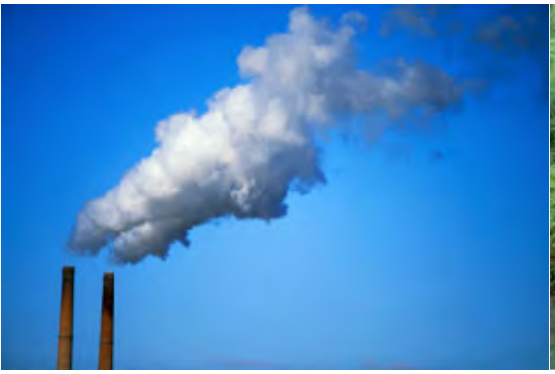
Report No. 22158

ORTECH
a Kontrol Technologies Company

Report:

Covanta Durham York Renewable Energy Limited Partnership
Durham York Energy Centre
2022 Voluntary Compliance Emission Testing Program

Date: August 16, 2022



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Covanta Durham York Renewable Energy Limited Partnership
Durham York Energy Centre
2022 Voluntary Compliance Emission Testing Program

Submitted to: The Regional Municipality of Durham
Works Department
605 Rossland Road East, Level 4
PO Box 623, Whitby, Ontario L1N 6A3

Mr. Gioseph Anello
Manager, Waste Planning & Technical Services
Tel: (905) 668-4113, Ext. 3445
E-mail: gioseph.anello@durham.ca

Covanta Corporation
445 South Street
Morristown, NJ, USA 07960

Mr. Rick Kohler, Environmental Engineer
Tel: (862) 345-5197
E-mail: rkohler@covanta.com

Site Location: Durham York Energy Centre
1835 Energy Drive
Courtice, Ontario L1E 2R2

Prepared by: ORTECH Consulting Inc.
804 Southdown Rd.
Mississauga, Ontario L5J 2Y4

Tina Sanderson, B.Sc.
Senior Project Manager, Emission Testing
Tel: (905) 822-4120, Ext. 522
E-mail: tsanderson@ortech.ca

Reviewed by: ORTECH Consulting Inc.
804 Southdown Rd.
Mississauga, Ontario L5J 2Y4

Hank Van Bakel, P.Eng., President
Tel: (905) 822-4120, Ext. 628
E-mail: hvanbakel@ortech.ca

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Revision History

Version	Date	Summary Changes/Purpose of Revision
1	August 16, 2022	None

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EXECUTIVE SUMMARY

ORTECH Consulting Inc. (ORTECH) completed a voluntary compliance emission testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between May 16 and May 19, 2022. The voluntary emission testing program was performed at the request of the Regions of Durham and York. The current test program is the seventh voluntary test program conducted at the facility.

Ontario Ministry of the Environment, Conservation and Parks (MECP) 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". A list of the test programs conducted by ORTECH to date is provided below:

Test Program	Test Date	ORTECH Report No.
2015 Compliance	September/October 2015	21546
2016 Voluntary	May 2016	21656
2016 Compliance	October/November 2016	21698
2017 Voluntary	May 2017	21754
2017 Compliance	October 2017	21800
2018 Voluntary	May/June 2018	21840
2018 Compliance	September 2018	21880
2019 Voluntary	June 2019	21936
2019 Compliance	September 2019	21960
2020 Voluntary	June 2020	22001
2020 Compliance	November 2020	22050
2021 Voluntary	June 2021	22081
2021 Compliance	November/December 2021	22085
2022 Voluntary	May 2022	22158

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, acid gases, volatile organic compounds, aldehydes and combustion gases at the BH Outlet of each Boiler. Triplicate emission tests were also completed for total hydrocarbons at the Quench Inlet 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 (SLO VOST modification)
Aldehydes	NCASI Method ISS/FP-A105.01
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 continuous emission monitoring system (CEMS).

Since relative accuracy and system bias testing was conducted in June 2021, 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 days when isokinetic testing was performed at each unit (May 17 to May 19, 2022 for Boiler No. 1, and May 16 to May 19, 2022 for Boiler No. 2) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. Concentration data measured by ORTECH on May 16 and May 17, 2022 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 MECP 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 MECP "Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality", dated April 2012, provides an updated framework for calculating dioxin and furan toxicity equivalent concentrations which includes emission data for 12 dioxin-like PCBs. This document was replaced by "Air Contaminants Benchmarks List: standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants", with the most recent version published on April 27, 2018, however the dioxin and furan toxicity equivalent calculation methodology remains the same. 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 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, were used to assess against the in-stack limit detailed in Schedule C of the ECA.

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

Parameter	Test No. 1	Test No. 2	Test No. 3	Average	In-Stack Limit
Total Power Output (MWh/day)*	-	-	-	385	-
Average Combustion Zone Temp. (°C)*	-	-	-	1258	-
Steam (tonnes/day)*	-	-	-	814	-
MSW Combusted (tonnes/day)*	-	-	-	210	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	695	-
Carbon Injection (kg/day)*	-	-	-	126	-
Lime Injection (kg/day)*	-	-	-	4109	-
Filterable Particulate (mg/Rm^3) (1)	1.09	0.67	0.84	0.87	9
PM_{10} with Condensable (mg/Rm^3) (1)	4.25	4.30	5.56	4.70	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	3.78	3.91	5.35	4.35	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.091	<0.10	<0.10	<0.097	-
Ammonia (mg/Rm^3) (1)	0.89	0.82	0.86	0.86	-
Cadmium (µg/Rm^3) (1)	<0.022	0.025	0.022	<0.023	7
Lead (µg/Rm^3) (1)	0.21	0.21	0.23	0.22	50
Mercury (µg/Rm^3) (1)	<0.082	<0.090	<0.094	<0.089	15
Antimony (µg/Rm^3) (1)	0.067	0.18	0.077	0.11	-
Arsenic (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Barium (µg/Rm^3) (1)	0.22	1.40	1.33	0.98	-
Beryllium (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Chromium (µg/Rm^3) (1)	0.70	0.64	0.63	0.66	-
Cobalt (µg/Rm^3) (1)	0.030	<0.045	<0.043	<0.039	-
Copper (µg/Rm^3) (1)	1.86	2.11	2.13	2.03	-
Molybdenum (µg/Rm^3) (1)	7.99	7.96	7.20	7.72	-
Nickel (µg/Rm^3) (1)	0.49	0.52	0.52	0.51	-
Selenium (µg/Rm^3) (1)	<0.22	<0.22	<0.21	<0.22	-
Silver (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Thallium (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Vanadium (µg/Rm^3) (1)	<0.022	<0.022	<0.021	<0.022	-
Zinc (µg/Rm^3) (1)	3.46	3.87	5.70	4.34	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<8.32	<8.00	<5.51	<7.28	60
Total Chlorobenzenes (ng/Rm^3) (1)	<75.1	<89.9	<103	<89.3	-
Total Chlorophenols (ng/Rm^3) (1)	<165	<165	<162	<164	-
Total PAHs (ng/Rm^3) (1)	<177	<1627	<196	<667	-
VOCs (µg/Rm^3) (1)	<1829	<536	<596	<987	-
Aldehydes (µg/Rm^3) (1)	<49.1	<40.1	<40.6	<43.3	-
Total VOCs (µg/Rm^3) (1) (4)	<1878	<576	<637	<1030	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	0.9	0.7	0.4	0.7	50

* based on process data provided by Covanta

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

(2) dry basis as equivalent methane (average of each 60 minute test with data recorded in 1-minute intervals)

(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) Includes all components from the volatile organic compounds test list in the ECA (i.e. Volatile Organic Sampling Train and Aldehyde Sampling train components).

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

Parameter	Test No. 1	Test No. 2	Test No. 3	Average	In-Stack Limit
Total Power Output (MWh/day)*	-	-	-	385	-
Average Combustion Zone Temp. (°C)*	-	-	-	1192	-
Steam (tonnes/day)*	-	-	-	808	-
MSW Combusted (tonnes/day)*	-	-	-	210	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	568	-
Carbon Injection (kg/day)*	-	-	-	126	-
Lime Injection (kg/day)*	-	-	-	4185	-
Filterable Particulate (mg/Rm^3) (1)	3.04	0.67	1.01	1.58	9
PM_{10} with Condensable (mg/Rm^3) (1)	4.83	5.38	<4.13	<4.78	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	4.28	5.10	<3.86	<4.41	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.098	<0.093	<0.10	<0.097	-
Ammonia (mg/Rm^3) (1)	0.57	0.55	3.00	1.37	-
Cadmium (µg/Rm^3) (1)	0.064	<0.021	0.033	<0.039	7
Lead (µg/Rm^3) (1)	0.38	0.21	0.25	0.28	50
Mercury (µg/Rm^3) (1)	<0.083	<0.082	<0.092	<0.086	15
Antimony (µg/Rm^3) (1)	0.27	0.14	0.044	0.15	-
Arsenic (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Barium (µg/Rm^3) (1)	1.56	1.42	1.86	1.62	-
Beryllium (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Chromium (µg/Rm^3) (1)	0.83	1.32	0.67	0.94	-
Cobalt (µg/Rm^3) (1)	0.037	0.035	0.021	0.031	-
Copper (µg/Rm^3) (1)	2.38	2.13	2.16	2.22	-
Molybdenum (µg/Rm^3) (1)	8.15	7.45	7.30	7.63	-
Nickel (µg/Rm^3) (1)	0.65	0.76	0.52	0.64	-
Selenium (µg/Rm^3) (1)	<0.24	<0.21	<0.20	<0.22	-
Silver (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Thallium (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Vanadium (µg/Rm^3) (1)	<0.024	<0.021	<0.020	<0.022	-
Zinc (µg/Rm^3) (1)	7.46	3.57	5.78	5.60	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<4.21	<4.04	<4.05	<4.10	60
Total Chlorobenzenes (ng/Rm^3) (1)	<101	<75.6	<89.1	<88.6	-
Total Chlorophenols (ng/Rm^3) (1)	<160	<158	<161	<160	-
Total PAHs (ng/Rm^3) (1)	<194	<181	<212	<196	-
VOCs (µg/Rm^3) (1)	<827	<531	<807	<722	-
Aldehydes (µg/Rm^3) (1)	<64.9	<47.7	<77.8	<63.4	-
Total VOCs (µg/Rm^3) (1) (4)	<892	<579	<885	<785	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	1.2	1.8	1.4	1.5	50

* based on process data provided by Covanta

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

(2) dry basis as equivalent methane (average of each 60 minute test with data recorded in 1-minute intervals)

(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) Includes all components from the volatile organic compounds test list in the ECA (i.e. Volatile Organic Sampling Train and Aldehyde Sampling train components).

A summary of the minimum, average and maximum concentrations for the combustion gases measured by the DYEC CEMS with in-stack limits listed in the ECA is provided below for the two units.

Boiler No.	Parameter	Minimum	Average	Maximum	In-Stack Limit
Boiler No. 1	Carbon Monoxide (mg/Rm^3) (1)	5.5	10.7	15.0	40
	Hydrogen Chloride (mg/Rm^3) (2)	0.5	1.0	1.5	9
	Nitrogen Oxides (mg/Rm^3) (2)	108	110	111	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.02	0.1	35
Boiler No. 2	Carbon Monoxide (mg/Rm^3) (1)	9.0	15.3	29.8	40
	Hydrogen Chloride (mg/Rm^3) (2)	3.2	3.6	3.9	9
	Nitrogen Oxides (mg/Rm^3) (2)	108	110	111	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.9	2.0	35

(1) 4-hour average measured by DYEC CEMS, dry at 25°C and 1 atmosphere adjusted to 11% oxygen by volume
(2) 24-hour average measured by DYEC CEMS, dry at 25°C and 1 atmosphere adjusted to 11% oxygen by volume

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 current point of impingement criteria detailed in Ontario Regulation 419/05.

Dispersion modelling was completed using the CALPUFF model (using Version 7.2.1 level 150618) by Golder Associates. A summary of the results are provided in the tables appended to this report (Appendix 27) based on calculated ground level Point of Impingement (POI) concentrations for the average total Main Stack emissions. As shown in the tables, the calculated impingement concentrations for all of the contaminants were well below the relevant MECP standards.

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 807 tonnes of steam per day for each Boiler (approximately 99.9% of maximum continuous rating). 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 or 807.4 tonnes per day for each Boiler).
- The in-stack concentrations of the components listed in the ECA were all below the concentration limits provided in Schedule C of the ECA.
- 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 all current standards in Regulation 419/05 under the Ontario Environmental Protection Act and other MECP criteria including guidelines and upper risk thresholds.

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

1. INTRODUCTION

ORTECH Consulting Inc. (ORTECH) completed a voluntary compliance emission testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between May 16 and May 19, 2022. The voluntary emission testing program was performed at the request of the Regions of Durham and York. The current test program is the seventh voluntary test program conducted at the facility.

Ontario Ministry of the Environment, Conservation and Parks (MECP) 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". A list of the test programs conducted by ORTECH to date is provided below:

Test Program	Test Date	ORTECH Report No.
2015 Compliance	September/October 2015	21546
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2019 Compliance	September 2019	21960
2020 Voluntary	June 2020	22001
2020 Compliance	November 2020	22050
2021 Voluntary	June 2021	22081
2021 Compliance	November/December 2021	22085
2022 Voluntary	May 2022	22158

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 also completed for total hydrocarbons at the Quench Inlet of each Boiler.

Prior to commencing the test program, the Durham and York Regions submitted a Pre-Test Plan letter to the MECP stating that the Voluntary sampling program would follow the procedures detailed in ORTECH Pre-Test Plan No. 22050, "Covanta Durham York Renewable Energy Limited Partnership Compliance Emission Testing in Accordance with Amended Environmental Compliance Approval (Air) No. 7306-8FDKNX", dated September 8, 2020. Provided in Appendix 3 is a copy of the Pre-Test Plan letter sent by the Regions, dated April 8, 2022. A copy of the Amended Environmental Compliance Approval, including amendment notices, is also provided in Appendix 3.

Triplicate emission tests were completed for each of the test parameters listed in Schedule D of the ECA between May 16 and May 19, 2022.

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. ECA Notice No. 2, dated December 23, 2021, allows the facility to receive and thermally treat up to 142,000 tonnes/year of MSW for the 2021 operating year. 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 Quench 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	Quench 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
					CO (Low)	0-500 ppm
					CO (High)	0-2000 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	Quench 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
					CO (Low)	0-500 ppm
					CO (High)	0-2000 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 and a single 4-inch port located approximately 0.8 m upstream of the 6-inch ports. The two 6-inch sampling ports were used for isokinetic sampling and the 4-inch ports were used for all non-isokinetic sampling.

The BH Outlet duct has an inside diameter of 1.37 meters (54 inches) at the sampling ports. The two 6-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 Quench Inlet sampling ports are located on the circular ductwork between the Boiler Outlet and the Recirculating Type Dry Scrubber Inlet. There are two 6-inch ports, located 90 degrees apart, at the same height. The Quench Inlet duct has a diameter of 1.37 meters (54 inches) at the sampling ports. The ports are located approximately 3.8 duct diameters (5.2 meters) downstream and 4.7 duct diameters (6.4 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 Quench 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 Quench Inlet	Average <15°	6.6	No
Boiler No. 2 Quench 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.

Triplicate emission tests were completed for particulate matter, metals, semi-volatile organic compounds, acid gases, volatile organic compounds, aldehydes and combustion gases at the BH Outlet of each Boiler. Triplicate emission tests were also completed for total hydrocarbons at the Quench Inlet 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 (SLO VOST modification)
Aldehydes	NCASI Method ISS/FP-A105.01
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 was conducted in June 2021, 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 days when isokinetic testing was performed at each unit (May 17 to May 19, 2022 for Boiler No. 1, and May 16 to May 19, 2022 for Boiler No. 2) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. Concentration data measured by ORTECH on May 16 and May 17 was used to assess against the total hydrocarbons (organic matter) in-stack emissions limit 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 BH Outlet 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 4.

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 the 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 BH Outlet 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 are provided in Appendix 5.

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 at the BH Outlet of each Boiler 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
- 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 at the BH Outlet 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 ten minutes for a total actual sampling time of two hundred and forty minutes.

At five minute time increments 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 6.

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

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 7.

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 (SLO-VOST modification). 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, a single forty-minute run was completed at an approximate flowrate of 0.5 L/min. A fourth run was also conducted and the tube pair was archived in case a sample was lost during desorption or analysis. The analytical laboratory broke the Test No. 1 tubes before desorption. The Test No. 1 tubes were repacked before being desorbed and analyzed. ORTECH did not report the Test No. 1 data and asked the laboratory to analyze the archived tube pairs for each unit. Note the samples for Test No. 2, Test No. 3 and Test No. 4 were analyzed and reported. The analytical results from the three runs performed were combined and used to calculate test average results for the respective source.

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 8.

Blank tube samples analyzed for the program included two 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 NCASI Method ISS/FP-A105.01.

Major components of the test train were as follows:

- A Teflon probe liner assembly was used.
- The first, second and third impingers contained approximately 15 mL each of o-Benzylhydroxylamine (BHA).
- 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 9.

4.8 Combustion Gases

In June 2021, relative accuracy and system bias testing was conducted on the Continuous Emission Monitoring Systems (CEMS) installed at the Quench Inlet and BH Outlet of each Boiler. 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 Quench Inlet.

DYEC provided 1-hour average concentrations for each clock hour using the 1-minute combustion gas data measured by the DYEC CEMs during each isokinetic test day at each Boiler. The data measured by the DYEC CEMS, from May 17, 2022 at 00:00 to May 19, 2022 at 15:00, was used to assess against the in-stack emission limit stated in the ECA for Boiler No. 1. The data measured by the DYEC CEMS, from May 16, 2022 at 06:00 to May 19, 2022 at 15:00 was used to assess against the in-stack emission limit stated in the ECA for Boiler No. 2.

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 were measured by ORTECH following the procedures detailed in US EPA Method 25A. Triplicate one-hour tests were conducted at the Quench Inlet and BH Outlet of each Boiler on May 16 and May 17, 2022. The total hydrocarbon data measured by ORTECH at the Quench Inlet sample locations 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 ALS Canada Ltd. Copies of Sample Logs/Chain of Custody Forms for all samples submitted for chemical analysis are provided in Appendix 10.

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 11.

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 US EPA Method 29 (modified). The inorganic analytical reports are provided in Appendix 12.

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 13.

The particle size distribution (PSD) samples were recovered in much the same way as the particulate samples from the particulate and metals trains. 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 into 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 and condensable particulate matter results are presented with the inorganic analytical reports provided in Appendix 12.

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. Each 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(s) 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 filter bottom, filter bottom u-tube and trap inlet stem were soaked for five minutes in each of acetone and hexane then rinsed.

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. Since ORTECH uses a one piece trap and condenser, the five minute soak of this component was performed by the analytical laboratory.

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.

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 the analytical laboratory 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. These analytical improvements have been implemented over many years and have been identified and approved through laboratory accreditation and acceptance by the MECP.

The SVOC analytical reports are 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 with inorganic analytical reports in Appendix 12.

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 the analytical laboratory 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 an ORTECH sample recovery trailer separate from all other test train recoveries and solvents. 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 DI water followed by a small amount of hexane 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 GC/MS. 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 proof rinse of the sampling probes was collected and archived for future analysis if necessary.

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 and VOST tubes is provided in Appendix 20. The proof data for the aldehyde solutions is provided in the aldehyde analytical report.

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 data was acquired to perform the required calculations for choosing a nozzle size to permit isokinetic sampling.

The internal diameter of each duct was verified 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/or 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.

The average percent isokineticity fell within the QA/QC criteria limits of 90 to 110% for each Particulate and Metals, Acid Gas and SVOC test. The average percent isokineticity fell within the QA/QC criteria limits of 80 to 120% for each PSD test.

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 delivering samples used the master sample log/chain of custody form to document the transfer of the samples to the 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

ORTECH uses a one piece condenser and XAD-2 trap for SVOC collection, 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 the modification was documented in the Pre-Test Plan approved by the MECP.

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

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 the test program. The relative percent difference was less than 2.9% well within the acceptable limit of less than ±20%, for elements that are greater than 5 times the minimum detection limit.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 88-105%. The acceptable limit is 80-115% of the true value.
- A matrix spike (performed as a post digestion spike) was analyzed with the test samples. All of the recovery results were between 90-105%. 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.

Barium, chromium, copper, lead, molybdenum and nickel were detected in the blank trains at levels greater than the limit of reporting. Chromium, copper, molybdenum, nickel and zinc were observed by the analytical laboratory in the method blank at levels greater than the limit of reporting. The test sample data may be biased high for these compounds as a result of this potential background.

