	06-05-16/C	.manual	2	....	_	528	99.96	974.5	142.3	17.29	145.1	0

Runtimerecord:	L	[...vHm]	[TGVNMD]	[TGVNGU]	[...O2M]	[..CO2M]	[CONVOL]	[....FM]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]
	L	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]
06-05-16/09:18	L	17.4	0.337	0.323	6.6	11.7	0.0357	116.7	0.761	841.4	25	142	143	30.8	35	1600	1600	99.51	....	_	_
06-05-16/09:48	L	17.8	0.683	0.654	6.3	11.8	0.0725	117.6	0.755	835.8	25	143	144	30.3	35	1600	1600	99.99	....	_	_
06-05-16/10:18	L	17.5	1.025	0.981	7	11.1	0.1068	110.9	0.754	843.4	26	143	144	30.7	36	1600	1600	100.01	....	_	_
06-05-16/10:48	L	17.1	1.359	1.3	6.8	11.6	0.1417	115.3	0.755	842.7	25	142	143	31	37	1600	1600	100	....	_	_
06-05-16/11:18	L	17.7	1.701	1.628	5.9	12.2	0.1797	121.8	0.754	841.2	25	142	143	31	37	1600	1600	100	....	_	_
06-05-16/11:48	L	17.1	2.05	1.961	6.7	11.3	0.2052	80.6	0.753	839.6	26	141	143	31	37	1600	1600	99.99	....	_	_
06-05-16/12:18	L	17.5	2.392	2.288	6.6	11.6	0.2409	115	0.753	845	26	142	142	31.1	37	1600	1600	100.02	....	_	_
06-05-16/12:48	L	16.6	2.72	2.602	6.6	11.4	0.2746	113.8	0.754	851.6	26	139	142	31.5	37	1600	1600	100.02	....	_	_
06-05-16/13:18	L	16.9	3.051	2.919	6.4	11.9	0.3104	118.8	0.754	841.9	26	139	141	31.5	37	1600	1600	99.98	....	_	_
06-05-16/13:48	L	17.7	3.396	3.248	6.4	11.9	0.3475	118.8	0.753	823	26	141	142	31.2	37	1600	1600	99.97	....	_	_
06-05-16/14:18	L	17.5	3.738	3.576	7.1	11.2	0.382	111.3	0.753	843.5	26	142	144	30.9	36	1600	1600	100.04	....	_	_
06-05-16/14:48	L	16.9	4.068	3.891	7	11.2	0.4154	112	0.753	842.8	26	144	145	31	36	1600	1600	100	....	_	_

Eventrecord:	X	[....vH]	[TGVNMD]	[TGVNGU]	[....O2]	[...CO2]	[CONVOL]	[.....F]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]	[....Reason]
	X	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]	[..........]
06-05-16/14:57	X	16.7	4.168	3.987	7.5	10.8	0.4258	108	0.753	847.3	26	145	145	31	36	1600	1600	100.02	....	_	_	Manual command
06-05-16/14:57	X	17	4.168	3.987	7.5	11	0.4258	109	0.753	998.1	26	145	145	31	36	1600	1600	100.02	....	_	_	14: unknown

FA events during measurement: 0

Total FA time .....: 0:00 h:min
Total Fire on time : 6:12 h:min

COVANTA CANADA - STACK UNIT 2
Amesa_860154-P86.020.3-11.05.2016-15:03

Cartridge box no..: 1
Cartridge box name: COVANTA - STACK 2

Measurement no. 19

Startrecord:	S	[.HUMID]	[CO2MAX]	[TRGUGR]	[.O2OGR]	[.O2UGR]	[.VHUGR]	[Start]	[..End]	[....DW]	[.......Substi	[...AW]	[lcpres]	[.leakr]
	S	[..g/m3]	[.....%]	[.Grd.C]	[.....%]	[.....%]	[...m/s]	[.....]	[.....]	[....mm]	[..................	[.....]	[...hPa]	[...SLM]
09-05-16/10:04	S	121	5	10	25	0	1	.manual	.manual	S	....	_	146.6	0

Endrecord:	E	[MDurat]	[TGVNMD]	[TGVNGU]	[CONVOL]	[BDFAKT]	[MH2ORG]	[..MO2]	[.MCO2]	[Paramacct	[.End.]	[NEV]	[.......Substi	[...AW]	[.NGUP]	[ISORAT]	[MPSTAT]	[..MTRG]	[...MVH]	[lcpres]	[.leakr]
	E	[.hh:mm]	[....m3]	[....m3]	[.....l]	[......]	[..g/m3]	[....%]	[....%]	[............]	[.....]	[...]	[..................	[.....]	[.....]	[......]	[...hPa]	[.Grd.C]	[...m/s]	[...hPa]	[...SLM]
09-05-16/16:21	E	6:14	4.068	3.883	0.41	0.773	112.484	6.4	11.6	09-05-16/C	.manual	2	....	_	501	99.96	984.8	140	16.39	146.7	0