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 for each fraction. However, mercury was not detected on any of the fractions in quantities greater than the detection limit.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 96-100% within the acceptable limit of 90-110% of the true value.
- A matrix spike (performed as a post digestion spike) was analyzed with the test samples. All of the recovery results were between 91-101%, 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 was performed by Ion Chromatography (IC). 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:

- All of the hydrogen chloride and hydrogen fluoride analyses were conducted in duplicate. One duplicate sample analysis was also performed for ammonia. The relative percent difference was less than 3.0%, well within the acceptable limit of less than ±20% for compounds that are greater than 5 times the minimum detection limit.
- A blank spike sample was analyzed with the test samples. The recovery results for the blank spike sample were 102% for hydrogen chloride, 103% for hydrogen fluoride and 108% for ammonia, within the acceptable range of 90-110%.
- A matrix spike (spike confirmation) sample was analyzed with every 20 samples to confirm the identity of each peak. The recovery results of the matrix spike sample were 105% for hydrogen chloride, 95% for hydrogen fluoride and 101% for ammonia, within the acceptable range of 85-115%.

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 GC/MS. Laboratory control samples were analyzed with the test samples. Two laboratory control samples were prepared by the analytical laboratory and analyzed with the test samples (5µg and 1µg). The recoveries for the 5µg samples were 98% for acetaldehyde, 108% for formaldehyde and 61% for acrolein. The recoveries for the 1µg sample were 145% for acetaldehyde, 56% formaldehyde and 26% for acrolein. The low recoveries may indicate a low bias in the sample data.

Acrolein was not detected in any of the samples in quantities greater than the reported detection limit. Formaldehyde was detected in both blank samples in quantities similar to those found in the test samples. Formaldehyde was also detected in the method blank. The test sample data may be biased high for formaldehyde as a result of this potential background.

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.

Staff at ALS added extraction standards to all samples prior to extraction. Clean-up standards were added just prior to the clean-up process. Recoveries of the clean-up standards provide an indication on the losses that occur during the extract clean-up. The analytical report includes the lists of the field spike, extraction and clean-up standards used. The analysis of samples involved complex sample extraction and cleanup, followed by HRMS/MS analysis.

The test samples, not including the blank trains, showed poor extraction standard and field spike standard recoveries. Recovery of the dioxin and furan field spike standards was between 34-125%. As a result, the dioxin and furan emission data was calculated using values that were corrected for field spike recoveries. The corrected values were corrected based upon the corresponding field spike recoveries (i.e. Corrected Values = Uncorrected Value x 100 / % Rec of corresponding C13 Field Spike target). This provides a worst case emission scenario for the facility. The emission data was less than the level of quantitation (LOQ = 32 pg TQE/Rm^3 at 25°C and 1 atmosphere) for the test method using the corrected data. Note the dioxin and furan congener data was not corrected by the analytical laboratory for the field spike recoveries.

Per the analytical reports for chlorophenols, PAHs and PCBs, poor extraction standard recoveries were observed for the test samples indicating a potential low bias to the analytical results. The field spike recoveries from the PCDD/F portion of the trains indicate a low bias on the chlorophenols, PAHs and PCBs samples as much as a factor in the range of 2.5 to 3.0.

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.

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

Many of the test contaminants were detected in the field blank samples and the trip blank in quantities significantly higher than the analytical detection limit, especially methylene chloride and toluene. The field blank samples are taken to the sampling location, opened then recapped to provide background levels at the sampling location. The trip blank is taken to the sampling location but remains sealed. ORTECH suspects that there was contamination of the sampling media at the analytical laboratory either during the preparation of the tubes or during the extraction process. ORTECH does not have many of the listed VOCs at their laboratory in Mississauga or mobile recovery laboratory, other than acetone, and based on historical data many of these contaminants are also not present at the sampling site. The VOC data should be used with caution as emission data may be over estimated based on the levels found in the blanks especially methylene chloride and toluene.

The analytical report includes the field standards, internal standards and surrogate standards used. The surrogate recoveries for each of the surrogates should be between 50-150%. The recoveries for each sample were between 64.1-133.1%.

The analytical laboratory broke the sample tubes for Test No. 1 at Boiler No. 1 and Boiler No. 2 before desorption. The laboratory repacked the media and analyzed the samples. ORTECH did not report the data for Test No. 1. ORTECH requested that the analytical laboratory analyze the archived tube pairs and VOC emission data was reported for Test No. 2, Test No. 3 and Test No. 4 at each location.

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 (May 17 to May 19, 2022 for Boiler No. 1, and May 16 to May 19, 2022 for Boiler No. 2) by the DYEC CEMS. Total hydrocarbon concentrations were also measured at the BH Outlet and Quench Inlet by ORTECH on May 16 and May 17, 2022.

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

Detailed test schedules are provided in Table 1 and Table 2 of Appendix 1 and Appendix 2 for Boiler No. 1 and Boiler No. 2, respectively.

7.1 Stack Gas Sampling Parameters

Emission test calculations for the particulate and metals, particle size, acid gases, and SVOC tests conducted are provided in Appendix 22 to Appendix 25, respectively.

Stack gas sampling parameters for the tests conducted at each location are summarized in Table 3 (Appendix 1 and Appendix 2). 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 BH Outlet location are presented in Table 4 (Appendix 1 and Appendix 2). 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)	139	139
Moisture by Volume (%)	16.4	15.4
Velocity (m/s)	17.9	18.8
Static Pressure (kPa)	-2.69	-2.69
Absolute Pressure (kPa)	97.3	97.5
Carbon Dioxide by Volume (%)**	10.9	10.4
Oxygen by Volume (%)**	8.34	8.65

* Excludes the isokinetic Acid Gases tests as testing was conducted on a single traverse of the duct

** dry basis, measured by DYEC CEMS

7.3 Volumetric Flowrate Data

Stack gas volumetric flowrates for the tests conducted at each BH Outlet location are presented in Table 5 (Appendix 1 and Appendix 2). The average flowrate values from the tests at each site are summarized below:

Volumetric Flowrate	Boiler No. 1 BH Outlet*	Boiler No. 2 BH Outlet*
Actual Flowrate (m^3/s)	26.5	27.8
Dry Reference Flowrate (Rm^3/s)**	15.4	16.3
Dry Adjusted Flowrate (Rm^3/s)***	19.6	20.2
Wet Reference Flowrate (Rm^3/s)**	18.5	19.3

* Excludes the isokinetic Acid Gases tests as testing was conducted on a single traverse of 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 the BH Outlet of each Boiler is presented in Table 6 (Appendix 1 and Appendix 2). Average filterable particulate emission data for each BH Outlet location is summarized below:

Particulate Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (mg/m^3)	0.65	1.11
Dry Reference Conc. (mg/Rm^3)*	1.10	1.88
Dry Adjusted Conc. (mg/Rm^3)**	0.87	1.58
Wet Reference Conc. (mg/Rm^3)*	0.93	1.60
Emission Rate (mg/s)	16.9	30.4

* 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 average particulate dry adjusted concentration at the Boiler No. 1 BH Outlet (0.87 mg/Rm^3, adjusted to 11% oxygen) and the Boiler No. 2 BH Outlet (1.58 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 matter detected in the blank sampling train filter and acetone probe rinse samples for Boiler No. 1 BH Outlet was 2.5 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 BH Outlet was 2.6 mg and 0.3 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.

Particle size distribution tests were also conducted at the BH Outlet of each Boiler. PM_{10} and $PM_{2.5}$ emission data is detailed in Table 7 (Appendix 1 and Appendix 2) 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 BH Outlet	Boiler No. 2 BH Outlet	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (mg/m^3)	0.55	<0.58	0.29	<0.31
Dry Reference Conc. (mg/Rm^3)*	0.96	<0.99	0.51	<0.54
Dry Adjusted Conc. (mg/Rm^3)**	0.76	<0.80	0.41	<0.43
Wet Reference Conc. (mg/Rm^3)*	0.79	<0.83	0.42	<0.45
Emission Rate (mg/s)	14.8	<16.0	7.82	<8.74

* at 25°C and 1 atmosphere

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

Condensable particulate emission data obtained from the back-half of each of the particle size distribution tests conducted at the BH Outlet for each Boiler is presented in Table 8 (Appendix 1 and Appendix 2). Average condensable particulate emission data for each BH Outlet location is summarized below:

Condensable Particulate Emission Parameter	Inorganic Fraction		Organic Fraction	
	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (mg/m^3)	1.51	1.76	1.33	1.10
Dry Reference Conc. (mg/Rm^3)*	2.63	3.02	2.31	1.89
Dry Adjusted Conc. (mg/Rm^3)**	2.09	2.45	1.85	1.53
Wet Reference Conc. (mg/Rm^3)*	2.17	2.55	1.91	1.59
Emission Rate (mg/s)	40.3	49.4	35.7	31.0

* 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 0.8 mg for the inorganic fraction and 0.5 mg for the organic fraction. The amount of condensable particulate detected in the blank sampling train for Boiler No. 2 was 0.2 mg for the inorganic fraction and 1.2 mg for the organic 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.

The average PM_{10} and $PM_{2.5}$ results, including condensable particulate matter, are summarized below for each Boiler:

PM_{10} and $PM_{2.5}$ + Condensable Emission Parameter	PM_{10} + Condensable		$PM_{2.5}$ + Condensable	
	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (mg/m^3)	3.40	<3.44	3.14	<3.18
Dry Reference Conc. (mg/Rm^3)*	5.90	<5.90	5.45	<5.45
Dry Adjusted Conc. (mg/Rm^3)**	4.70	<4.78	4.35	<4.41
Wet Reference Conc. (mg/Rm^3)*	4.87	<4.97	4.50	<4.59
Emission Rate (mg/s)	90.7	<96.5	83.8	<89.2

* at 25°C and 1 atmosphere

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

7.5 Acid Gases

Hydrogen chloride, hydrogen fluoride and ammonia emission data for the tests conducted at the BH Outlet of each Boiler are presented in Table 9 (Appendix 1 and Appendix 2). Hydrogen fluoride was not detected in any of the test samples in quantities greater than the detection limit. The detection limit was used to calculate hydrogen fluoride emission data. Hydrogen chloride and ammonia were detected in quantities greater than the detection limit in all of the samples collected at each location.

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)	2.65	2.84	<0.073	<0.069	0.64	1.00
Dry Reference Conc. (mg/Rm^3)*	4.48	4.79	<0.12	<0.12	1.09	1.70
Dry Adjusted Conc. (mg/Rm^3)**	3.53	4.01	<0.097	<0.097	0.86	1.37
Wet Reference Conc. (mg/Rm^3)*	3.79	4.10	<0.10	<0.10	0.92	1.44
Emission Rate (mg/s)	68.3	76.6	<1.88	<1.87	16.6	27.5
Dry Adjusted Conc. (ppm)**	2.37	2.69	<0.12	<0.12	1.23	1.97

* at 25°C and 1 atmosphere

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

Hydrogen fluoride and ammonia were not detected in the blank samples in quantities greater than the detection limit. Hydrogen chloride was detected in the blank sample in quantities slightly greater than the detection limit (0.16 mg). 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. Oxygen was also measured at the Quench Inlet 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.

DYEC provided 1-hour average concentrations for each clock hour using the 1-minute combustion gas data measured by the DYEC CEMs during each isokinetic test day at each Boiler. DYEC CEMS data was provided from May 17 to May 19, 2022 for Boiler No. 1, and May 16 to May 19, 2022 for Boiler No. 2.

A 24-hour rolling average was determined for hydrogen chloride, nitrogen oxides and sulphur dioxide using the 1-hour average data for the isokinetic 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 isokinetic 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 (Appendix 1 and Appendix 2). 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		In-Stack ECA Limit	Maximum Concentration	
			Boiler No. 1	Boiler No. 2
BH Outlet	Oxygen (%, 1-hr)	-	9.11	9.76
	Carbon Monoxide (mg/Rm^3, 4-hr)*	≤ 40	15.0	29.8
	Sulphur Dioxide (mg/Rm^3, 24-hr)*	≤ 35	0.1	2.0
	Nitrogen Oxides (mg/Rm^3, 24-hr)*	≤ 121	111	111
	Hydrogen Chloride (mg/Rm^3, 24-hr)*	≤ 9	1.5	3.9
	Total Hydrocarbons (mg/Rm^3, 1-hr)*	-	0	0
Quench Inlet	Oxygen (%, 1-hr)	≥ 6	9	9

* dry at reference conditions, adjusted to 11% oxygen
** dry at reference conditions

Total hydrocarbon concentration data was measured by ORTECH on May 16 and May 17, 2022 at the Quench Inlet and BH Outlet sampling locations. The results of the total hydrocarbons tests are summarized in Table 10 (Appendix 1 and Appendix 2). The average THC concentration for each location, 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 (1-minute)*	-	0.1	0.4
	Total Hydrocarbons (10-minute)**	-	0.1	0.4
Quench Inlet	Total Hydrocarbons (1-minute)*	-	0.7	1.5
	Total Hydrocarbons (10-minute)**	50	0.7	1.5

* ppm dry basis, expressed as equivalent methane (average of each 60 minute test with data recorded in 1-minute intervals)

** ppm dry basis, expressed as equivalent methane (average of each 60 minute test calculated using the 10-minute rolling average)

The one-minute average total hydrocarbon data and the 10-minute total hydrocarbon data measured by ORTECH and expressed on a dry basis as equivalent methane is provided in Appendix 26.

7.7 Metal Emission Data

Metal analytical results for the tests performed at the BH Outlet of each Boiler are given in Tables 11, 12 and 13 (Appendix 1 and Appendix 2) 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 fraction was 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 fraction 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)	<0.017	<0.028
Dry Reference Conc. (µg/Rm^3)*	<0.030	<0.047
Dry Adjusted Conc. (µg/Rm^3)**	<0.023	<0.039
Wet Reference Conc. (µg/Rm^3)*	<0.025	<0.040
Emission Rate (mg/s)	<0.00045	<0.00077

* 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)	0.16	0.20
Dry Reference Conc. (µg/Rm^3)*	0.28	0.34
Dry Adjusted Conc. (µg/Rm^3)**	0.22	0.28
Wet Reference Conc. (µg/Rm^3)*	0.23	0.29
Emission Rate (mg/s)	0.0042	0.0055

* 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 not detected in quantities greater than the method detection limit in the three tests at Boiler No. 1 and Boiler No. 2, and as is the case with all other analyses 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)	<0.066	<0.061
Dry Reference Conc. (µg/Rm^3)*	<0.11	<0.10
Dry Adjusted Conc. (µg/Rm^3)**	<0.089	<0.086
Wet Reference Conc. (µg/Rm^3)*	<0.095	<0.088
Emission Rate (mg/s)	<0.0017	<0.0017

* 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, dioxin-like polychlorinated biphenyls (PCBs), chlorobenzenes (CBs), chlorophenols (CPs) and polycyclic aromatic hydrocarbons (PAHs) at the BH Outlet of each Boiler.

The test samples, not including the blank trains, showed poor extraction standard and field spike standard recoveries. The dioxin and furan emission data was calculated using values that were corrected for field spike recoveries. The corrected values were corrected based upon the corresponding field spike recoveries (i.e. Corrected Values = Uncorrected Value x 100 / % Rec of corresponding C13 Field Spike target). This provides a worst case emission scenario for the facility. The emission data was less than the level of quantitation (LOQ) for the test method using the corrected data. Note the dioxin and furan congener data was not corrected by the analytical laboratory for the field spike recoveries. The results for chlorophenols, PAHs and PCBs, maybe biased low as much as a factor in the range of 2.5 to 3.0.

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 MECP 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 MECP to use only specific isomers in the higher congener groups to compare emission data with the MECP criteria for dioxin and furan emissions.

Dioxin and furan congener group analytical results and emission data for the tests performed at the BH Outlet of each Boiler are given in Table 24 to Table 32 (Appendix 1 and Appendix 2). The results are shown as congener groups from T4CDF to O8CDF and T4CDD to O8CDD, as normally required by the MECP.

The average dioxin congener group emission data for each location is summarized below:

Dioxin Congener Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (ng/m^3)	<0.045	<0.037
Dry Reference Conc. (ng/Rm^3)*	<0.077	<0.062
Dry Adjusted Conc. (ng/Rm^3)**	<0.060	<0.049
Wet Reference Conc. (ng/Rm^3)*	<0.064	<0.053
Emission Rate (ng/s)	<1.20	<1.02

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

The average furan congener group emission data for each location is summarized below:

Furan Congener Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (ng/m^3)	<0.077	<0.0067
Dry Reference Conc. (ng/Rm^3)*	<0.013	<0.011
Dry Adjusted Conc. (ng/Rm^3)**	<0.010	<0.0090
Wet Reference Conc. (ng/Rm^3)*	<0.011	<0.0096
Emission Rate (ng/s)	<0.21	<0.18

* 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 (Appendix 1 and 2) for the BH Outlets. 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 for the BH Outlet. 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 methods preferred by the MECP, which use WHO and NATO/CCMS (1989) toxicity equivalence factors (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.

The MECP "Summary of Standards and Guidelines to Support Ontario Regulation 419/05 – Air Pollution – Local Air Quality", dated April 2012, provided a new framework for calculating dioxin and furan toxicity equivalent concentrations which includes emission data for 12 dioxin-like PCBs. This document was replaced by "Air Contaminants Benchmarks List: standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants", with the most recent version published on April 27, 2018, however the dioxin and furan toxicity equivalent calculation methodology remains the same.

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 show 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 (Table 50 in Appendix 1 and Appendix 2) is summarized below. Per the MECP 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.

Total Dioxin and Furan Isomer and PBCs Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (pg TEQ/m^3)	3.50	1.99
Dry Reference Conc. (pg TEQ/Rm^3)*	5.97	3.37
Dry Adjusted Conc. (pg TEQ/Rm^3)**	4.68	2.67
Wet Reference Conc. (pg TEQ/Rm^3)*	5.01	2.86
Emission Rate (ng TEQ/s)	0.093	0.055

* 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 in Appendix 1 and Appendix 2) is summarized below. Dioxin and furan toxicity equivalent emission data for the BH Outlet, calculated using the NATO/CCMS (1989) toxicity equivalence factors and the full detection limit, is used for comparison with the in-stack emission limit specified in the ECA.

Dioxin and Furan Isomer Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Dry Adjusted Conc. (pg TEQ/Rm^3)*	<7.28	<4.10

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

The dioxin and furan dry adjusted TEQ concentration at the BH Outlet of each Boiler was well below the maximum in-stack emission limit stated in the ECA of 60 pgTEQ/Rm^3, adjusted to 11% oxygen.

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 for the BH Outlet.

Amounts collected were assumed to be equivalent to the detection limit, where the analytical results were below the detection limit.

The average total chlorobenzene emission data is presented below:

Chlorobenzenes Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (ng/m^3)	<66.6	<66.0
Dry Reference Conc. (ng/Rm^3)*	<114	<112
Dry Adjusted Conc. (ng/Rm^3)**	<89.3	<88.6
Wet Reference Conc. (ng/Rm^3)*	<95.8	<94.6
Emission Rate (µg/s)	<1.78	<1.81

* 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. 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 for the BH Outlet of each Boiler.

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

The average total chlorophenol emission data is presented below:

Chlorophenol Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (ng/m^3)	<123	<119
Dry Reference Conc. (ng/Rm^3)*	<209	<201
Dry Adjusted Conc. (ng/Rm^3)**	<164	<160
Wet Reference Conc. (ng/Rm^3)*	<176	<171
Emission Rate (µg/s)	<3.27	<3.27

* 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. 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 from the BH Outlet sampling location on each Boiler were also analyzed for select polycyclic aromatic hydrocarbon (PAH) compounds.

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.

The average total PAH emission data is presented below:

Total PAH Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (ng/m^3)	<496	<146
Dry Reference Conc. (ng/Rm^3)*	<847	<247
Dry Adjusted Conc. (ng/Rm^3)**	<667	<196
Wet Reference Conc. (ng/Rm^3)*	<711	<209
Emission Rate (µg/s)	<13.3	<4.01

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

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 the BH Outlet of each Boiler 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 BH Outlet	Boiler No. 2 BH Outlet	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (µg/m^3)	19.6	30.6	10.9	14.9	<1.70	<1.93
Dry Reference Conc. (µg/Rm^3)*	33.4	51.2	18.6	25.0	<2.90	<3.23
Dry Adjusted Conc. (µg/Rm^3)**	26.3	40.9	14.7	20.0	<2.29	<2.58
Wet Reference Conc. (µg/Rm^3)*	28.0	43.8	15.7	21.3	<2.44	<2.76
Emission Rate (mg/s)	0.52	0.85	0.29	0.41	<0.045	<0.053

* at 25°C and 1 atmosphere

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

Acrolein was not detected in any of the test samples or in the blank samples in quantities greater than the reported detection limit. Formaldehyde was detected in both blank samples in quantities greater than the detection limit and in quantities similar to the test samples.