Runtimerecord:	L	[...vHm]	[TGVNMD]	[TGVNGU]	[...O2M]	[..CO2M]	[CONVOL]	[....FM]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]
	L	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[..................	[.....]	[.......]
09-05-16/10:34	L	16	0.316	0.302	5.8	12.1	0.0344	120.5	0.781	862.5	26	139	139	28.3	32	1600	1600	99.54	....	_	_
09-05-16/11:04	L	16.1	0.637	0.608	6.4	11.5	0.0675	114.5	0.778	862.3	25	139	140	28	32	1600	1600	100.01	....	_	_
09-05-16/11:34	L	15.9	0.958	0.914	6.4	11.5	0.0959	101.8	0.777	843.1	25	139	140	28.2	32	1600	1600	99.96	....	Mainten	_
09-05-16/12:04	L	16.3	1.289	1.23	6.1	11.9	0.1261	99.4	0.775	865.4	25	140	140	28.1	32	1600	1600	100.05	....	_	_
09-05-16/12:34	L	16.2	1.609	1.535	6.3	11.7	0.1598	116.8	0.775	867.1	25	140	140	28	32	1600	1600	100.01	....	_	_
09-05-16/13:04	L	16.1	1.929	1.841	6.4	11.6	0.1932	115.5	0.776	864.9	25	140	140	28	32	1600	1600	100	....	_	_
09-05-16/13:34	L	16.4	2.255	2.151	6.1	11.9	0.2278	118	0.775	859.8	25	140	140	27.9	32	1600	1600	99.99	....	_	_
09-05-16/14:04	L	16.6	2.586	2.468	6.8	11.3	0.2615	112.9	0.775	857	25	140	141	27.7	32	1600	1600	100	....	_	_
09-05-16/14:34	L	16.8	2.919	2.785	6.7	11.3	0.2952	112.5	0.774	857.5	25	141	141	27.3	32	1600	1600	100	....	_	_
09-05-16/15:04	L	16.6	3.25	3.101	6.8	11.2	0.3286	112	0.774	854.6	26	140	141	27.3	32	1600	1600	99.99	....	_	_
09-05-16/15:34	L	16.8	3.583	3.421	6.5	11.3	0.3626	112.7	0.773	859.5	25	140	141	27.2	32	1600	1600	100.02	....	_	_
09-05-16/16:04	L	16.6	3.913	3.736	6.6	11.5	0.3968	114.7	0.773	856.9	25	140	141	27.3	32	1600	1600	100	....	_	_

Eventrecord:	X	[....vH]	[TGVNMD]	[TGVNGU]	[....O2]	[...CO2]	[CONVOL]	[.....F]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TC5]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]	[....Reason]
	X	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[..................	[.....]	[.......]	[..........]
09-05-16/16:18	X	16.8	4.068	3.883	6.9	11.4	0.4126	111	0.773	856.8	25	140	140	27.4	32	1600	1600	99.99	....	_	_	Manual command
09-05-16/16:18	X	16.5	4.068	3.883	6.5	11.5	0.4126	114	0.773	1004.5	25	140	140	27.4	32	1600	1600	99.99	....	_	_	14: unknown

FA events during measurement: 0

Total FA time .....: 0:00 h:min
Total Fire on time : 6:17 h:min

COVANTA CANADA - STACK UNIT 2
Amesa_860154-P86.020.3-11.05.2016-15:03

Cartridge box no..: 1
Cartridge box name: COVANTA - STACK 2

Measurement no. 20

Startrecord:	S	[.HUMID]	[CO2MAX]	[TRGUGR]	[.O2OGR]	[.O2UGR]	[.VHUGR]	[Start]	[..End]	[....DW]	[.......Substi	[...AW]	[lcpres]	[.leakr]
	S	[..g/m3]	[.....%]	[.Grd.C]	[.....%]	[.....%]	[...m/s]	[.....]	[.....]	[....mm]	[.................	[.....]	[...hPa]	[...SLM]
10-05-16/08:54	S	112	5	10	25	0	1	.manual	.manual	5	....	_	148.1	0