7.11 Volatile Organic Emission Data

Three forty minute test runs were completed at each BH Outlet for volatile organic compounds using SLO-VOST. One backup pair of tubes was collected for each Boiler and archived in case a sample was lost during the analytical extraction process.

The analytical laboratory broke the sample tubes for Test No. 1 at Boiler No. 1 and Boiler No. 2 before desorption. The laboratory repacked the media and analyzed the samples. ORTECH did not report the data for Test No. 1. ORTECH requested that the analytical laboratory analyze the archived tube pairs and VOC emission data was reported for Test No. 2, Test No. 3 and Test No. 4 at each location.

Volatile organic analysis data for the tests is provided in Table 82, 83 and Table 84 for Test No. 2, Test No. 3 and Test No. 4, 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 85 to 89, respectively. The average volatile organic emission data is summarized in Table 90.

Many of the test contaminants were detected in the field blank samples and the trip blank in quantities significantly higher than the analytical detection limit, especially methylene chloride and toluene. The field blank samples are taken to the sampling location, opened then recapped to provide background levels at the sampling location. The trip blank is taken to the sampling location but remains sealed. ORTECH suspects that there was contamination of the sampling media at the analytical laboratory either during the preparation of the tubes or during the extraction process. The VOC data should be used with caution as emission data may be overestimated based on the levels found in the blanks especially for methylene chloride and toluene.

The average total VOC emission data collected from the VOST sampling train is presented below:

VOC Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (µg/m^3)	<744	<537
Dry Reference Conc. (µg/Rm^3)*	<1256	<903
Dry Adjusted Conc. (µg/Rm^3)**	<987	<722
Wet Reference Conc. (µg/Rm^3)*	<1057	<763
Emission Rate (mg/s)	<19.3	<14.7

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

The average total VOC emission data, including acetaldehyde, formaldehyde and acrolein, per the list provided in Schedule D of the ECA is presented below:

VOC Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Dry Reference Conc. (µg/Rm^3)*	<1311	<982
Dry Adjusted Conc. (µg/Rm^3)**	<1030	<785
Emission Rate (mg/s)	<20.2	<16.0

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

Analysis of blank adsorbent tubes is provided in Table 91. 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 MECP guideline.

Dispersion modelling was completed using the CALPUFF model (using Version 7.2.1 level 150618) by Golder Associates. The dispersion modelling results are detailed in Appendix 27. Golder Associates can provide the dispersion modelling zip files upon request.

The predicted ground level Point of Impingement (POI) concentrations, calculated based on the average total emission rate, for each contaminant included in the May 2022 emission testing program was well below the applicable standard, guideline or upper risk threshold. The contaminant with the highest predicted concentration relative to the standard was nitrogen oxides (11% of the 1-hour standard and 3% of the 24-hour standard with meteorological anomaly removal), all other contaminants were 1% or less than the relevant standard with meteorological anomaly removal.

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 at the BH Outlet sampling locations:

- 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)
- 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 during each isokinetic test day at each Boiler. DYEC CEMS data was provided from May 17 to May 19, 2022 for Boiler No. 1, and May 16 to May 19, 2022 for Boiler No. 2. A 24-hour rolling average was determined for hydrogen chloride, nitrogen oxides and sulphur dioxide using the 1-hour average data for the isokinetic 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 isokinetic test days at each unit to compare to the in-stack 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 28.

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.

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The facility process data was also supplied by DYEC personnel for each test day. Hourly process data has been retained by Covanta and can be provided upon request. The process data is summarized below:

Test Date	Total 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
May 16, 2022	364	-	615	-	1172	-	807	-	204	-	555	-	127	-	4234
May 17, 2022	388	0	0	1252	1193	813	807	212	209	694	593	126	125	4177	4270
May 18, 2022	394	0	0	1261	1194	814	808	209	214	702	573	126	125	4181	4223
May 19, 2022	393	0	0	1262	1207	814	811	209	213	690	552	126	126	3967	4012
Average	385	-	-	1258	1192	814	808	210	210	695	568	126	126	4109	4185

* Gross turbine output

** Auxiliary fuel was not combusted during the conduct of reference test runs to demonstrate ECA compliance

*** Calculated by crane scales

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 807 tonnes of steam per day for each Boiler (approximately 99.9% of maximum continuous rating). 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 or 807.4 tonnes per day for each Boiler).
- The in-stack concentrations of the components listed in the ECA were all below the concentration limits provided in the ECA.
- Using CALPUFF dispersion modelling techniques (using Version 7.2.1 level 150618), the predicted maximum point of impingement concentrations, based on the average test results for both boilers, show DYEC to be operating well below the current standards in Regulation 419/05 (Schedule 3) under the Ontario Environmental Protection Act and other MECP criteria including guidelines and upper risk thresholds.

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 was conducted in June 2021, 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 days when isokinetic testing was performed at each unit (May 17 to May 19, 2022 for Boiler No. 1, and May 16 to May 19, 2022 for Boiler No. 2) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA.

Total hydrocarbon concentration data was measured by ORTECH on May 16 and May 17, 2022 at the Quench Inlet and BH Outlet sampling locations. The total hydrocarbon data measured by ORTECH at the Quench Inlet sample locations was well below the total hydrocarbons (organic matter) in-stack emissions limit detailed in Schedule C of the ECA.

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

Parameter	Test No. 1	Test No. 2	Test No. 3	Average	In-Stack Limit
Total Power Output (MWh/day)*	-	-	-	385	-
Average Combustion Zone Temp. (°C)*	-	-	-	1258	-
Steam (tonnes/day)*	-	-	-	814	-
MSW Combusted (tonnes/day)*	-	-	-	210	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	695	-
Carbon Injection (kg/day)*	-	-	-	126	-
Lime Injection (kg/day)*	-	-	-	4109	-
Filterable Particulate (mg/Rm^3) (1)	1.09	0.67	0.84	0.87	9
PM_{10} with Condensable (mg/Rm^3) (1)	4.25	4.30	5.56	4.70	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	3.78	3.91	5.35	4.35	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.091	<0.10	<0.10	<0.097	-
Ammonia (mg/Rm^3) (1)	0.89	0.82	0.86	0.86	-
Cadmium (µg/Rm^3) (1)	<0.022	0.025	0.022	<0.023	7
Lead (µg/Rm^3) (1)	0.21	0.21	0.23	0.22	50
Mercury (µg/Rm^3) (1)	<0.082	<0.090	<0.094	<0.089	15
Antimony (µg/Rm^3) (1)	0.067	0.18	0.077	0.11	-
Arsenic (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Barium (µg/Rm^3) (1)	0.22	1.40	1.33	0.98	-
Beryllium (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Chromium (µg/Rm^3) (1)	0.70	0.64	0.63	0.66	-
Cobalt (µg/Rm^3) (1)	0.030	<0.045	<0.043	<0.039	-
Copper (µg/Rm^3) (1)	1.86	2.11	2.13	2.03	-
Molybdenum (µg/Rm^3) (1)	7.99	7.96	7.20	7.72	-
Nickel (µg/Rm^3) (1)	0.49	0.52	0.52	0.51	-
Selenium (µg/Rm^3) (1)	<0.22	<0.22	<0.21	<0.22	-
Silver (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Thallium (µg/Rm^3) (1)	<0.044	<0.045	<0.043	<0.044	-
Vanadium (µg/Rm^3) (1)	<0.022	<0.022	<0.021	<0.022	-
Zinc (µg/Rm^3) (1)	3.46	3.87	5.70	4.34	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<8.32	<8.00	<5.51	<7.28	60
Total Chlorobenzenes (ng/Rm^3) (1)	<75.1	<89.9	<103	<89.3	-
Total Chlorophenols (ng/Rm^3) (1)	<165	<165	<162	<164	-
Total PAHs (ng/Rm^3) (1)	<177	<1627	<196	<667	-
VOCs (µg/Rm^3) (1)	<1829	<536	<596	<987	-
Aldehydes (µg/Rm^3) (1)	<49.1	<40.1	<40.6	<43.3	-
Total VOCs (µg/Rm^3) (1) (4)	<1878	<576	<637	<1030	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	0.9	0.7	0.4	0.7	50

* based on process data provided by Covanta

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

(2) dry basis as equivalent methane (average of each 60 minute test with data recorded in 1-minute intervals)

(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) Includes all components from the volatile organic compounds test list in the ECA (i.e. Volatile Organic Sampling Train and Aldehyde Sampling train components).

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

Parameter	Test No. 1	Test No. 2	Test No. 3	Average	In-Stack Limit
Total Power Output (MWh/day)*	-	-	-	385	-
Average Combustion Zone Temp. (°C)*	-	-	-	1192	-
Steam (tonnes/day)*	-	-	-	808	-
MSW Combusted (tonnes/day)*	-	-	-	210	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	568	-
Carbon Injection (kg/day)*	-	-	-	126	-
Lime Injection (kg/day)*	-	-	-	4185	-
Filterable Particulate (mg/Rm^3) (1)	3.04	0.67	1.01	1.58	9
PM_{10} with Condensable (mg/Rm^3) (1)	4.83	5.38	<4.13	<4.78	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	4.28	5.10	<3.86	<4.41	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.098	<0.093	<0.10	<0.097	-
Ammonia (mg/Rm^3) (1)	0.57	0.55	3.00	1.37	-
Cadmium (µg/Rm^3) (1)	0.064	<0.021	0.033	<0.039	7
Lead (µg/Rm^3) (1)	0.38	0.21	0.25	0.28	50
Mercury (µg/Rm^3) (1)	<0.083	<0.082	<0.092	<0.086	15
Antimony (µg/Rm^3) (1)	0.27	0.14	0.044	0.15	-
Arsenic (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Barium (µg/Rm^3) (1)	1.56	1.42	1.86	1.62	-
Beryllium (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Chromium (µg/Rm^3) (1)	0.83	1.32	0.67	0.94	-
Cobalt (µg/Rm^3) (1)	0.037	0.035	0.021	0.031	-
Copper (µg/Rm^3) (1)	2.38	2.13	2.16	2.22	-
Molybdenum (µg/Rm^3) (1)	8.15	7.45	7.30	7.63	-
Nickel (µg/Rm^3) (1)	0.65	0.76	0.52	0.64	-
Selenium (µg/Rm^3) (1)	<0.24	<0.21	<0.20	<0.22	-
Silver (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Thallium (µg/Rm^3) (1)	<0.047	<0.042	<0.040	<0.043	-
Vanadium (µg/Rm^3) (1)	<0.024	<0.021	<0.020	<0.022	-
Zinc (µg/Rm^3) (1)	7.46	3.57	5.78	5.60	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<4.21	<4.04	<4.05	<4.10	60
Total Chlorobenzenes (ng/Rm^3) (1)	<101	<75.6	<89.1	<88.6	-
Total Chlorophenols (ng/Rm^3) (1)	<160	<158	<161	<160	-
Total PAHs (ng/Rm^3) (1)	<194	<181	<212	<196	-
VOCs (µg/Rm^3) (1)	<827	<531	<807	<722	-
Aldehydes (µg/Rm^3) (1)	<64.9	<47.7	<77.8	<63.4	-
Total VOCs (µg/Rm^3) (1) (4)	<892	<579	<885	<785	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	1.2	1.8	1.4	1.5	50

* based on process data provided by Covanta

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

(2) dry basis as equivalent methane (average of each 60 minute test with data recorded in 1-minute intervals)

(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) Includes all components from the volatile organic compounds test list in the ECA (i.e. Volatile Organic Sampling Train and Aldehyde Sampling train components).

A summary of the minimum, average and maximum concentrations for the combustion gases measured by the DYEC CEMS with in-stack limits listed in the ECA is provided below for the two units.

Boiler No.	Parameter	Minimum	Average	Maximum	In-Stack Limit
Boiler No. 1	Carbon Monoxide (mg/Rm^3) (1)	5.5	10.7	15.0	40
	Hydrogen Chloride (mg/Rm^3) (2)	0.5	1.0	1.5	9
	Nitrogen Oxides (mg/Rm^3) (2)	108	110	111	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.02	0.1	35
Boiler No. 2	Carbon Monoxide (mg/Rm^3) (1)	9.0	15.3	29.8	40
	Hydrogen Chloride (mg/Rm^3) (2)	3.2	3.6	3.9	9
	Nitrogen Oxides (mg/Rm^3) (2)	108	110	111	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.9	2.0	35

(1) 4-hour average measured by DYEC CEMS, dry at 25°C and 1 atmosphere adjusted to 11% oxygen by volume
(2) 24-hour average measured by DYEC CEMS, dry at 25°C and 1 atmosphere adjusted to 11% oxygen by volume

APPENDIX 1

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

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

Particulate and Metals Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 17, 2022	8:30	11:44	180
2	May 17, 2022	12:25	15:33	180
3	May 19, 2022	8:31	12:13	180

Particle Size Distribution Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 17, 2022	17:18	19:20	120
2	May 18, 2022	12:05	14:07	120
3	May 18, 2022	17:25	19:29	120

Acid Gases Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 17, 2022	8:33	9:33	60
2	May 17, 2022	10:15	11:15	60
3	May 17, 2022	12:16	13:16	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 18, 2022	8:32	12:47	240
2	May 18, 2022	14:02	18:14	240
3	May 19, 2022	8:32	12:46	240

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

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

Acrolein and Aldehydes Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 18, 2022	11:50	12:50	60
2	May 18, 2022	13:43	14:43	60
3	May 18, 2022	14:48	15:48	60

Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 18, 2022	8:31	9:11	40
2	May 18, 2022	9:15	9:55	40
3	May 18, 2022	10:00	10:40	40
4	May 18, 2022	10:45	11:25	40

Total Hydrocarbons Trains

Sampling Location	Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
BH Outlet	1	May 17, 2022	9:10	10:10	60
BH Outlet	2	May 17, 2022	10:50	11:50	60
BH Outlet	3	May 17, 2022	11:55	12:55	60
Quench Inlet	1	May 17, 2022	9:10	10:10	60
Quench Inlet	2	May 17, 2022	10:50	11:50	60
Quench Inlet	3	May 17, 2022	11:55	12:55	60

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	0.843	0.977	6.34	3.550	100.6
2	0.843	0.977	6.34	3.536	101.9
3	0.843	0.995	6.34	3.615	101.2

Particle Size Distribution Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.854	0.995	4.51	1.173	98.6
2	0.854	0.995	4.51	1.183	99.2
3	0.854	0.995	4.51	1.186	97.6

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.847	1.008	6.38	1.230	103.7
2	0.847	1.008	6.38	1.249	98.4
3	0.847	1.008	6.38	1.258	100.9

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	0.847	1.008	6.38	4.843	101.1
2	0.847	1.008	6.38	4.885	100.0
3	0.847	1.008	6.38	4.879	100.0

* 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.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	136	15.1	17.4	-2.61	97.3	10.9	8.31
2	136	16.2	17.4	-2.61	97.4	10.9	8.40
3	138	16.6	18.2	-2.79	96.7	11.0	8.15
Average	137	16.0	17.7	-2.67	97.1	10.9	8.29

Particle Size Distribution Trains

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	140	18.0	18.1	-2.61	97.7	11.0	8.38
2	139	16.3	17.6	-2.69	98.1	11.0	8.26
3	139	17.6	18.4	-2.69	97.5	10.6	8.74
Average	139	17.3	18.0	-2.66	97.8	10.8	8.46

Acid Gases Trains **

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	139	14.8	17.4	-2.61	97.2	11.2	8.06
2	140	15.0	18.7	-2.61	97.3	10.8	8.52
3	141	16.3	18.7	-2.61	97.4	10.8	8.37
Average	140	15.4	18.3	-2.61	97.3	10.9	8.32

Semi-Volatile Organics Trains

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	139	15.6	17.6	-2.69	98.2	11.1	8.29
2	140	16.1	18.2	-2.69	97.8	10.9	8.36
3	141	16.3	18.4	-2.79	96.7	11.0	8.16
Average	140	16.0	18.1	-2.72	97.5	11.0	8.27

* Dry basis, measured by the DYEC CEMS

** Sampling was conducted isokinetically on a single traverse 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	25.8	15.3	19.5	18.0
2	25.7	15.1	19.0	18.0
3	26.9	15.5	20.0	18.6
Average	26.1	15.3	19.5	18.2

Particle 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	15.3	19.3	18.7
2	26.0	15.2	19.4	18.2
3	27.2	15.6	19.2	18.9
Average	26.7	15.4	19.3	18.6

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	25.8	15.2	19.7	17.9
2	27.7	16.3	20.4	19.2
3	27.6	16.0	20.3	19.1
Average	27.0	15.8	20.1	18.7

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	26.0	15.4	19.6	18.3
2	26.8	15.7	19.9	18.7
3	27.2	15.7	20.2	18.7
Average	26.7	15.6	19.9	18.6

* At 25°C and 1 atmosphere

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

*** Sampling was conducted isokinetically on a single traverse 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			Dry Gas Volume Sampled	Actual	Particulate Concentration			Particulate Emission Rate
	Probe Rinse	Main Filter	Total			Dry Reference	Dry Adjusted	Wet Reference	
	mg	mg	mg	Rm^3*	mg/m^3	mg/Rm^3*	mg/Rm^3**	mg/Rm^3*	mg/s
1	2.8	2.1	4.9	3.550	0.82	1.38	1.09	1.17	21.1
2	0.9	2.1	3.0	3.536	0.50	0.85	0.67	0.71	12.8
3	2.2	1.7	3.9	3.615	0.62	1.08	0.84	0.90	16.7
Average					0.65	1.10	0.87	0.93	16.9
Blank	0.7	2.5	3.2						

* 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	0.2	1.173	0.097	0.17	0.13	0.14	2.61
2	0.6	1.183	0.30	0.51	0.40	0.42	7.71
3	1.0	1.186	0.48	0.84	0.69	0.70	13.2
Average			0.29	0.51	0.41	0.42	7.82
Blank	0.3						

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	0.9	1.173	0.44	0.77	0.61	0.63	11.7
2	1.2	1.183	0.59	1.01	0.79	0.85	15.4
3	1.3	1.186	0.63	1.10	0.89	0.90	17.1
Average			0.55	0.96	0.76	0.79	14.8
Blank	0.5						

* 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	3.0	1.173	1.46	2.56	2.02	2.09	39.1
2	3.2	1.183	1.58	2.70	2.12	2.26	41.1
3	3.1	1.186	1.50	2.61	2.13	2.16	40.8
Average			1.51	2.63	2.09	2.17	40.3
Blank	0.8						

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	2.4	1.173	1.17	2.05	1.62	1.67	31.3
2	2.1	1.183	1.04	1.78	1.39	1.48	27.0
3	3.7	1.186	1.79	3.12	2.54	2.58	48.7
Average			1.33	2.31	1.85	1.91	35.7
Blank	0.5						

* 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 mg	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	6.09	1.230	2.94	4.95	3.89	4.20	75.9
2	5.48	1.249	2.61	4.39	3.45	3.73	67.2
3	5.15	1.258	2.41	4.09	3.24	3.43	61.7
Average			2.65	4.48	3.53	3.79	68.3
Blank	0.160						

Hydrogen Fluoride

Test No.	HF Collected mg	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	<0.142	1.230	<0.069	<0.12	<0.091	<0.098	<1.77
2	<0.160	1.249	<0.076	<0.13	<0.10	<0.11	<1.96
3	<0.160	1.258	<0.075	<0.13	<0.10	<0.11	<1.92
Average			<0.073	<0.12	<0.097	<0.10	<1.88
Blank	<0.104						

Ammonia

Test No.	Ammonia Collected mg	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	1.39	1.230	0.67	1.13	0.89	0.96	17.3
2	1.30	1.249	0.62	1.04	0.82	0.88	15.9
3	1.37	1.258	0.64	1.09	0.86	0.91	16.4
Average			0.64	1.09	0.86	0.92	16.6
Blank	<0.278						

Note: "<" indicates that the analyte was not detected 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 17 to May 19, 2022

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (%, 1 hr Avg)	7.90	8.33	9.11
BH Outlet	Carbon Monoxide (mg/Rm^3, 1 hr Avg) *	4	11	23
BH Outlet	Carbon Monoxide (mg/Rm^3, 4 hr Avg) *	5.5	10.7	15.0
BH Outlet	Sulphur Dioxide (mg/Rm^3, 1 hr Avg) *	0	0.03	2
BH Outlet	Sulphur Dioxide (mg/Rm^3, 24 hr Avg) *	0	0.02	0.1
BH Outlet	Nitrogen Oxides (mg/Rm^3, 1 hr Avg) *	92	110	123
BH Outlet	Nitrogen Oxides (mg/Rm^3, 24 hr Avg) *	108	110	111
BH Outlet	Hydrogen Chloride (mg/Rm^3, 1 hr Avg) *	0	1	3
BH Outlet	Hydrogen Chloride (mg/Rm^3, 24 hr Avg) *	0.5	1.0	1.5
BH Outlet	Total Hydrocarbons (mg/Rm^3, 1 hr Avg) *	0	0	0
Quench Inlet	Oxygen (%, 1 hr Avg)	8	8	9

Data measured by the ORTECH CEMS on May 17, 2022

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.3	1.8
BH Outlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0.4
BH Outlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.1	0.5
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.1	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0.3	0.9	3.0
Quench Inlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.7	2.1
Quench Inlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.4	1.8
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.7	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 10-min Avg)	0.6	0.9	1.7
Quench Inlet	2	Total Hydrocarbons (ppm dry, 10-min Avg)	0.1	0.7	1.3
Quench Inlet	3	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.4	1.1
Average		Total Hydrocarbons (ppm dry, 10-min Avg)		0.7	

* Reference conditions, dry basis adjusted to 11% oxygen

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

Metal	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	0.31	<0.1	0.31
Arsenic	<1	<0.2	<0.20
Barium	<5	1.00	1.00
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	<0.05	<0.10
Chromium	2.44	0.75	3.19
Cobalt	<0.2	0.14	0.14
Copper	5.49	2.92	8.41
Lead	0.50	0.43	0.93
Mercury *	<0.015	<0.37	<0.37
Molybdenum	36.0	0.14	36.14
Nickel	1.53	0.70	2.23
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<1	<0.10
Zinc	10.1	5.55	15.7
Total			<70.4

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected. 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	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	0.70	0.12	0.82
Arsenic	<1	<0.2	<0.20
Barium	5.23	1.00	6.23
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.11	<0.05	0.11
Chromium	2.33	0.51	2.84
Cobalt	<0.2	<0.1	<0.20
Copper	5.99	3.38	9.37
Lead	0.64	0.30	0.95
Mercury *	<0.015	<0.40	<0.40
Molybdenum	35.4	<0.1	35.4
Nickel	1.50	0.79	2.29
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	12.6	4.62	17.2
Total			<77.7

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected. 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	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	0.36	<0.1	0.36
Arsenic	<1	<0.2	<0.20
Barium	5.19	1.03	6.22
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.10	<0.05	0.10
Chromium	2.17	0.77	2.94
Cobalt	<0.2	<0.1	<0.20
Copper	6.75	3.19	9.94
Lead	0.68	0.40	1.08
Mercury *	<0.015	<0.44	<0.44
Molybdenum	33.6	<0.1	33.6
Nickel	1.51	0.90	2.41
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	16.6	9.97	26.6
Total			<85.8

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected. 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	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	0.31	0.051	0.086	0.067	0.073	0.0013
Arsenic	<0.20	<0.033	<0.056	<0.044	<0.048	<0.00086
Barium	1.00	0.17	0.28	0.22	0.24	0.0043
Beryllium	<0.20	<0.033	<0.056	<0.044	<0.048	<0.00086
Cadmium	<0.10	<0.017	<0.028	<0.022	<0.024	<0.00043
Chromium	3.19	0.53	0.90	0.70	0.76	0.014
Cobalt	0.14	0.023	0.038	0.030	0.033	0.00059
Copper	8.41	1.40	2.37	1.86	2.01	0.036
Lead	0.93	0.16	0.26	0.21	0.22	0.0040
Mercury	<0.37	<0.062	<0.10	<0.082	<0.089	<0.0016
Molybdenum	36.14	6.04	10.2	7.99	8.65	0.16
Nickel	2.23	0.37	0.63	0.49	0.53	0.0096
Selenium	<1.00	<0.17	<0.28	<0.22	<0.24	<0.0043
Silver	<0.20	<0.033	<0.056	<0.044	<0.048	<0.00086
Thallium	<0.20	<0.033	<0.056	<0.044	<0.048	<0.00086
Vanadium	<0.10	<0.017	<0.028	<0.022	<0.024	<0.00043
Zinc	15.7	2.61	4.41	3.46	3.75	0.067
Total	<70.4	<11.8	<19.8	<15.6	<16.8	<0.30

Dry Gas Volume Sampled (Rm^3*) :	3.550
Actual Flowrate (m^3/s) :	25.8
Dry Reference Flowrate (Rm^3/s*) :	15.3
Dry Adjusted Flowrate (Rm^3/s**) :	19.5
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 15
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 2

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	0.82	0.14	0.23	0.18	0.19	0.0035
Arsenic	<0.20	<0.033	<0.057	<0.045	<0.047	<0.00085
Barium	6.23	1.04	1.76	1.40	1.48	0.027
Beryllium	<0.20	<0.033	<0.057	<0.045	<0.047	<0.00085
Cadmium	0.11	0.019	0.032	0.025	0.027	0.00048
Chromium	2.84	0.47	0.80	0.64	0.67	0.012
Cobalt	<0.20	<0.033	<0.057	<0.045	<0.047	<0.00085
Copper	9.37	1.56	2.65	2.11	2.22	0.040
Lead	0.95	0.16	0.27	0.21	0.22	0.0040
Mercury	<0.40	<0.066	<0.11	<0.090	<0.095	<0.0017
Molybdenum	35.4	5.88	10.0	7.96	8.40	0.15
Nickel	2.29	0.38	0.65	0.52	0.54	0.0098
Selenium	<1.00	<0.17	<0.28	<0.22	<0.24	<0.0043
Silver	<0.20	<0.033	<0.057	<0.045	<0.047	<0.00085
Thallium	<0.20	<0.033	<0.057	<0.045	<0.047	<0.00085
Vanadium	<0.10	<0.017	<0.028	<0.022	<0.024	<0.00043
Zinc	17.2	2.86	4.87	3.87	4.09	0.074
Total	<77.7	<12.9	<22.0	<17.5	<18.4	<0.33

Dry Gas Volume Sampled (Rm^3*) :	3.536
Actual Flowrate (m^3/s) :	25.7
Dry Reference Flowrate (Rm^3/s*) :	15.1
Dry Adjusted Flowrate (Rm^3/s**) :	19.0
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 16
Covanta - Durham York Energy Centre
Boiler No. 1 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	0.36	0.058	0.10	0.077	0.083	0.0015
Arsenic	<0.20	<0.032	<0.055	<0.043	<0.046	<0.00086
Barium	6.22	0.99	1.72	1.33	1.43	0.027
Beryllium	<0.20	<0.032	<0.055	<0.043	<0.046	<0.00086
Cadmium	0.10	0.016	0.028	0.022	0.024	0.00044
Chromium	2.94	0.47	0.81	0.63	0.68	0.013
Cobalt	<0.20	<0.032	<0.055	<0.043	<0.046	<0.00086
Copper	9.94	1.58	2.75	2.13	2.29	0.043
Lead	1.08	0.17	0.30	0.23	0.25	0.0046
Mercury	<0.44	<0.070	<0.12	<0.094	<0.10	<0.0019
Molybdenum	33.6	5.36	9.29	7.20	7.75	0.14
Nickel	2.41	0.38	0.67	0.52	0.56	0.010
Selenium	<1.00	<0.16	<0.28	<0.21	<0.23	<0.0043
Silver	<0.20	<0.032	<0.055	<0.043	<0.046	<0.00086
Thallium	<0.20	<0.032	<0.055	<0.043	<0.046	<0.00086
Vanadium	<0.10	<0.016	<0.028	<0.021	<0.023	<0.00043
Zinc	26.6	4.24	7.35	5.70	6.12	0.11
Total	<85.8	<13.7	<23.7	<18.4	<19.8	<0.37

Dry Gas Volume Sampled (Rm^3*) :	3.615
Actual Flowrate (m^3/s) :	26.9
Dry Reference Flowrate (Rm^3/s*) :	15.5
Dry Adjusted Flowrate (Rm^3/s**) :	20.0
Wet Reference Flowrate (Rm^3/s*) :	18.6

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/m³	µg/m³	µg/m³	µg/m³	%
Antimony	0.051	0.14	0.058	0.082	58.3
Arsenic	<0.033	<0.033	<0.032	<0.033	2.6
Barium	0.17	1.04	0.99	0.73	66.9
Beryllium	<0.033	<0.033	<0.032	<0.033	2.6
Cadmium	<0.017	0.019	0.016	<0.017	7.4
Chromium	0.53	0.47	0.47	0.49	7.3
Cobalt	0.023	<0.033	<0.032	<0.029	19.5
Copper	1.40	1.56	1.58	1.52	6.4
Lead	0.16	0.16	0.17	0.16	5.5
Mercury	<0.062	<0.066	<0.070	<0.066	6.3
Molybdenum	6.04	5.88	5.36	5.76	6.2
Nickel	0.37	0.38	0.38	0.38	1.7
Selenium	<0.17	<0.17	<0.16	<0.16	2.6
Silver	<0.033	<0.033	<0.032	<0.033	2.6
Thallium	<0.033	<0.033	<0.032	<0.033	2.6
Vanadium	<0.017	<0.017	<0.016	<0.016	2.6
Zinc	2.61	2.86	4.24	3.24	27.0
Total	<11.8	<12.9	<13.7	<12.8	7.6

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

Metal	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	0.086	0.23	0.10	0.14	57.9
Arsenic	<0.056	<0.057	<0.055	<0.056	1.2
Barium	0.28	1.76	1.72	1.25	67.2
Beryllium	<0.056	<0.057	<0.055	<0.056	1.2
Cadmium	<0.028	0.032	0.028	<0.030	7.1
Chromium	0.90	0.80	0.81	0.84	6.2
Cobalt	0.038	<0.057	<0.055	<0.050	20.4
Copper	2.37	2.65	2.75	2.59	7.6
Lead	0.26	0.27	0.30	0.28	6.9
Mercury	<0.10	<0.11	<0.12	<0.11	7.7
Molybdenum	10.2	10.0	9.29	9.83	4.8
Nickel	0.63	0.65	0.67	0.65	3.0
Selenium	<0.28	<0.28	<0.28	<0.28	1.2
Silver	<0.056	<0.057	<0.055	<0.056	1.2
Thallium	<0.056	<0.057	<0.055	<0.056	1.2
Vanadium	<0.028	<0.028	<0.028	<0.028	1.2
Zinc	4.41	4.87	7.35	5.54	28.5
Total	<19.8	<22.0	<23.7	<21.8	9.0

* 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	0.067	0.18	0.077	0.11	59.1
Arsenic	<0.044	<0.045	<0.043	<0.044	2.4
Barium	0.22	1.40	1.33	0.98	67.3
Beryllium	<0.044	<0.045	<0.043	<0.044	2.4
Cadmium	<0.022	0.025	0.022	<0.023	8.2
Chromium	0.70	0.64	0.63	0.66	6.1
Cobalt	0.030	<0.045	<0.043	<0.039	20.5
Copper	1.86	2.11	2.13	2.03	7.4
Lead	0.21	0.21	0.23	0.22	6.0
Mercury	<0.082	<0.090	<0.094	<0.089	7.2
Molybdenum	7.99	7.96	7.20	7.72	5.8
Nickel	0.49	0.52	0.52	0.51	2.7
Selenium	<0.22	<0.22	<0.21	<0.22	2.4
Silver	<0.044	<0.045	<0.043	<0.044	2.4
Thallium	<0.044	<0.045	<0.043	<0.044	2.4
Vanadium	<0.022	<0.022	<0.021	<0.022	2.4
Zinc	3.46	3.87	5.70	4.34	27.4
Total	<15.6	<17.5	<18.4	<17.1	8.4

** 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	0.073	0.19	0.083	0.12	57.7
Arsenic	<0.048	<0.047	<0.046	<0.047	2.0
Barium	0.24	1.48	1.43	1.05	66.9
Beryllium	<0.048	<0.047	<0.046	<0.047	2.0
Cadmium	<0.024	0.027	0.024	<0.025	6.9
Chromium	0.76	0.67	0.68	0.71	7.1
Cobalt	0.033	<0.047	<0.046	<0.042	19.6
Copper	2.01	2.22	2.29	2.18	6.6
Lead	0.22	0.22	0.25	0.23	6.1
Mercury	<0.089	<0.095	<0.10	<0.095	6.8
Molybdenum	8.65	8.40	7.75	8.27	5.7
Nickel	0.53	0.54	0.56	0.54	2.1
Selenium	<0.24	<0.24	<0.23	<0.24	2.0
Silver	<0.048	<0.047	<0.046	<0.047	2.0
Thallium	<0.048	<0.047	<0.046	<0.047	2.0
Vanadium	<0.024	<0.024	<0.023	<0.024	2.0
Zinc	3.75	4.09	6.12	4.65	27.6
Total	<16.8	<18.4	<19.8	<18.4	8.0

* 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	0.0013	0.0035	0.0015	0.0021	56.7
Arsenic	<0.00086	<0.00085	<0.00086	<0.00086	0.5
Barium	0.0043	0.027	0.027	0.019	67.2
Beryllium	<0.00086	<0.00085	<0.00086	<0.00086	0.5
Cadmium	<0.00043	0.00048	0.00044	<0.00045	6.0
Chromium	0.014	0.012	0.013	0.013	6.4
Cobalt	0.00059	<0.00085	<0.00086	<0.00077	20.3
Copper	0.036	0.040	0.043	0.040	8.1
Lead	0.0040	0.0040	0.0046	0.0042	8.1
Mercury	<0.0016	<0.0017	<0.0019	<0.0017	8.5
Molybdenum	0.16	0.15	0.14	0.15	3.9
Nickel	0.0096	0.0098	0.010	0.0099	3.8
Selenium	<0.0043	<0.0043	<0.0043	<0.0043	0.5
Silver	<0.00086	<0.00085	<0.00086	<0.00086	0.5
Thallium	<0.00086	<0.00085	<0.00086	<0.00086	0.5
Vanadium	<0.00043	<0.00043	<0.00043	<0.00043	0.5
Zinc	0.067	0.074	0.11	0.085	29.7
Total	<0.30	<0.33	<0.37	<0.33	9.7

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

Metal	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg/m³	µg/Rm³*	µg/Rm³**	µg/Rm³*	mg/s
Antimony	0.082	0.14	0.11	0.12	0.0021
Arsenic	<0.033	<0.056	<0.044	<0.047	<0.00086
Barium	0.73	1.25	0.98	1.05	0.019
Beryllium	<0.033	<0.056	<0.044	<0.047	<0.00086
Cadmium	<0.017	<0.030	<0.023	<0.025	<0.00045
Chromium	0.49	0.84	0.66	0.71	0.013
Cobalt	<0.029	<0.050	<0.039	<0.042	<0.00077
Copper	1.52	2.59	2.03	2.18	0.040
Lead	0.16	0.28	0.22	0.23	0.0042
Mercury	<0.066	<0.11	<0.089	<0.095	<0.0017
Molybdenum	5.76	9.83	7.72	8.27	0.15
Nickel	0.38	0.65	0.51	0.54	0.0099
Selenium	<0.16	<0.28	<0.22	<0.24	<0.0043
Silver	<0.033	<0.056	<0.044	<0.047	<0.00086
Thallium	<0.033	<0.056	<0.044	<0.047	<0.00086
Vanadium	<0.016	<0.028	<0.022	<0.024	<0.00043
Zinc	3.24	5.54	4.34	4.65	0.085
Total	<12.8	<21.8	<17.1	<18.4	<0.33

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	<5	0.75	0.75
Beryllium	<0.5	<0.1	<0.20
Cadmium	<0.1	<0.05	<1.00
Chromium	2.02	0.38	2.40
Cobalt	<0.2	<0.1	<0.20
Copper	4.72	2.62	7.34
Lead	<0.5	0.21	0.21
Mercury *	<0.015	<0.15	<0.15
Molybdenum	33.2	<0.1	33.2
Nickel	1.63	0.88	2.51
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	<6	<3	<6.00
Total			<55.9

* Includes the permanganate impingers.

Note: "<" indicates that the analyte was not detected. 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	33.9	0.0041	0.0070	0.0055	0.0059	0.11
Pentachlorodibenzo-p-dioxins	25.7	0.0031	0.0053	0.0042	0.0045	0.082
Hexachlorodibenzo-p-dioxins	125	0.015	0.026	0.020	0.022	0.40
Heptachlorodibenzo-p-dioxins	60.8	0.0074	0.013	0.0099	0.011	0.19
Octachlorodibenzo-p-dioxin	95.4	0.012	0.020	0.015	0.017	0.30
Total	341	0.042	0.070	0.055	0.059	1.08

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<6.3	<0.00077	<0.0013	<0.0010	<0.0011	<0.020
Pentachlorodibenzofurans	5.65	0.00069	0.0012	0.00092	0.00098	0.018
Hexachlorodibenzofurans	12.2	0.0015	0.0025	0.0020	0.0021	0.039
Heptachlorodibenzofurans	16.3	0.0020	0.0034	0.0026	0.0028	0.052
Octachlorodibenzofuran	13.8	0.0017	0.0028	0.0022	0.0024	0.044
Total	<54.3	<0.0066	<0.011	<0.0088	<0.0094	<0.17

Dry Gas Volume Sampled (Rm^3*) :	4.843
Actual Flowrate (m^3/s) :	26.0
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	30.7	0.0037	0.0063	0.0050	0.0053	0.099
Pentachlorodibenzo-p-dioxins	<11	<0.0013	<0.0023	<0.0018	<0.0019	<0.035
Hexachlorodibenzo-p-dioxins	137	0.016	0.028	0.022	0.024	0.44
Heptachlorodibenzo-p-dioxins	60.0	0.0072	0.012	0.0097	0.010	0.19
Octachlorodibenzo-p-dioxin	78.3	0.0094	0.016	0.013	0.013	0.25
Total	<317	<0.038	<0.065	<0.051	<0.054	<1.02

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<6.0	<0.00072	<0.0012	<0.00097	<0.0010	<0.019
Pentachlorodibenzofurans	13.3	0.0016	0.0027	0.0021	0.0023	0.043
Hexachlorodibenzofurans	52.6	0.0063	0.011	0.0085	0.0090	0.17
Heptachlorodibenzofurans	<6.9	<0.00083	<0.0014	<0.0011	<0.0012	<0.022
Octachlorodibenzofuran	<18	<0.0022	<0.0037	<0.0029	<0.0031	<0.058
Total	<96.8	<0.012	<0.020	<0.016	<0.017	<0.31

Dry Gas Volume Sampled (Rm^3*) :	4.885
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
Wet Reference Flowrate (Rm^3/s*) :	18.7

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	43.1	0.0051	0.0088	0.0069	0.0074	0.14
Pentachlorodibenzo-p-dioxins	30.2	0.0036	0.0062	0.0048	0.0052	0.097
Hexachlorodibenzo-p-dioxins	161	0.019	0.033	0.026	0.028	0.52
Heptachlorodibenzo-p-dioxins	144	0.017	0.030	0.023	0.025	0.46
Octachlorodibenzo-p-dioxin	85.1	0.010	0.017	0.014	0.015	0.27
Total	463	0.055	0.095	0.074	0.080	1.49

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<3.3	<0.00039	<0.00068	<0.00053	<0.00057	<0.011
Pentachlorodibenzofurans	10.3	0.0012	0.0021	0.0016	0.0018	0.033
Hexachlorodibenzofurans	9.36	0.0011	0.0019	0.0015	0.0016	0.030
Heptachlorodibenzofurans	<3.5	<0.00041	<0.00072	<0.00056	<0.00060	<0.011
Octachlorodibenzofuran	<15	<0.0018	<0.0031	<0.0024	<0.0026	<0.048
Total	<41.5	<0.0049	<0.0085	<0.0066	<0.0071	<0.13

Dry Gas Volume Sampled (Rm^3*) :	4.879
Actual Flowrate (m^3/s) :	27.2
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	20.2
Wet Reference Flowrate (Rm^3/s*) :	18.7