Endrecord:	E	[MDurat]	[TGVNMD]	[TGVNGU]	[CONVOL]	[BDFAKT]	[MH2ORG]	[..MO2]	[.MCO2]	[Paramacct	[.End.]	[NEV]	[.......Substi	[...AW]	[.NGUP]	[ISORAT]	[MPSTAT]	[..MTRG]	[...MVH]	[lcpres]	[.leakr]
	E	[.hh:mm]	[....m3]	[....m3]	[.....l]	[......]	[..g/m3]	[....%]	[....%]	[............]	[.....]	[...]	[.................	[.....]	[.....]	[......]	[...hPa]	[.Grd.C]	[...m/s]	[...hPa]	[...SLM]
10-05-16/15:12	E	6:15	4.169	3.982	0.42	0.783	111.629	6.7	11.4	10-05-16/C	.manual	2	....	_	508	99.96	990.1	140.3	16.65	147.1	0

Runtimerecord:	L	[...vHm]	[TGVNMD]	[TGVNGU]	[...O2M]	[..CO2M]	[CONVOL]	[....FM]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]
	L	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]
10-05-16/09:24	L	16.5	0.329	0.315	6.8	11.4	0.0338	113.7	0.793	882	25	140	140	29.4	33	1600	1600	99.51	....	_	_
10-05-16/09:54	L	16.4	0.656	0.627	6.3	11.8	0.0688	117.8	0.79	877.1	25	139	140	29.1	33	1600	1600	100	....	_	_
10-05-16/10:24	L	16.2	0.981	0.937	6.5	11.6	0.1025	115.3	0.79	877.1	25	139	140	29.4	34	1600	1600	100	....	_	_
10-05-16/10:54	L	16.5	1.31	1.251	6.5	11.7	0.1373	116.9	0.789	874	25	139	140	29.4	34	1600	1600	100	....	_	_
10-05-16/11:24	L	16.7	1.642	1.568	6.4	11.8	0.1726	117.8	0.788	874.6	25	140	141	29.2	34	1600	1600	100	....	_	_
10-05-16/11:54	L	16.4	1.983	1.894	6.8	11.2	0.1982	81.9	0.786	878.3	25	140	141	29.3	34	1600	1600	100	....	_	_
10-05-16/12:24	L	16.4	2.312	2.207	6.6	11.4	0.2319	113.5	0.786	879.5	25	140	140	29.5	34	1600	1600	100.01	....	_	_
10-05-16/12:54	L	16.6	2.645	2.525	6.5	11.4	0.2659	113.1	0.786	876.6	25	140	141	29.5	34	1600	1600	100	....	_	_
10-05-16/13:24	L	16.4	2.974	2.84	7.1	11.2	0.2992	112	0.786	870.1	25	140	140	29.7	34	1600	1600	99.99	....	_	_
10-05-16/13:54	L	17	3.315	3.166	7.2	11	0.3328	109.4	0.785	867.8	25	140	141	29.6	34	1600	1600	100	....	_	_
10-05-16/14:24	L	17.1	3.656	3.492	6.4	11.5	0.3683	115	0.784	866.6	25	141	142	29.6	34	1600	1600	100	....	_	_
10-05-16/14:54	L	17.2	3.999	3.82	7.1	11.2	0.4028	111.8	0.784	866	25	141	142	29.7	35	1600	1600	100	....	_	_

Eventrecord:	X	[....vH]	[TGVNMD]	[TGVNGU]	[....O2]	[...CO2]	[CONVOL]	[.....F]	[BDFAKT]	[...PGU]	[...TGU]	[TRGMIN]	[TRGMAX]	[TKTMAX]	[...TC1]	[...TCS]	[...TCF]	[ISORAT]	[.......Substi	[...AW]	[.....FA]	[....Reason]
	X	[...m/s]	[....m3]	[....m3]	[.....%]	[.....%]	[.....l]	[..g/m3]	[......]	[...hPa]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[.Grd.C]	[......]	[.................	[.....]	[.......]	[..........]
10-05-16/15:09	X	17	4.169	3.982	7.4	10.9	0.4194	107	0.783	870.3	25	142	142	29.8	35	1600	1600	100.01	....	_	_	Manual command
10-05-16/15:09	X	17.2	4.169	3.982	7.4	11	0.4194	110	0.783	1017.8	25	142	142	29.8	35	1600	1600	100.01	....	_	_	14: unknown

FA events during measurement: 0

Total FA time .....: 0:00 h:min
Total Fire on time : 6:18 h:min