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

Dioxins

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzo-p-dioxins	0.0041	0.0037	0.0051	0.0043	16.8
Pentachlorodibenzo-p-dioxins	0.0031	<0.0013	0.0036	<0.0027	44.7
Hexachlorodibenzo-p-dioxins	0.015	0.016	0.019	0.017	11.4
Heptachlorodibenzo-p-dioxins	0.0074	0.0072	0.017	0.011	53.2
Octachlorodibenzo-p-dioxin	0.012	0.0094	0.010	0.010	11.3
Total	0.042	<0.038	0.055	<0.045	19.7

Furans

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzofurans	<0.00077	<0.00072	<0.00039	<0.00063	32.9
Pentachlorodibenzofurans	0.00069	0.0016	0.0012	0.0012	38.9
Hexachlorodibenzofurans	0.0015	0.0063	0.0011	0.0030	97.6
Heptachlorodibenzofurans	0.0020	<0.00083	<0.00041	<0.0011	76.0
Octachlorodibenzofuran	0.0017	<0.0022	<0.0018	<0.0019	13.4
Total	<0.0066	<0.012	<0.0049	<0.0077	45.1

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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.0070	0.0063	0.0088	0.0074	17.8
Pentachlorodibenzo-p-dioxins	0.0053	<0.0023	0.0062	<0.0046	45.1
Hexachlorodibenzo-p-dioxins	0.026	0.028	0.033	0.029	12.7
Heptachlorodibenzo-p-dioxins	0.013	0.012	0.030	0.018	54.5
Octachlorodibenzo-p-dioxin	0.020	0.016	0.017	0.018	10.4
Total	0.070	<0.065	0.095	<0.077	20.9

Furans

Congener Group	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzofurans	<0.0013	<0.0012	<0.00068	<0.0011	32.0
Pentachlorodibenzofurans	0.0012	0.0027	0.0021	0.0020	39.2
Hexachlorodibenzofurans	0.0025	0.011	0.0019	0.0051	97.6
Heptachlorodibenzofurans	0.0034	<0.0014	<0.00072	<0.0018	75.0
Octachlorodibenzofuran	0.0028	<0.0037	<0.0031	<0.0032	13.5
Total	<0.011	<0.020	<0.0085	<0.013	44.9

* 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	0.0055	0.0050	0.0069	0.0058	17.0
Pentachlorodibenzo-p-dioxins	0.0042	<0.0018	0.0048	<0.0036	44.6
Hexachlorodibenzo-p-dioxins	0.020	0.022	0.026	0.023	12.0
Heptachlorodibenzo-p-dioxins	0.0099	0.0097	0.023	0.014	53.7
Octachlorodibenzo-p-dioxin	0.015	0.013	0.014	0.014	10.4
Total	0.055	<0.051	0.074	<0.060	20.1

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	<0.0010	<0.00097	<0.00053	<0.00084	32.5
Pentachlorodibenzofurans	0.00092	0.0021	0.0016	0.0016	39.5
Hexachlorodibenzofurans	0.0020	0.0085	0.0015	0.0040	98.0
Heptachlorodibenzofurans	0.0026	<0.0011	<0.00056	<0.0014	75.1
Octachlorodibenzofuran	0.0022	<0.0029	<0.0024	<0.0025	14.0
Total	<0.0088	<0.016	<0.0066	<0.010	45.5

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.0059	0.0053	0.0074	0.0062	17.8
Pentachlorodibenzo-p-dioxins	0.0045	<0.0019	0.0052	<0.0039	45.1
Hexachlorodibenzo-p-dioxins	0.022	0.024	0.028	0.024	12.6
Heptachlorodibenzo-p-dioxins	0.011	0.010	0.025	0.015	54.4
Octachlorodibenzo-p-dioxin	0.017	0.013	0.015	0.015	10.6
Total	0.059	<0.054	0.080	<0.064	20.8

Furans

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzofurans	<0.0011	<0.0010	<0.00057	<0.00090	32.0
Pentachlorodibenzofurans	0.00098	0.0023	0.0018	0.0017	39.1
Hexachlorodibenzofurans	0.0021	0.0090	0.0016	0.0043	97.5
Heptachlorodibenzofurans	0.0028	<0.0012	<0.00060	<0.0015	75.1
Octachlorodibenzofuran	0.0024	<0.0031	<0.0026	<0.0027	13.4
Total	<0.0094	<0.017	<0.0071	<0.011	44.8

* 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	0.11	0.099	0.14	0.12	18.2
Pentachlorodibenzo-p-dioxins	0.082	<0.035	0.097	<0.071	45.1
Hexachlorodibenzo-p-dioxins	0.40	0.44	0.52	0.45	13.5
Heptachlorodibenzo-p-dioxins	0.19	0.19	0.46	0.28	55.1
Octachlorodibenzo-p-dioxin	0.30	0.25	0.27	0.28	9.4
Total	1.08	<1.02	1.49	<1.20	21.4

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	<0.020	<0.019	<0.011	<0.017	31.4
Pentachlorodibenzofurans	0.018	0.043	0.033	0.031	39.9
Hexachlorodibenzofurans	0.039	0.17	0.030	0.079	98.1
Heptachlorodibenzofurans	0.052	<0.022	<0.011	<0.028	73.9
Octachlorodibenzofuran	0.044	<0.058	<0.048	<0.050	14.3
Total	<0.17	<0.31	<0.13	<0.21	45.4

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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	0.0043	0.0074	0.0058	0.0062	0.12
Pentachlorodibenzo-p-dioxins	<0.0027	<0.0046	<0.0036	<0.0039	<0.071
Hexachlorodibenzo-p-dioxins	0.017	0.029	0.023	0.024	0.45
Heptachlorodibenzo-p-dioxins	0.011	0.018	0.014	0.015	0.28
Octachlorodibenzo-p-dioxin	0.010	0.018	0.014	0.015	0.28
Total	<0.045	<0.077	<0.060	<0.064	<1.20

Furans

Congener Group	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<0.00063	<0.0011	<0.00084	<0.00090	<0.017
Pentachlorodibenzofurans	0.0012	0.0020	0.0016	0.0017	0.031
Hexachlorodibenzofurans	0.0030	0.0051	0.0040	0.0043	0.079
Heptachlorodibenzofurans	<0.0011	<0.0018	<0.0014	<0.0015	<0.028
Octachlorodibenzofuran	<0.0019	<0.0032	<0.0025	<0.0027	<0.050
Total	<0.0077	<0.013	<0.010	<0.011	<0.21

* 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	Method Blank
	pg	pg
Tetrachlorodibenzo-p-dioxins	<1.3	<1.5
Pentachlorodibenzo-p-dioxins	<0.65	<0.88
Hexachlorodibenzo-p-dioxins	<0.64	<1.0
Heptachlorodibenzo-p-dioxins	3.11	<1.4
Octachlorodibenzo-p-dioxin	<5.9	21.5
Total	<11.6	<26.3

Furans

Congener Group	Blank Train	Method Blank
	pg	pg
Tetrachlorodibenzofurans	<0.90	<1.1
Pentachlorodibenzofurans	1.27	<1.2
Hexachlorodibenzofurans	0.76	6.01
Heptachlorodibenzofurans	<0.67	2.95
Octachlorodibenzofuran	<2.8	9.49
Total	<6.40	<20.8

"<" indicates that the amount detected is less than the detection limit
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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<22	<2.69	<4.54	<3.57	<3.82	<0.070
12378-pentachlorodibenzo-p-dioxin	<11	<1.35	<2.27	<1.78	<1.91	<0.035
123478-hexachlorodibenzo-p-dioxin	<10	<1.22	<2.06	<1.62	<1.74	<0.032
123678-hexachlorodibenzo-p-dioxin	<28	<3.42	<5.78	<4.54	<4.87	<0.089
123789-hexachlorodibenzo-p-dioxin	<12	<1.47	<2.48	<1.95	<2.09	<0.038
1234678-heptachlorodibenzo-p-dioxin	<150	<18.3	<31.0	<24.3	<26.1	<0.48
Octachlorodibenzo-p-dioxin	273	33.4	56.4	44.3	47.4	0.87
2378-tetrachlorodibenzofuran	<18	<2.20	<3.72	<2.92	<3.13	<0.057
12378-pentachlorodibenzofuran	8.79	1.08	1.81	1.43	1.53	0.028
23478-pentachlorodibenzofuran	<8.2	<1.00	<1.69	<1.33	<1.42	<0.026
123478-hexachlorodibenzofuran	<10	<1.22	<2.06	<1.62	<1.74	<0.032
123678-hexachlorodibenzofuran	18.3	2.24	3.78	2.97	3.18	0.058
234678-hexachlorodibenzofuran	<28	<3.42	<5.78	<4.54	<4.87	<0.089
123789-hexachlorodibenzofuran	<44	<5.38	<9.09	<7.14	<7.65	<0.14
1234678-heptachlorodibenzofuran	46.6	5.70	9.62	7.56	8.10	0.15
1234789-heptachlorodibenzofuran	<15	<1.83	<3.10	<2.43	<2.61	<0.048
Octachlorodibenzofuran	39.4	4.82	8.14	6.39	6.85	0.13
PCB 81	<8.9	<1.09	<1.84	<1.44	<1.55	<0.028
PCB 77	40.7	4.98	8.40	6.60	7.07	0.13
PCB 123	<21	<2.57	<4.34	<3.41	<3.65	<0.067
PCB 118	604	73.9	125	98.0	105	1.92
PCB 114	20.5	2.51	4.23	3.33	3.56	0.065
PCB 105	192	23.5	39.6	31.1	33.4	0.61
PCB 126	<11	<1.35	<2.27	<1.78	<1.91	<0.035
PCB 167	8.46	1.03	1.75	1.37	1.47	0.027
PCB 156/157	<23	<2.81	<4.75	<3.73	<4.00	<0.073
PCB 169	<6.6	<0.81	<1.36	<1.07	<1.15	<0.021
PCB 189	<4.4	<0.54	<0.91	<0.71	<0.76	<0.014
Total Dioxins & Furans Only	<742	<90.8	<153	<120	<129	<2.36
Total PCBs Only	<941	<115	<194	<153	<163	<2.99
Total Dioxins & Furans and PCBs	<1683	<206	<347	<273	<292	<5.35

Dry Gas Volume Sampled (Rm³*) :	4.843
Actual Flowrate (m³/s) :	26.0
Dry Reference Flowrate (Rm³/s*) :	15.4
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<16	<1.92	<3.28	<2.58	<2.75	<0.051
12378-pentachlorodibenzo-p-dioxin	<23	<2.76	<4.71	<3.71	<3.95	<0.074
123478-hexachlorodibenzo-p-dioxin	<13	<1.56	<2.66	<2.10	<2.23	<0.042
123678-hexachlorodibenzo-p-dioxin	<15	<1.80	<3.07	<2.42	<2.58	<0.048
123789-hexachlorodibenzo-p-dioxin	<9.5	<1.14	<1.94	<1.53	<1.63	<0.031
1234678-heptachlorodibenzo-p-dioxin	143	17.1	29.3	23.1	24.6	0.46
Octachlorodibenzo-p-dioxin	186	22.3	38.1	30.0	32.0	0.60
2378-tetrachlorodibenzofuran	<13	<1.56	<2.66	<2.10	<2.23	<0.042
12378-pentachlorodibenzofuran	<9.1	<1.09	<1.86	<1.47	<1.56	<0.029
23478-pentachlorodibenzofuran	12.0	1.44	2.46	1.94	2.06	0.039
123478-hexachlorodibenzofuran	<13	<1.56	<2.66	<2.10	<2.23	<0.042
123678-hexachlorodibenzofuran	<14	<1.68	<2.87	<2.26	<2.41	<0.045
234678-hexachlorodibenzofuran	20.0	2.40	4.09	3.23	3.44	0.064
123789-hexachlorodibenzofuran	38.2	4.58	7.82	6.17	6.57	0.12
1234678-heptachlorodibenzofuran	<22	<2.64	<4.50	<3.55	<3.78	<0.071
1234789-heptachlorodibenzofuran	<16	<1.92	<3.28	<2.58	<2.75	<0.051
Octachlorodibenzofuran	<43	<5.16	<8.80	<6.94	<7.39	<0.14
PCB 81	<8.2	<0.98	<1.68	<1.32	<1.41	<0.026
PCB 77	83.9	10.1	17.2	13.6	14.4	0.27
PCB 123	<18	<2.16	<3.68	<2.91	<3.09	<0.058
PCB 118	1980	237	405	320	340	6.36
PCB 114	<35	<4.20	<7.16	<5.65	<6.02	<0.11
PCB 105	704	84.4	144	114	121	2.26
PCB 126	13.4	1.61	2.74	2.16	2.30	0.043
PCB 167	25.0	3.00	5.12	4.04	4.30	0.080
PCB 156/157	58.7	7.04	12.0	9.48	10.1	0.19
PCB 169	<5.1	<0.61	<1.04	<0.82	<0.88	<0.016
PCB 189	<3.3	<0.40	<0.68	<0.53	<0.57	<0.011
Total Dioxins & Furans Only	<606	<72.6	<124.0	<97.8	<104.1	<1.95
Total PCBs Only	<2935	<352	<601	<474	<504	<9.43
Total Dioxins & Furans and PCBs	<3540	<425	<725	<572	<608	<11.4

Dry Gas Volume Sampled (Rm^3*) :	4.885
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
Wet Reference Flowrate (Rm^3/s*) :	18.7

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<13	<1.54	<2.66	<2.07	<2.24	<0.042
12378-pentachlorodibenzo-p-dioxin	<7.9	<0.93	<1.62	<1.26	<1.36	<0.025
123478-hexachlorodibenzo-p-dioxin	<10	<1.18	<2.05	<1.59	<1.72	<0.032
123678-hexachlorodibenzo-p-dioxin	28.2	3.34	5.78	4.49	4.85	0.091
123789-hexachlorodibenzo-p-dioxin	<9.7	<1.15	<1.99	<1.55	<1.67	<0.031
1234678-heptachlorodibenzo-p-dioxin	164	19.4	33.6	26.1	28.2	0.53
Octachlorodibenzo-p-dioxin	213	25.2	43.7	33.9	36.7	0.69
2378-tetrachlorodibenzofuran	<7.9	<0.93	<1.62	<1.26	<1.36	<0.025
12378-pentachlorodibenzofuran	<5.8	<0.69	<1.19	<0.92	<1.00	<0.019
23478-pentachlorodibenzofuran	<8.6	<1.02	<1.76	<1.37	<1.48	<0.028
123478-hexachlorodibenzofuran	<8.3	<0.98	<1.70	<1.32	<1.43	<0.027
123678-hexachlorodibenzofuran	<8.3	<0.98	<1.70	<1.32	<1.43	<0.027
234678-hexachlorodibenzofuran	14.3	1.69	2.93	2.28	2.46	0.046
123789-hexachlorodibenzofuran	<20	<2.37	<4.10	<3.19	<3.44	<0.064
1234678-heptachlorodibenzofuran	<38	<4.50	<7.79	<6.05	<6.54	<0.12
1234789-heptachlorodibenzofuran	<8.8	<1.04	<1.80	<1.40	<1.51	<0.028
Octachlorodibenzofuran	<38	<4.50	<7.79	<6.05	<6.54	<0.12
PCB 81	<7.1	<0.84	<1.46	<1.13	<1.22	<0.023
PCB 77	32.2	3.81	6.60	5.13	5.54	0.10
PCB 123	9.84	1.16	2.02	1.57	1.69	0.032
PCB 118	809	95.7	166	129	139	2.60
PCB 114	<23	<2.72	<4.71	<3.66	<3.96	<0.074
PCB 105	244	28.9	50.0	38.9	42.0	0.79
PCB 126	<6.3	<0.75	<1.29	<1.00	<1.08	<0.020
PCB 167	9.64	1.14	1.98	1.54	1.66	0.031
PCB 156/157	25.5	3.02	5.23	4.06	4.39	0.082
PCB 169	<3.3	<0.39	<0.68	<0.53	<0.57	<0.011
PCB 189	<1.9	<0.22	<0.39	<0.30	<0.33	<0.0061
Total Dioxins & Furans Only	<604	<71.4	<124	<96.2	<104	<1.94
Total PCBs Only	<1172	<139	<240	<187	<202	<3.77
Total Dioxins & Furans and PCBs	<1776	<210	<364	<283	<306	<5.71

Dry Gas Volume Sampled (Rm^3*) :	4.879
Actual Flowrate (m^3/s) :	27.2
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	20.2
Wet Reference Flowrate (Rm^3/s*) :	18.7

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

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/m³	pg/m³	pg/m³	pg/m³	%
2378-tetrachlorodibenzo-p-dioxin	<2.69	<1.92	<1.54	<2.05	28.7
12378-pentachlorodibenzo-p-dioxin	<1.35	<2.76	<0.93	<1.68	57.0
123478-hexachlorodibenzo-p-dioxin	<1.22	<1.56	<1.18	<1.32	15.6
123678-hexachlorodibenzo-p-dioxin	<3.42	<1.80	3.34	<2.85	32.0
123789-hexachlorodibenzo-p-dioxin	<1.47	<1.14	<1.15	<1.25	15.0
1234678-heptachlorodibenzo-p-dioxin	<18.3	17.1	19.4	<18.3	6.2
Octachlorodibenzo-p-dioxin	33.4	22.3	25.2	27.0	21.3
2378-tetrachlorodibenzofuran	<2.20	<1.56	<0.93	<1.57	40.5
12378-pentachlorodibenzofuran	1.08	<1.09	<0.69	<0.95	24.1
23478-pentachlorodibenzofuran	<1.00	1.44	<1.02	<1.15	21.5
123478-hexachlorodibenzofuran	<1.22	<1.56	<0.98	<1.25	23.1
123678-hexachlorodibenzofuran	2.24	<1.68	<0.98	<1.63	38.5
234678-hexachlorodibenzofuran	<3.42	2.40	1.69	<2.50	34.8
123789-hexachlorodibenzofuran	<5.38	4.58	<2.37	<4.11	38.0
1234678-heptachlorodibenzofuran	5.70	<2.64	<4.50	<4.28	36.0
1234789-heptachlorodibenzofuran	<1.83	<1.92	<1.04	<1.60	30.3
Octachlorodibenzofuran	4.82	<5.16	<4.50	<4.82	6.9
PCB 81	<1.09	<0.98	<0.84	<0.97	12.9
PCB 77	4.98	10.1	3.81	6.28	52.9
PCB 123	<2.57	<2.16	1.16	<1.96	36.8
PCB 118	73.9	237	95.7	136	65.5
PCB 114	2.51	<4.20	<2.72	<3.14	29.3
PCB 105	23.5	84.4	28.9	45.6	74.0
PCB 126	<1.35	1.61	<0.75	<1.23	35.8
PCB 167	1.03	3.00	1.14	1.72	64.0
PCB 156/157	<2.81	7.04	3.02	<4.29	55.6
PCB 169	<0.81	<0.61	<0.39	<0.60	34.6
PCB 189	<0.54	<0.40	<0.22	<0.39	40.6
Total Dioxins & Furans Only	<90.8	<72.6	<71.4	<78.3	13.8
Total PCBs Only	<115	<352	<139	<202	64.6
Total Dioxins & Furans and PCBs	<206	<425	<210	<280	44.7

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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<4.54	<3.28	<2.66	<3.49	27.4
12378-pentachlorodibenzo-p-dioxin	<2.27	<4.71	<1.62	<2.87	56.8
123478-hexachlorodibenzo-p-dioxin	<2.06	<2.66	<2.05	<2.26	15.4
123678-hexachlorodibenzo-p-dioxin	<5.78	<3.07	5.78	<4.88	32.1
123789-hexachlorodibenzo-p-dioxin	<2.48	<1.94	<1.99	<2.14	13.9
1234678-heptachlorodibenzo-p-dioxin	<31.0	29.3	33.6	<31.3	7.0
Octachlorodibenzo-p-dioxin	56.4	38.1	43.7	46.0	20.4
2378-tetrachlorodibenzofuran	<3.72	<2.66	<1.62	<2.67	39.3
12378-pentachlorodibenzofuran	1.81	<1.86	<1.19	<1.62	23.2
23478-pentachlorodibenzofuran	<1.69	2.46	<1.76	<1.97	21.4
123478-hexachlorodibenzofuran	<2.06	<2.66	<1.70	<2.14	22.6
123678-hexachlorodibenzofuran	3.78	<2.87	<1.70	<2.78	37.4
234678-hexachlorodibenzofuran	<5.78	4.09	2.93	<4.27	33.6
123789-hexachlorodibenzofuran	<9.09	7.82	<4.10	<7.00	37.0
1234678-heptachlorodibenzofuran	9.62	<4.50	<7.79	<7.30	35.5
1234789-heptachlorodibenzofuran	<3.10	<3.28	<1.80	<2.73	29.5
Octachlorodibenzofuran	8.14	<8.80	<7.79	<8.24	6.3
PCB 81	<1.84	<1.68	<1.46	<1.66	11.6
PCB 77	8.40	17.2	6.60	10.7	52.7
PCB 123	<4.34	<3.68	2.02	<3.35	35.8
PCB 118	125	405	166	232	65.3
PCB 114	4.23	<7.16	<4.71	<5.37	29.3
PCB 105	39.6	144	50.0	77.9	73.9
PCB 126	<2.27	2.74	<1.29	<2.10	35.2
PCB 167	1.75	5.12	1.98	2.95	63.9
PCB 156/157	<4.75	12.0	5.23	<7.33	55.5
PCB 169	<1.36	<1.04	<0.68	<1.03	33.4
PCB 189	<0.91	<0.68	<0.39	<0.66	39.5
Total Dioxins & Furans Only	<153	<124	<124	<134	12.7
Total PCBs Only	<194	<601	<240	<345	64.5
Total Dioxins & Furans and PCBs	<347	<725	<364	<479	44.5

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<3.57	<2.58	<2.07	<2.74	27.8
12378-pentachlorodibenzo-p-dioxin	<1.78	<3.71	<1.26	<2.25	57.4
123478-hexachlorodibenzo-p-dioxin	<1.62	<2.10	<1.59	<1.77	16.1
123678-hexachlorodibenzo-p-dioxin	<4.54	<2.42	4.49	<3.82	31.7
123789-hexachlorodibenzo-p-dioxin	<1.95	<1.53	<1.55	<1.68	14.0
1234678-heptachlorodibenzo-p-dioxin	<24.3	23.1	26.1	<24.5	6.2
Octachlorodibenzo-p-dioxin	44.3	30.0	33.9	36.1	20.4
2378-tetrachlorodibenzofuran	<2.92	<2.10	<1.26	<2.09	39.7
12378-pentachlorodibenzofuran	1.43	<1.47	<0.92	<1.27	23.8
23478-pentachlorodibenzofuran	<1.33	1.94	<1.37	<1.55	22.0
123478-hexachlorodibenzofuran	<1.62	<2.10	<1.32	<1.68	23.3
123678-hexachlorodibenzofuran	2.97	<2.26	<1.32	<2.18	37.8
234678-hexachlorodibenzofuran	<4.54	3.23	2.28	<3.35	33.9
123789-hexachlorodibenzofuran	<7.14	6.17	<3.19	<5.50	37.5
1234678-heptachlorodibenzofuran	7.56	<3.55	<6.05	<5.72	35.4
1234789-heptachlorodibenzofuran	<2.43	<2.58	<1.40	<2.14	30.1
Octachlorodibenzofuran	6.39	<6.94	<6.05	<6.46	7.0
PCB 81	<1.44	<1.32	<1.13	<1.30	12.1
PCB 77	6.60	13.6	5.13	8.43	53.4
PCB 123	<3.41	<2.91	1.57	<2.63	36.2
PCB 118	98.0	320	129	182	65.9
PCB 114	3.33	<5.65	<3.66	<4.21	29.8
PCB 105	31.1	114	38.9	61.2	74.5
PCB 126	<1.78	2.16	<1.00	<1.65	35.8
PCB 167	1.37	4.04	1.54	2.32	64.5
PCB 156/157	<3.73	9.48	4.06	<5.76	56.1
PCB 169	<1.07	<0.82	<0.53	<0.81	33.8
PCB 189	<0.71	<0.53	<0.30	<0.52	39.9
Total Dioxins & Furans Only	<120	<97.8	<96.2	<105	12.9
Total PCBs Only	<153	<474	<187	<271	65.1
Total Dioxins & Furans and PCBs	<273	<572	<283	<376	45.2

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

Specific Isomer	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<3.82	<2.75	<2.24	<2.94	27.6
12378-pentachlorodibenzo-p-dioxin	<1.91	<3.95	<1.36	<2.41	56.7
123478-hexachlorodibenzo-p-dioxin	<1.74	<2.23	<1.72	<1.90	15.4
123678-hexachlorodibenzo-p-dioxin	<4.87	<2.58	4.85	<4.10	32.1
123789-hexachlorodibenzo-p-dioxin	<2.09	<1.63	<1.67	<1.80	14.0
1234678-heptachlorodibenzo-p-dioxin	<26.1	24.6	28.2	<26.3	7.0
Octachlorodibenzo-p-dioxin	47.4	32.0	36.7	38.7	20.5
2378-tetrachlorodibenzofuran	<3.13	<2.23	<1.36	<2.24	39.5
12378-pentachlorodibenzofuran	1.53	<1.56	<1.00	<1.36	23.2
23478-pentachlorodibenzofuran	<1.42	2.06	<1.48	<1.66	21.3
123478-hexachlorodibenzofuran	<1.74	<2.23	<1.43	<1.80	22.6
123678-hexachlorodibenzofuran	3.18	<2.41	<1.43	<2.34	37.5
234678-hexachlorodibenzofuran	<4.87	3.44	2.46	<3.59	33.7
123789-hexachlorodibenzofuran	<7.65	6.57	<3.44	<5.88	37.1
1234678-heptachlorodibenzofuran	8.10	<3.78	<6.54	<6.14	35.6
1234789-heptachlorodibenzofuran	<2.61	<2.75	<1.51	<2.29	29.5
Octachlorodibenzofuran	6.85	<7.39	<6.54	<6.93	6.2
PCB 81	<1.55	<1.41	<1.22	<1.39	11.7
PCB 77	7.07	14.4	5.54	9.01	52.7
PCB 123	<3.65	<3.09	1.69	<2.81	35.8
PCB 118	105	340	139	195	65.3
PCB 114	3.56	<6.02	<3.96	<4.51	29.2
PCB 105	33.4	121	42.0	65.4	73.8
PCB 126	<1.91	2.30	<1.08	<1.77	35.2
PCB 167	1.47	4.30	1.66	2.48	63.8
PCB 156/157	<4.00	10.1	4.39	<6.16	55.4
PCB 169	<1.15	<0.88	<0.57	<0.86	33.5
PCB 189	<0.76	<0.57	<0.33	<0.55	39.6
Total Dioxins & Furans Only	<129	<104	<104	<112	12.8
Total PCBs Only	<163	<504	<202	<290	64.5
Total Dioxins & Furans and PCBs	<292	<608	<306	<402	44.5

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/s	ng/s	ng/s	ng/s	%
2378-tetrachlorodibenzo-p-dioxin	<0.070	<0.051	<0.042	<0.054	26.3
12378-pentachlorodibenzo-p-dioxin	<0.035	<0.074	<0.025	<0.045	57.4
123478-hexachlorodibenzo-p-dioxin	<0.032	<0.042	<0.032	<0.035	16.0
123678-hexachlorodibenzo-p-dioxin	<0.089	<0.048	0.091	<0.076	31.7
123789-hexachlorodibenzo-p-dioxin	<0.038	<0.031	<0.031	<0.033	12.7
1234678-heptachlorodibenzo-p-dioxin	<0.48	0.46	0.53	<0.49	7.3
Octachlorodibenzo-p-dioxin	0.87	0.60	0.69	0.72	19.2
2378-tetrachlorodibenzofuran	<0.057	<0.042	<0.025	<0.041	38.4
12378-pentachlorodibenzofuran	0.028	<0.029	<0.019	<0.025	22.8
23478-pentachlorodibenzofuran	<0.026	0.039	<0.028	<0.031	22.1
123478-hexachlorodibenzofuran	<0.032	<0.042	<0.027	<0.033	22.9
123678-hexachlorodibenzofuran	0.058	<0.045	<0.027	<0.043	36.5
234678-hexachlorodibenzofuran	<0.089	0.064	0.046	<0.066	32.5
123789-hexachlorodibenzofuran	<0.14	0.12	<0.064	<0.11	36.3
1234678-heptachlorodibenzofuran	0.15	<0.071	<0.12	<0.11	34.7
1234789-heptachlorodibenzofuran	<0.048	<0.051	<0.028	<0.042	29.2
Octachlorodibenzofuran	0.13	<0.14	<0.12	<0.13	6.6
PCB 81	<0.028	<0.026	<0.023	<0.026	10.7
PCB 77	0.13	0.27	0.10	0.17	53.3
PCB 123	<0.067	<0.058	0.032	<0.052	35.0
PCB 118	1.92	6.36	2.60	3.63	65.9
PCB 114	0.065	<0.11	<0.074	<0.084	30.0
PCB 105	0.61	2.26	0.79	1.22	74.4
PCB 126	<0.035	0.043	<0.020	<0.033	35.3
PCB 167	0.027	0.080	0.031	0.046	64.5
PCB 156/157	<0.073	0.19	0.082	<0.11	56.1
PCB 169	<0.021	<0.016	<0.011	<0.016	32.5
PCB 189	<0.014	<0.011	<0.0061	<0.010	38.6
Total Dioxins & Furans Only	<2.36	<1.95	<1.94	<2.08	11.5
Total PCBs Only	<2.99	<9.43	<3.77	<5.40	65.1
Total Dioxins & Furans and PCBs	<5.35	<11.4	<5.71	<7.48	45.2

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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<2.05	<3.49	<2.74	<2.94	<0.054
12378-pentachlorodibenzo-p-dioxin	<1.68	<2.87	<2.25	<2.41	<0.045
123478-hexachlorodibenzo-p-dioxin	<1.32	<2.26	<1.77	<1.90	<0.035
123678-hexachlorodibenzo-p-dioxin	<2.85	<4.88	<3.82	<4.10	<0.076
123789-hexachlorodibenzo-p-dioxin	<1.25	<2.14	<1.68	<1.80	<0.033
1234678-heptachlorodibenzo-p-dioxin	<18.3	<31.3	<24.5	<26.3	<0.49
Octachlorodibenzo-p-dioxin	27.0	46.0	36.1	38.7	0.72
2378-tetrachlorodibenzofuran	<1.57	<2.67	<2.09	<2.24	<0.041
12378-pentachlorodibenzofuran	<0.95	<1.62	<1.27	<1.36	<0.025
23478-pentachlorodibenzofuran	<1.15	<1.97	<1.55	<1.66	<0.031
123478-hexachlorodibenzofuran	<1.25	<2.14	<1.68	<1.80	<0.033
123678-hexachlorodibenzofuran	<1.63	<2.78	<2.18	<2.34	<0.043
234678-hexachlorodibenzofuran	<2.50	<4.27	<3.35	<3.59	<0.066
123789-hexachlorodibenzofuran	<4.11	<7.00	<5.50	<5.88	<0.11
1234678-heptachlorodibenzofuran	<4.28	<7.30	<5.72	<6.14	<0.11
1234789-heptachlorodibenzofuran	<1.60	<2.73	<2.14	<2.29	<0.042
Octachlorodibenzofuran	<4.82	<8.24	<6.46	<6.93	<0.13
PCB 81	<0.97	<1.66	<1.30	<1.39	<0.026
PCB 77	6.28	10.7	8.43	9.01	0.17
PCB 123	<1.96	<3.35	<2.63	<2.81	<0.052
PCB 118	136	232	182	195	3.63
PCB 114	<3.14	<5.37	<4.21	<4.51	<0.084
PCB 105	45.6	77.9	61.2	65.4	1.22
PCB 126	<1.23	<2.10	<1.65	<1.77	<0.033
PCB 167	1.72	2.95	2.32	2.48	0.046
PCB 156/157	<4.29	<7.33	<5.76	<6.16	<0.11
PCB 169	<0.60	<1.03	<0.81	<0.86	<0.016
PCB 189	<0.39	<0.66	<0.52	<0.55	<0.010
Total Dioxins & Furans Only	<78.3	<134	<105	<112	<2.08
Total PCBs Only	<202	<345	<271	<290	<5.40
Total Dioxins & Furans and PCBs	<280	<479	<376	<402	<7.48

* 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	Method Blank
	pg	pg
2378-tetrachlorodibenzo-p-dioxin	<1.3	<1.5
12378-pentachlorodibenzo-p-dioxin	<0.65	<0.88
123478-hexachlorodibenzo-p-dioxin	<0.64	<1.0
123678-hexachlorodibenzo-p-dioxin	<0.60	<2.1
123789-hexachlorodibenzo-p-dioxin	<0.62	<1.3
1234678-heptachlorodibenzo-p-dioxin	3.11	<4.5
Octachlorodibenzo-p-dioxin	<5.9	21.5
2378-tetrachlorodibenzofuran	<0.90	<1.1
12378-pentachlorodibenzofuran	<1.3	<1.8
23478-pentachlorodibenzofuran	<0.60	<1.2
123478-hexachlorodibenzofuran	<0.45	<1.0
123678-hexachlorodibenzofuran	<0.45	<0.95
234678-hexachlorodibenzofuran	<0.47	<1.2
123789-hexachlorodibenzofuran	<3.7	6.01
1234678-heptachlorodibenzofuran	<0.57	<2.2
1234789-heptachlorodibenzofuran	<0.67	2.95
Octachlorodibenzofuran	<2.8	9.49
PCB 81	<2.4	<2.1
PCB 77	<7.8	2.67
PCB 123	4.69	<2.3
PCB 118	148	<6.8
PCB 114	5.29	<2.7
PCB 105	53.3	6.82
PCB 126	<1.7	<2.2
PCB 167	3.89	<2.0
PCB 156/157	12.4	<3.4
PCB 169	<5.3	<1.6
PCB 189	<3.6	<1.3
Total Dioxins & Furans Only	<24.7	<60.6
Total PCBs Only	<248	<33.9
Total Dioxins & Furans and PCBs	<273	<94.5

"<" indicates that the amount detected is less than the detection limit
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	1.00000	<2.69	<1.92	<1.54	<2.05
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.35	<2.76	<0.93	<1.68
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.12	<0.16	<0.12	<0.13
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.34	<0.18	0.33	<0.29
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.15	<0.11	<0.11	<0.13
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.18	0.17	0.19	<0.18
Octachlorodibenzo-p-dioxin	0.00030	0.010	0.0067	0.0076	0.0081
2378-tetrachlorodibenzofuran	0.10000	<0.22	<0.16	<0.093	<0.16
12378-pentachlorodibenzofuran	0.03000	0.032	<0.033	<0.021	<0.029
23478-pentachlorodibenzofuran	0.30000	<0.30	0.43	<0.31	<0.35
123478-hexachlorodibenzofuran	0.10000	<0.12	<0.16	<0.098	<0.13
123678-hexachlorodibenzofuran	0.10000	0.22	<0.17	<0.098	<0.16
234678-hexachlorodibenzofuran	0.10000	<0.34	0.24	0.17	<0.25
123789-hexachlorodibenzofuran	0.10000	<0.54	0.46	<0.24	<0.41
1234678-heptachlorodibenzofuran	0.01000	0.057	<0.026	<0.045	<0.043
1234789-heptachlorodibenzofuran	0.01000	<0.018	<0.019	<0.010	<0.016
Octachlorodibenzofuran	0.00030	0.0014	<0.0015	<0.0013	<0.0014
PCB 81	0.00030	<0.00033	<0.00030	<0.00025	<0.00029
PCB 77	0.00010	0.00050	0.0010	0.00038	0.00063
PCB 123	0.00003	<0.000077	<0.000065	0.000035	<0.000059
PCB 118	0.00003	0.0022	0.0071	0.0029	0.0041
PCB 114	0.00003	0.000075	<0.00013	<0.000082	<0.000094
PCB 105	0.00003	0.00070	0.0025	0.00087	0.0014
PCB 126	0.10000	<0.13	0.16	<0.075	<0.12
PCB 167	0.00003	0.000031	0.000090	0.000034	0.000052
PCB 156/157	0.00003	<0.000084	0.00021	0.000091	<0.00013
PCB 169	0.03000	<0.024	<0.018	<0.012	<0.018
PCB 189	0.00003	<0.000016	<0.000012	<0.0000067	<0.000012
Total Dioxins & Furans Only		<6.70	<6.99	<4.32	<6.00
Total PCBs Only		<0.16	<0.19	<0.091	<0.15
Total Dioxins & Furans and PCBs		<6.86	<7.18	<4.41	<6.15

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	1.00000	<4.54	<3.28	<2.66	<3.49
12378-pentachlorodibenzo-p-dioxin	1.00000	<2.27	<4.71	<1.62	<2.87
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.21	<0.27	<0.20	<0.23
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.58	<0.31	0.58	<0.49
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.25	<0.19	<0.20	<0.21
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.31	0.29	0.34	<0.31
Octachlorodibenzo-p-dioxin	0.00030	0.017	0.011	0.013	0.014
2378-tetrachlorodibenzofuran	0.10000	<0.37	<0.27	<0.16	<0.27
12378-pentachlorodibenzofuran	0.03000	0.054	<0.056	<0.036	<0.049
23478-pentachlorodibenzofuran	0.30000	<0.51	0.74	<0.53	<0.59
123478-hexachlorodibenzofuran	0.10000	<0.21	<0.27	<0.17	<0.21
123678-hexachlorodibenzofuran	0.10000	0.38	<0.29	<0.17	<0.28
234678-hexachlorodibenzofuran	0.10000	<0.58	0.41	0.29	<0.43
123789-hexachlorodibenzofuran	0.10000	<0.91	0.78	<0.41	<0.70
1234678-heptachlorodibenzofuran	0.01000	0.096	<0.045	<0.078	<0.073
1234789-heptachlorodibenzofuran	0.01000	<0.031	<0.033	<0.018	<0.027
Octachlorodibenzofuran	0.00030	0.0024	<0.0026	<0.0023	<0.0025
PCB 81	0.00030	<0.00055	<0.00050	<0.00044	<0.00050
PCB 77	0.00010	0.00084	0.0017	0.00066	0.0011
PCB 123	0.00003	<0.00013	<0.00011	0.000061	<0.00010
PCB 118	0.00003	0.0037	0.012	0.0050	0.0070
PCB 114	0.00003	0.00013	<0.00021	<0.00014	<0.00016
PCB 105	0.00003	0.0012	0.0043	0.0015	0.0023
PCB 126	0.10000	<0.23	0.27	<0.13	<0.21
PCB 167	0.00003	0.000052	0.00015	0.000059	0.000088
PCB 156/157	0.00003	<0.00014	0.00036	0.00016	<0.00022
PCB 169	0.03000	<0.041	<0.031	<0.020	<0.031
PCB 189	0.00003	<0.000027	<0.000020	<0.000012	<0.000020
Total Dioxins & Furans Only		<11.3	<11.9	<7.48	<10.2
Total PCBs Only		<0.27	<0.33	<0.16	<0.25
Total Dioxins & Furans and PCBs		<11.6	<12.3	<7.64	<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 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	1.00000	<3.57	<2.58	<2.07	<2.74
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.78	<3.71	<1.26	<2.25
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.16	<0.21	<0.16	<0.18
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.45	<0.24	0.45	<0.38
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.19	<0.15	<0.15	<0.17
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.24	0.23	0.26	<0.25
Octachlorodibenzo-p-dioxin	0.00030	0.013	0.0090	0.010	0.011
2378-tetrachlorodibenzofuran	0.10000	<0.29	<0.21	<0.13	<0.21
12378-pentachlorodibenzofuran	0.03000	0.043	<0.044	<0.028	<0.038
23478-pentachlorodibenzofuran	0.30000	<0.40	0.58	<0.41	<0.46
123478-hexachlorodibenzofuran	0.10000	<0.16	<0.21	<0.13	<0.17
123678-hexachlorodibenzofuran	0.10000	0.30	<0.23	<0.13	<0.22
234678-hexachlorodibenzofuran	0.10000	<0.45	0.32	0.23	<0.34
123789-hexachlorodibenzofuran	0.10000	<0.71	0.62	<0.32	<0.55
1234678-heptachlorodibenzofuran	0.01000	0.076	<0.036	<0.061	<0.057
1234789-heptachlorodibenzofuran	0.01000	<0.024	<0.026	<0.014	<0.021
Octachlorodibenzofuran	0.00030	0.0019	<0.0021	<0.0018	<0.0019
PCB 81	0.00030	<0.00043	<0.00040	<0.00034	<0.00039
PCB 77	0.00010	0.00066	0.0014	0.00051	0.00084
PCB 123	0.00003	<0.00010	<0.000087	0.000047	<0.000079
PCB 118	0.00003	0.0029	0.0096	0.0039	0.0055
PCB 114	0.00003	0.00010	<0.00017	<0.00011	<0.00013
PCB 105	0.00003	0.00093	0.0034	0.0012	0.0018
PCB 126	0.10000	<0.18	0.22	<0.10	<0.17
PCB 167	0.00003	0.000041	0.00012	0.000046	0.000069
PCB 156/157	0.00003	<0.00011	0.00028	0.00012	<0.00017
PCB 169	0.03000	<0.032	<0.025	<0.016	<0.024
PCB 189	0.00003	<0.000021	<0.000016	<0.0000091	<0.000015
Total Dioxins & Furans Only		<8.88	<9.42	<5.82	<8.04
Total PCBs Only		<0.22	<0.26	<0.12	<0.20
Total Dioxins & Furans and PCBs		<9.10	<9.68	<5.94	<8.24

* 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 46A
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
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	1.00000	1.78	1.29	1.04	1.37
12378-pentachlorodibenzo-p-dioxin	1.00000	0.89	1.86	0.63	1.13
123478-hexachlorodibenzo-p-dioxin	0.10000	0.081	0.10	0.080	0.089
123678-hexachlorodibenzo-p-dioxin	0.10000	0.23	0.12	0.45	0.27
123789-hexachlorodibenzo-p-dioxin	0.10000	0.097	0.077	0.077	0.084
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.12	0.23	0.26	0.20
Octachlorodibenzo-p-dioxin	0.00030	0.013	0.0090	0.010	0.011
2378-tetrachlorodibenzofuran	0.10000	0.15	0.10	0.063	0.10
12378-pentachlorodibenzofuran	0.03000	0.043	0.022	0.014	0.026
23478-pentachlorodibenzofuran	0.30000	0.20	0.58	0.21	0.33
123478-hexachlorodibenzofuran	0.10000	0.081	0.10	0.066	0.084
123678-hexachlorodibenzofuran	0.10000	0.30	0.11	0.066	0.16
234678-hexachlorodibenzofuran	0.10000	0.23	0.32	0.23	0.26
123789-hexachlorodibenzofuran	0.10000	0.36	0.62	0.16	0.38
1234678-heptachlorodibenzofuran	0.01000	0.076	0.018	0.030	0.041
1234789-heptachlorodibenzofuran	0.01000	0.012	0.013	0.0070	0.011
Octachlorodibenzofuran	0.00030	0.0019	0.0010	0.00091	0.0013
PCB 81	0.00030	0.00022	0.00020	0.00017	0.00019
PCB 77	0.00010	0.00066	0.0014	0.00051	0.00084
PCB 123	0.00003	0.000051	0.000044	0.000047	0.000047
PCB 118	0.00003	0.0029	0.0096	0.0039	0.0055
PCB 114	0.00003	0.00010	0.000085	0.000055	0.000080
PCB 105	0.00003	0.00093	0.0034	0.0012	0.0018
PCB 126	0.10000	0.089	0.22	0.050	0.12
PCB 167	0.00003	0.000041	0.00012	0.000046	0.000069
PCB 156/157	0.00003	0.000056	0.00028	0.00012	0.00015
PCB 169	0.03000	0.016	0.012	0.0079	0.012
PCB 189	0.00003	0.000011	0.0000080	0.0000045	0.0000077
Total Dioxins & Furans Only		4.66	5.59	3.38	4.54
Total PCBs Only		0.11	0.24	0.06	0.14
Total Dioxins & Furans and PCBs		4.77	5.83	3.45	4.68

* 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 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	1.00	<3.57	<2.58	<2.07	<2.74
12378-pentachlorodibenzo-p-dioxin	0.50	<0.89	<1.86	<0.63	<1.13
123478-hexachlorodibenzo-p-dioxin	0.10	<0.16	<0.21	<0.16	<0.18
123678-hexachlorodibenzo-p-dioxin	0.10	<0.45	<0.24	0.45	<0.38
123789-hexachlorodibenzo-p-dioxin	0.10	<0.19	<0.15	<0.15	<0.17
1234678-heptachlorodibenzo-p-dioxin	0.01	<0.24	0.23	0.26	<0.25
Octachlorodibenzo-p-dioxin	0.00	0.044	0.030	0.034	0.036
2378-tetrachlorodibenzofuran	0.10	<0.29	<0.21	<0.13	<0.21
12378-pentachlorodibenzofuran	0.05	0.071	<0.073	<0.046	<0.064
23478-pentachlorodibenzofuran	0.50	<0.67	0.97	<0.68	<0.77
123478-hexachlorodibenzofuran	0.10	<0.16	<0.21	<0.13	<0.17
123678-hexachlorodibenzofuran	0.10	0.30	<0.23	<0.13	<0.22
234678-hexachlorodibenzofuran	0.10	<0.45	0.32	0.23	<0.34
123789-hexachlorodibenzofuran	0.10	<0.71	0.62	<0.32	<0.55
1234678-heptachlorodibenzofuran	0.01	0.076	<0.036	<0.061	<0.057
1234789-heptachlorodibenzofuran	0.01	<0.024	<0.026	<0.014	<0.021
Octachlorodibenzofuran	0.00	0.0064	<0.0069	<0.0061	<0.0065
Total Dioxins & Furans		<8.32	<8.00	<5.51	<7.28
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	1.00000	<3.82	<2.75	<2.24	<2.94
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.91	<3.95	<1.36	<2.41
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.17	<0.22	<0.17	<0.19
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.49	<0.26	0.49	<0.41
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.21	<0.16	<0.17	<0.18
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.26	0.25	0.28	<0.26
Octachlorodibenzo-p-dioxin	0.00030	0.014	0.0096	0.011	0.012
2378-tetrachlorodibenzofuran	0.10000	<0.31	<0.22	<0.14	<0.22
12378-pentachlorodibenzofuran	0.03000	0.046	<0.047	<0.030	<0.041
23478-pentachlorodibenzofuran	0.30000	<0.43	0.62	<0.44	<0.50
123478-hexachlorodibenzofuran	0.10000	<0.17	<0.22	<0.14	<0.18
123678-hexachlorodibenzofuran	0.10000	0.32	<0.24	<0.14	<0.23
234678-hexachlorodibenzofuran	0.10000	<0.49	0.34	0.25	<0.36
123789-hexachlorodibenzofuran	0.10000	<0.76	0.66	<0.34	<0.59
1234678-heptachlorodibenzofuran	0.01000	0.081	<0.038	<0.065	<0.061
1234789-heptachlorodibenzofuran	0.01000	<0.026	<0.027	<0.015	<0.023
Octachlorodibenzofuran	0.00030	0.0021	<0.0022	<0.0020	<0.0021
PCB 81	0.00030	<0.00046	<0.00042	<0.00037	<0.00042
PCB 77	0.00010	0.00071	0.0014	0.00055	0.00090
PCB 123	0.00003	<0.00011	<0.000093	0.000051	<0.000084
PCB 118	0.00003	0.0031	0.010	0.0042	0.0058
PCB 114	0.00003	0.00011	<0.00018	<0.00012	<0.00014
PCB 105	0.00003	0.0010	0.0036	0.0013	0.0020
PCB 126	0.10000	<0.19	0.23	<0.11	<0.18
PCB 167	0.00003	0.000044	0.00013	0.000050	0.000074
PCB 156/157	0.00003	<0.00012	0.00030	0.00013	<0.00018
PCB 169	0.03000	<0.034	<0.026	<0.017	<0.026
PCB 189	0.00003	<0.000023	<0.000017	<0.0000098	<0.000017
Total Dioxins & Furans Only		<9.52	<10.0	<6.28	<8.61
Total PCBs Only		<0.23	<0.27	<0.13	<0.21
Total Dioxins & Furans and PCBs		<9.75	<10.3	<6.41	<8.82

* 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	1.00000	<0.070	<0.051	<0.042	<0.054
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.035	<0.074	<0.025	<0.045
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.0032	<0.0042	<0.0032	<0.0035
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.0089	<0.0048	0.0091	<0.0076
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.0038	<0.0031	<0.0031	<0.0033
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.0048	0.0046	0.0053	<0.0049
Octachlorodibenzo-p-dioxin	0.00030	0.00026	0.00018	0.00021	0.00022
2378-tetrachlorodibenzofuran	0.10000	<0.0057	<0.0042	<0.0025	<0.0041
12378-pentachlorodibenzofuran	0.03000	0.00084	<0.00088	<0.00056	<0.00076
23478-pentachlorodibenzofuran	0.30000	<0.0078	0.012	<0.0083	<0.0092
123478-hexachlorodibenzofuran	0.10000	<0.0032	<0.0042	<0.0027	<0.0033
123678-hexachlorodibenzofuran	0.10000	0.0058	<0.0045	<0.0027	<0.0043
234678-hexachlorodibenzofuran	0.10000	<0.0089	0.0064	0.0046	<0.0066
123789-hexachlorodibenzofuran	0.10000	<0.014	0.012	<0.0064	<0.011
1234678-heptachlorodibenzofuran	0.01000	0.0015	<0.00071	<0.0012	<0.0011
1234789-heptachlorodibenzofuran	0.01000	<0.00048	<0.00051	<0.00028	<0.00042
Octachlorodibenzofuran	0.00030	0.000038	<0.000041	<0.000037	<0.000039
PCB 81	0.00030	<0.0000085	<0.0000079	<0.0000069	<0.0000078
PCB 77	0.00010	0.000013	0.000027	0.000010	0.000017
PCB 123	0.00003	<0.0000020	<0.0000017	0.00000095	<0.0000016
PCB 118	0.00003	0.000058	0.00019	0.000078	0.00011
PCB 114	0.00003	0.0000020	<0.0000034	<0.0000022	<0.0000025
PCB 105	0.00003	0.000018	0.000068	0.000024	0.000037
PCB 126	0.10000	<0.0035	0.0043	<0.0020	<0.0033
PCB 167	0.00003	0.00000081	0.0000024	0.00000093	0.0000014
PCB 156/157	0.00003	<0.0000022	0.0000057	0.0000025	<0.0000034
PCB 169	0.03000	<0.00063	<0.00049	<0.00032	<0.00048
PCB 189	0.00003	<0.00000042	<0.00000032	<0.00000018	<0.00000031
Total Dioxins & Furans Only		<0.17	<0.19	<0.12	<0.16
Total PCBs Only		<0.0042	<0.0051	<0.0025	<0.0039
Total Dioxins & Furans and PCBs		<0.18	<0.19	<0.12	<0.16

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	<2.05	<3.49	<2.74	<2.94	<0.054
12378-pentachlorodibenzo-p-dioxin	<1.68	<2.87	<2.25	<2.41	<0.045
123478-hexachlorodibenzo-p-dioxin	<0.13	<0.23	<0.18	<0.19	<0.0035
123678-hexachlorodibenzo-p-dioxin	<0.29	<0.49	<0.38	<0.41	<0.0076
123789-hexachlorodibenzo-p-dioxin	<0.13	<0.21	<0.17	<0.18	<0.0033
1234678-heptachlorodibenzo-p-dioxin	<0.18	<0.31	<0.25	<0.26	<0.0049
Octachlorodibenzo-p-dioxin	0.0081	0.014	0.011	0.012	0.00022
2378-tetrachlorodibenzofuran	<0.16	<0.27	<0.21	<0.22	<0.0041
12378-pentachlorodibenzofuran	<0.029	<0.049	<0.038	<0.041	<0.00076
23478-pentachlorodibenzofuran	<0.35	<0.59	<0.46	<0.50	<0.0092
123478-hexachlorodibenzofuran	<0.13	<0.21	<0.17	<0.180	<0.0033
123678-hexachlorodibenzofuran	<0.16	<0.28	<0.22	<0.234	<0.0043
234678-hexachlorodibenzofuran	<0.25	<0.43	<0.34	<0.36	<0.0066
123789-hexachlorodibenzofuran	<0.41	<0.70	<0.55	<0.59	<0.011
1234678-heptachlorodibenzofuran	<0.043	<0.073	<0.057	<0.061	<0.0011
1234789-heptachlorodibenzofuran	<0.016	<0.027	<0.021	<0.023	<0.00042
Octachlorodibenzofuran	<0.0014	<0.0025	<0.0019	<0.0021	<0.000039
PCB 81	<0.00029	<0.00050	<0.00039	<0.00042	<0.0000078
PCB 77	0.00063	0.0011	0.00084	0.00090	0.000017
PCB 123	<0.000059	<0.00010	<0.000079	<0.000084	<0.0000016
PCB 118	0.0041	0.0070	0.0055	0.0058	0.00011
PCB 114	<0.000094	<0.00016	<0.00013	<0.00014	<0.0000025
PCB 105	0.0014	0.0023	0.0018	0.0020	0.000037
PCB 126	<0.12	<0.21	<0.17	<0.18	<0.0033
PCB 167	0.000052	0.000088	0.000069	0.000074	0.0000014
PCB 156/157	<0.00013	<0.00022	<0.00017	<0.00018	<0.0000034
PCB 169	<0.018	<0.031	<0.024	<0.026	<0.00048
PCB 189	<0.000012	<0.000020	<0.000015	<0.000017	<0.00000031
Total Dioxins & Furans Only	<6.00	<10.2	<8.04	<8.61	<0.16
Total PCBs Only	<0.15	<0.25	<0.20	<0.21	<0.0039
Total Dioxins & Furans and PCBs	<6.15	<10.5	<8.24	<8.82	<0.16

* 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	1.02	1.75	1.37	1.47	0.027
12378-pentachlorodibenzo-p-dioxin	0.84	1.43	1.13	1.20	0.022
123478-hexachlorodibenzo-p-dioxin	0.066	0.11	0.089	0.095	0.0018
123678-hexachlorodibenzo-p-dioxin	0.20	0.34	0.27	0.29	0.0053
123789-hexachlorodibenzo-p-dioxin	0.063	0.11	0.084	0.090	0.0017
1234678-heptachlorodibenzo-p-dioxin	0.15	0.26	0.20	0.22	0.0041
Octachlorodibenzo-p-dioxin	0.0081	0.014	0.011	0.012	0.00022
2378-tetrachlorodibenzofuran	0.078	0.13	0.10	0.11	0.0021
12378-pentachlorodibenzofuran	0.020	0.033	0.026	0.028	0.00052
23478-pentachlorodibenzofuran	0.24	0.42	0.33	0.35	0.0065
123478-hexachlorodibenzofuran	0.063	0.11	0.084	0.090	0.0017
123678-hexachlorodibenzofuran	0.12	0.20	0.16	0.17	0.0031
234678-hexachlorodibenzofuran	0.19	0.33	0.26	0.28	0.0052
123789-hexachlorodibenzofuran	0.28	0.48	0.38	0.40	0.0075
1234678-heptachlorodibenzofuran	0.031	0.053	0.041	0.044	0.00082
1234789-heptachlorodibenzofuran	0.0080	0.014	0.011	0.011	0.00021
Octachlorodibenzofuran	0.00096	0.0016	0.0013	0.0014	0.000026
PCB 81	0.00015	0.00025	0.00019	0.00021	0.0000039
PCB 77	0.00063	0.0011	0.00084	0.0009	0.000017
PCB 123	0.000035	0.000060	0.000047	0.00005	0.00000094
PCB 118	0.0041	0.0070	0.0055	0.006	0.00011
PCB 114	0.000060	0.00010	0.000080	0.00009	0.0000016
PCB 105	0.0014	0.0023	0.0018	0.0020	0.000037
PCB 126	0.088	0.15	0.12	0.13	0.0024
PCB 167	0.000052	0.000088	0.000069	0.000074	0.0000014
PCB 156/157	0.00011	0.00020	0.00015	0.00016	0.0000031
PCB 169	0.0090	0.015	0.012	0.013	0.00024
PCB 189	0.0000058	0.0000099	0.0000077	0.0000083	0.00000015
Total Dioxins & Furans Only	3.39	5.79	4.54	4.86	0.090
Total PCBs Only	0.10	0.18	0.14	0.15	0.0028
Total Dioxins & Furans and PCBs	3.50	5.97	4.68	5.01	0.093

* 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	230	28.1	47.5	37.3	40.0	0.73
1,3-Dichlorobenzene	42.1	5.15	8.69	6.83	7.32	0.13
1,4-Dichlorobenzene	67.6	8.27	14.0	11.0	11.7	0.21
1,2-Dichlorobenzene	37.8	4.62	7.81	6.13	6.57	0.12
Total Dichlorobenzene	148	18.0	30.5	23.9	25.6	0.47
1,3,5-trichlorobenzene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
1,2,4-trichlorobenzene	13.4	1.64	2.77	2.17	2.33	0.043
1,2,3-trichlorobenzene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Total Trichlorobenzene	<37.4	<4.57	<7.72	<6.07	<6.50	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.47	<2.48	<1.95	<2.09	<0.038
1,2,3,4-tetrachlorobenzene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Total Tetrachlorobenzene	<24.0	<2.94	<4.96	<3.89	<4.17	<0.076
Pentachlorobenzene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Hexachlorobenzene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Total Chlorobenzenes	<463	<56.6	<95.6	<75.1	<80.4	<1.47

Dry Gas Volume Sampled (Rm^3*) :	4.843
Actual Flowrate (m^3/s) :	26.0
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	302	36.2	61.8	48.8	51.9	0.97
1,3-Dichlorobenzene	50.9	6.10	10.4	8.22	8.75	0.16
1,4-Dichlorobenzene	62.7	7.52	12.8	10.1	10.8	0.20
1,2-Dichlorobenzene	53.8	6.45	11.0	8.69	9.25	0.17
Total Dichlorobenzene	167	20.1	34.3	27.0	28.8	0.54
1,3,5-trichlorobenzene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
1,2,4-trichlorobenzene	15.1	1.81	3.09	2.44	2.60	0.049
1,2,3-trichlorobenzene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Total Trichlorobenzene	<39.1	<4.69	<8.00	<6.31	<6.72	<0.13
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.44	<2.46	<1.94	<2.06	<0.039
1,2,3,4-tetrachlorobenzene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Total Tetrachlorobenzene	<24.0	<2.88	<4.91	<3.88	<4.12	<0.077
Pentachlorobenzene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Hexachlorobenzene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Total Chlorobenzenes	<557	<66.7	<114	<89.9	<95.6	<1.79

Dry Gas Volume Sampled (Rm^3*) :	4.885
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
Wet Reference Flowrate (Rm^3/s*) :	18.7

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

Specific Isomer	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	399	47.2	81.8	63.6	68.7	1.28
1,3-Dichlorobenzene	52.5	6.21	10.8	8.36	9.03	0.17
1,4-Dichlorobenzene	60.9	7.20	12.5	9.70	10.5	0.20
1,2-Dichlorobenzene	48.1	5.69	9.86	7.66	8.28	0.15
Total Dichlorobenzene	162	19.1	33.1	25.7	27.8	0.52
1,3,5-trichlorobenzene	<12	<1.44	<2.50	<1.94	<2.10	<0.039
1,2,4-trichlorobenzene	13.7	1.62	2.81	2.18	2.36	0.044
1,2,3-trichlorobenzene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Total Trichlorobenzene	<37.9	<4.48	<7.77	<6.04	<6.52	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.42	<2.46	<1.91	<2.06	<0.039
1,2,3,4-tetrachlorobenzene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Total Tetrachlorobenzene	<24.0	<2.84	<4.92	<3.82	<4.13	<0.077
Pentachlorobenzene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Hexachlorobenzene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Total Chlorobenzenes	<646	<76.5	<132	<103	<111	<2.08

Dry Gas Volume Sampled (Rm^3*) :	4.879
Actual Flowrate (m^3/s) :	27.2
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	20.2
Wet Reference Flowrate (Rm^3/s*) :	18.7

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

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Monochlorobenzene	28.1	36.2	47.2	37.2	25.7
1,3-Dichlorobenzene	5.15	6.10	6.21	5.82	10.0
1,4-Dichlorobenzene	8.27	7.52	7.20	7.66	7.1
1,2-Dichlorobenzene	4.62	6.45	5.69	5.59	16.4
Total Dichlorobenzene	18.0	20.1	19.1	19.1	5.3
1,3,5-trichlorobenzene	<1.47	<1.44	<1.44	<1.45	1.1
1,2,4-trichlorobenzene	1.64	1.81	1.62	1.69	6.2
1,2,3-trichlorobenzene	<1.47	<1.44	<1.42	<1.44	1.7
Total Trichlorobenzene	<4.57	<4.69	<4.48	<4.58	2.2
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.47	<1.44	<1.42	<1.44	1.7
1,2,3,4-tetrachlorobenzene	<1.47	<1.44	<1.42	<1.44	1.7
Total Tetrachlorobenzene	<2.94	<2.88	<2.84	<2.88	1.7
Pentachlorobenzene	<1.47	<1.44	<1.42	<1.44	1.7
Hexachlorobenzene	<1.47	<1.44	<1.42	<1.44	1.7
Total Chlorobenzenes	<56.6	<66.7	<76.5	<66.6	14.9

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

Specific Isomer	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Monochlorobenzene	47.5	61.8	81.8	63.7	27.0
1,3-Dichlorobenzene	8.69	10.4	10.8	10.0	11.1
1,4-Dichlorobenzene	14.0	12.8	12.5	13.1	5.9
1,2-Dichlorobenzene	7.81	11.0	9.86	9.56	17.0
Total Dichlorobenzene	30.5	34.3	33.1	32.6	6.0
1,3,5-trichlorobenzene	<2.48	<2.46	<2.50	<2.48	0.9
1,2,4-trichlorobenzene	2.77	3.09	2.81	2.89	6.1
1,2,3-trichlorobenzene	<2.48	<2.46	<2.46	<2.46	0.5
Total Trichlorobenzene	<7.72	<8.00	<7.77	<7.83	1.9
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.48	<2.46	<2.46	<2.46	0.5
1,2,3,4-tetrachlorobenzene	<2.48	<2.46	<2.46	<2.46	0.5
Total Tetrachlorobenzene	<4.96	<4.91	<4.92	<4.93	0.5
Pentachlorobenzene	<2.48	<2.46	<2.46	<2.46	0.5
Hexachlorobenzene	<2.48	<2.46	<2.46	<2.46	0.5
Total Chlorobenzenes	<95.6	<114	<132	<114	16.2

* 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				Coefficient of Variation %
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	
Monochlorobenzene	37.3	48.8	63.6	49.9	26.4
1,3-Dichlorobenzene	6.83	8.22	8.36	7.80	10.9
1,4-Dichlorobenzene	11.0	10.1	9.70	10.3	6.3
1,2-Dichlorobenzene	6.13	8.69	7.66	7.49	17.2
Total Dichlorobenzene	23.9	27.0	25.7	25.6	6.1
1,3,5-trichlorobenzene	<1.95	<1.94	<1.94	<1.94	0.2
1,2,4-trichlorobenzene	2.17	2.44	2.18	2.27	6.6
1,2,3-trichlorobenzene	<1.95	<1.94	<1.91	<1.93	0.9
Total Trichlorobenzene	<6.07	<6.31	<6.04	<6.14	2.5
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.95	<1.94	<1.91	<1.93	0.9
1,2,3,4-tetrachlorobenzene	<1.95	<1.94	<1.91	<1.93	0.9
Total Tetrachlorobenzene	<3.89	<3.88	<3.82	<3.86	0.9
Pentachlorobenzene	<1.95	<1.94	<1.91	<1.93	0.9
Hexachlorobenzene	<1.95	<1.94	<1.91	<1.93	0.9
Total Chlorobenzenes	<75.1	<89.9	<103	<89.3	15.6

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Monochlorobenzene	40.0	51.9	68.7	53.5	26.9
1,3-Dichlorobenzene	7.32	8.75	9.03	8.37	11.0
1,4-Dichlorobenzene	11.7	10.8	10.5	11.0	6.0
1,2-Dichlorobenzene	6.57	9.25	8.28	8.03	16.9
Total Dichlorobenzene	25.6	28.8	27.8	27.4	5.9
1,3,5-trichlorobenzene	<2.09	<2.06	<2.10	<2.08	0.9
1,2,4-trichlorobenzene	2.33	2.60	2.36	2.43	6.0
1,2,3-trichlorobenzene	<2.09	<2.06	<2.06	<2.07	0.6
Total Trichlorobenzene	<6.50	<6.72	<6.52	<6.58	1.8
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.09	<2.06	<2.06	<2.07	0.6
1,2,3,4-tetrachlorobenzene	<2.09	<2.06	<2.06	<2.07	0.6
Total Tetrachlorobenzene	<4.17	<4.12	<4.13	<4.14	0.6
Pentachlorobenzene	<2.09	<2.06	<2.06	<2.07	0.6
Hexachlorobenzene	<2.09	<2.06	<2.06	<2.07	0.6
Total Chlorobenzenes	<80.4	<95.6	<111	<95.8	16.1

* 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				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
Monochlorobenzene	0.73	0.97	1.28	1.00	27.8
1,3-Dichlorobenzene	0.13	0.16	0.17	0.16	12.2
1,4-Dichlorobenzene	0.21	0.20	0.20	0.20	4.8
1,2-Dichlorobenzene	0.12	0.17	0.15	0.15	17.9
Total Dichlorobenzene	0.47	0.54	0.52	0.51	7.0
1,3,5-trichlorobenzene	<0.038	<0.039	<0.039	<0.039	1.4
1,2,4-trichlorobenzene	0.043	0.049	0.044	0.045	6.8
1,2,3-trichlorobenzene	<0.038	<0.039	<0.039	<0.038	0.7
Total Trichlorobenzene	<0.12	<0.13	<0.12	<0.12	2.8
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.038	<0.039	<0.039	<0.038	0.7
1,2,3,4-tetrachlorobenzene	<0.038	<0.039	<0.039	<0.038	0.7
Total Tetrachlorobenzene	<0.076	<0.077	<0.077	<0.077	0.7
Pentachlorobenzene	<0.038	<0.039	<0.039	<0.038	0.7
Hexachlorobenzene	<0.038	<0.039	<0.039	<0.038	0.7
Total Chlorobenzenes	<1.47	<1.79	<2.08	<1.78	17.1

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

Specific Isomer	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	37.2	63.7	49.9	53.5	1.00
1,3-Dichlorobenzene	5.82	9.96	7.80	8.37	0.16
1,4-Dichlorobenzene	7.66	13.1	10.3	11.0	0.20
1,2-Dichlorobenzene	5.59	9.56	7.49	8.03	0.15
Total Dichlorobenzene	19.1	32.6	25.6	27.4	0.51
1,3,5-trichlorobenzene	<1.45	<2.48	<1.94	<2.08	<0.039
1,2,4-trichlorobenzene	1.69	2.89	2.27	2.43	0.045
1,2,3-trichlorobenzene	<1.44	<2.46	<1.93	<2.07	<0.038
Total Trichlorobenzene	<4.58	<7.83	<6.14	<6.58	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.44	<2.46	<1.93	<2.07	<0.038
1,2,3,4-tetrachlorobenzene	<1.44	<2.46	<1.93	<2.07	<0.038
Total Tetrachlorobenzene	<2.88	<4.93	<3.86	<4.14	<0.077
Pentachlorobenzene	<1.44	<2.46	<1.93	<2.07	<0.038
Hexachlorobenzene	<1.44	<2.46	<1.93	<2.07	<0.038
Total Chlorobenzenes	<66.6	<114	<89.3	<95.8	<1.78

* 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 ng	Method Blank Total ng
Monochlorobenzene	NQ	216
1,3-Dichlorobenzene	<12	<12
1,4-Dichlorobenzene	20.4	12.9
1,2-Dichlorobenzene	<12	<12
Total Dichlorobenzene	<44.4	<36.9
1,3,5-trichlorobenzene	<12	<12
1,2,4-trichlorobenzene	<12	<12
1,2,3-trichlorobenzene	<12	<12
Total Trichlorobenzene	<36.0	<36.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<12
1,2,3,4-tetrachlorobenzene	<12	<12
Total Tetrachlorobenzene	<24.0	<24.0
Pentachlorobenzene	<12	<12
Hexachlorobenzene	<12	<12
Total Chlorobenzenes	<128	<337

"<" indicates that the amount detected is less than the detection limit. 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
3-monochlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
4-monochlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Total Monochlorophenols	<180	<22.0	<37.2	<29.2	<31.3	<0.57
2,6-dichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,4 & 2,5-dichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
3,5-dichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,3-dichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
3,4-dichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Total Dichlorophenols	<300	<36.7	<61.9	<48.7	<52.1	<0.95
2,4,6-trichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,3,6-trichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,3,5-trichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,4,5-trichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,3,4-trichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
3,4,5-trichlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Total Trichlorophenols	<360	<44.0	<74.3	<58.4	<62.6	<1.14
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
2,3,4,5-tetrachlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Total Tetrachlorophenols	<120	<14.7	<24.8	<19.5	<20.9	<0.38
Pentachlorophenol	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Total Chlorophenols	<1020	<125	<211	<165	<177	<3.24

Dry Gas Volume Sampled (Rm^3*) :	4.843
Actual Flowrate (m^3/s) :	26.0
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
3-monochlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
4-monochlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Total Monochlorophenols	<180	<21.6	<36.8	<29.1	<30.9	<0.58
2,6-dichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,4 & 2,5-dichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
3,5-dichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,3-dichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
3,4-dichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Total Dichlorophenols	<300	<36.0	<61.4	<48.5	<51.6	<0.96
2,4,6-trichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,3,6-trichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,3,5-trichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,4,5-trichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,3,4-trichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
3,4,5-trichlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Total Trichlorophenols	<360	<43.2	<73.7	<58.1	<61.9	<1.16
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
2,3,4,5-tetrachlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Total Tetrachlorophenols	<120	<14.4	<24.6	<19.4	<20.6	<0.39
Pentachlorophenol	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Total Chlorophenols	<1020	<122	<209	<165	<175	<3.28

Dry Gas Volume Sampled (Rm^3*) :	4.885
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
Wet Reference Flowrate (Rm^3/s*) :	18.7

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
3-monochlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
4-monochlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Total Monochlorophenols	<180	<21.3	<36.9	<28.7	<31.0	<0.58
2,6-dichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,4 & 2,5-dichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
3,5-dichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,3-dichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
3,4-dichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Total Dichlorophenols	<300	<35.5	<61.5	<47.8	<51.6	<0.97
2,4,6-trichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,3,6-trichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,3,5-trichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,4,5-trichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,3,4-trichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
3,4,5-trichlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Total Trichlorophenols	<360	<42.6	<73.8	<57.3	<61.9	<1.16
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
2,3,4,5-tetrachlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Total Tetrachlorophenols	<120	<14.2	<24.6	<19.1	<20.6	<0.39
Pentachlorophenol	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Total Chlorophenols	<1020	<121	<209	<162	<176	<3.28

Dry Gas Volume Sampled (Rm^3*) :	4.879
Actual Flowrate (m^3/s) :	27.2
Dry Reference Flowrate (Rm^3/s*) :	15.7
Dry Adjusted Flowrate (Rm^3/s**) :	20.2
Wet Reference Flowrate (Rm^3/s*) :	18.7

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

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
2-monochlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
3-monochlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
4-monochlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
Total Monochlorophenols	<22.0	<21.6	<21.3	<21.6	1.7
2,6-dichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,4 & 2,5-dichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
3,5-dichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,3-dichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
3,4-dichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
Total Dichlorophenols	<36.7	<36.0	<35.5	<36.1	1.7
2,4,6-trichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,3,6-trichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,3,5-trichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,4,5-trichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,3,4-trichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
3,4,5-trichlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
Total Trichlorophenols	<44.0	<43.2	<42.6	<43.3	1.7
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
2,3,4,5-tetrachlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
Total Tetrachlorophenols	<14.7	<14.4	<14.2	<14.4	1.7
Pentachlorophenol	<7.34	<7.20	<7.10	<7.21	1.7
Total Chlorophenols	<125	<122	<121	<123	1.7

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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
3-monochlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
4-monochlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
Total Monochlorophenols	<37.2	<36.8	<36.9	<37.0	0.5
2,6-dichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,4 & 2,5-dichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
3,5-dichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,3-dichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
3,4-dichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
Total Dichlorophenols	<61.9	<61.4	<61.5	<61.6	0.5
2,4,6-trichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,3,6-trichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,3,5-trichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,4,5-trichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,3,4-trichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
3,4,5-trichlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
Total Trichlorophenols	<74.3	<73.7	<73.8	<73.9	0.5
2,3,5,6/2,3,4,6-tetrachlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
2,3,4,5-tetrachlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
Total Tetrachlorophenols	<24.8	<24.6	<24.6	<24.6	0.5
Pentachlorophenol	<12.4	<12.3	<12.3	<12.3	0.5
Total Chlorophenols	<211	<209	<209	<209	0.5

* 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 of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
3-monochlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
4-monochlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
Total Monochlorophenols	<29.2	<29.1	<28.7	<29.0	0.9
2,6-dichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,4 & 2,5-dichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
3,5-dichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,3-dichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
3,4-dichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
Total Dichlorophenols	<48.7	<48.5	<47.8	<48.3	0.9
2,4,6-trichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,3,6-trichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,3,5-trichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,4,5-trichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,3,4-trichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
3,4,5-trichlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
Total Trichlorophenols	<58.4	<58.1	<57.3	<58.0	0.9
2,3,5,6/2,3,4,6-tetrachlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
2,3,4,5-tetrachlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
Total Tetrachlorophenols	<19.5	<19.4	<19.1	<19.3	0.9
Pentachlorophenol	<9.73	<9.69	<9.56	<9.66	0.9
Total Chlorophenols	<165	<165	<162	<164	0.9

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
3-monochlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
4-monochlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
Total Monochlorophenols	<31.3	<30.9	<31.0	<31.1	0.6
2,6-dichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,4 & 2,5-dichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
3,5-dichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,3-dichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
3,4-dichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
Total Dichlorophenols	<52.1	<51.6	<51.6	<51.8	0.6
2,4,6-trichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,3,6-trichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,3,5-trichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,4,5-trichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,3,4-trichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
3,4,5-trichlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
Total Trichlorophenols	<62.6	<61.9	<61.9	<62.1	0.6
2,3,5,6/2,3,4,6-tetrachlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
2,3,4,5-tetrachlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
Total Tetrachlorophenols	<20.9	<20.6	<20.6	<20.7	0.6
Pentachlorophenol	<10.4	<10.3	<10.3	<10.4	0.6
Total Chlorophenols	<177	<175	<176	<176	0.6

* 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	<0.19	<0.19	<0.19	<0.19	0.7
3-monochlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
4-monochlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
Total Monochlorophenols	<0.57	<0.58	<0.58	<0.58	0.7
2,6-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,4 & 2,5-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
3,5-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,3-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
3,4-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
Total Dichlorophenols	<0.95	<0.96	<0.97	<0.96	0.7
2,4,6-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,3,6-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,3,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,4,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,3,4-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
3,4,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
Total Trichlorophenols	<1.14	<1.16	<1.16	<1.15	0.7
2,3,5,6/2,3,4,6-tetrachlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
2,3,4,5-tetrachlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
Total Tetrachlorophenols	<0.38	<0.39	<0.39	<0.38	0.7
Pentachlorophenol	<0.19	<0.19	<0.19	<0.19	0.7
Total Chlorophenols	<3.24	<3.28	<3.28	<3.27	0.7

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	<7.21	<12.3	<9.66	<10.4	<0.19
3-monochlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
4-monochlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
Total Monochlorophenols	<21.6	<37.0	<29.0	<31.1	<0.58
2,6-dichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,4 & 2,5-dichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
3,5-dichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,3-dichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
3,4-dichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
Total Dichlorophenols	<36.1	<61.6	<48.3	<51.8	<0.96
2,4,6-trichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,3,6-trichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,3,5-trichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,4,5-trichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,3,4-trichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
3,4,5-trichlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
Total Trichlorophenols	<43.3	<73.9	<58.0	<62.1	<1.15
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
2,3,4,5-tetrachlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
Total Tetrachlorophenols	<14.4	<24.6	<19.3	<20.7	<0.38
Pentachlorophenol	<7.21	<12.3	<9.66	<10.4	<0.19
Total Chlorophenols	<123	<209	<164	<176	<3.27

* 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	Media Blank Total ng	Blank Train Total ng
2-monochlorophenol	<60	<60
3-monochlorophenol	<60	<60
4-monochlorophenol	<60	<60
Total Monochlorophenols	<180	<180
2,6-dichlorophenol	<60	<60
2,4 & 2,5-dichlorophenol	<60	<60
3,5-dichlorophenol	<60	<60
2,3-dichlorophenol	<60	<60
3,4-dichlorophenol	<60	<60
Total Dichlorophenols	<300	<300
2,4,6-trichlorophenol	<60	<60
2,3,6-trichlorophenol	<60	<60
2,3,5-trichlorophenol	<60	<60
2,4,5-trichlorophenol	<60	<60
2,3,4-trichlorophenol	<60	<60
3,4,5-trichlorophenol	<60	<60
Total Trichlorophenols	<360	<360
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<60
2,3,4,5-tetrachlorophenol	<60	<60
Total Tetrachlorophenols	<120	<120
Pentachlorophenol	<60	<60
Total Chlorophenols	<1020	<1020

"<" indicates that the amount detected is less than the detection limit. 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Acenaphthylene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Anthracene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(a)Anthracene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(b)Fluoranthene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(k)Fluoranthene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(a)fluorene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(b)fluorene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(g,h,i)Perylene	17.5	2.14	3.61	2.84	3.04	0.056
Benzo(a)Pyrene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Benzo(e)Pyrene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Biphenyl	17.6	2.15	3.63	2.86	3.06	0.056
2-Chloronaphthalene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Chrysene/Triphenylene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Coronene	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Dibenzo(a,e)pyrene	<60	<7.34	<12.4	<9.73	<10.4	<0.19
9,10-dimethylanthracene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
7,12-Dimethylbenzo(a)anthracene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Fluoranthene	25.4	3.11	5.24	4.12	4.41	0.081
Fluorene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Indeno(1,2,3-cd)Pyrene	17.8	2.18	3.68	2.89	3.09	0.057
2-methylanthracene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
3-Methylcholanthrene	<60	<7.34	<12.4	<9.73	<10.4	<0.19
1-Methylnaphthalene	17.0	2.08	3.51	2.76	2.95	0.054
2-Methylnaphthalene	27.0	3.30	5.58	4.38	4.69	0.086
1-Methylphenanthrene	18.8	2.30	3.88	3.05	3.27	0.060
9-Methylphenanthrene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Naphthalene	149	18.2	30.8	24.2	25.9	0.47
Perylene	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Phenanthrene	64.5	7.89	13.3	10.5	11.2	0.21
Picene	<60	<7.34	<12.4	<9.73	<10.4	<0.19
Pyrene	33.3	4.07	6.88	5.40	5.79	0.11
Tetralin	201	24.6	41.5	32.6	34.9	0.64
m-terphenyl	<12	<1.47	<2.48	<1.95	<2.09	<0.038
o-Terphenyl	<12	<1.47	<2.48	<1.95	<2.09	<0.038
p-terphenyl	<12	<1.47	<2.48	<1.95	<2.09	<0.038
Total	<1093	<134	<226	<177	<190	<3.48

Dry Gas Volume Sampled (Rm³*) :	4.843
Actual Flowrate (m³/s) :	26.0
Dry Reference Flowrate (Rm³/s*) :	15.4
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	19.5	2.34	3.99	3.15	3.35	0.063
Acenaphthylene	17.7	2.12	3.62	2.86	3.04	0.057
Anthracene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(a)Anthracene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(b)Fluoranthene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(k)Fluoranthene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(a)fluorene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(b)fluorene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(g,h,i)Perylene	20.2	2.42	4.14	3.26	3.47	0.065
Benzo(a)Pyrene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Benzo(e)Pyrene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Biphenyl	60.8	7.29	12.4	9.82	10.4	0.20
2-Chloronaphthalene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Chrysene/Triphenylene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Coronene	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Dibenzo(a,e)pyrene	<60	<7.20	<12.3	<9.69	<10.3	<0.19
9,10-dimethylanthracene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
7,12-Dimethylbenzo(a)anthracene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Fluoranthene	36.3	4.35	7.43	5.86	6.24	0.12
Fluorene	15.3	1.83	3.13	2.47	2.63	0.049
Indeno(1,2,3-cd)Pyrene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
2-methylanthracene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
3-Methylcholanthrene	<60	<7.20	<12.3	<9.69	<10.3	<0.19
1-Methylnaphthalene	329	39.5	67.3	53.1	56.5	1.06
2-Methylnaphthalene	798	95.7	163	129	137	2.56
1-Methylphenanthrene	17.7	2.12	3.62	2.86	3.04	0.057
9-Methylphenanthrene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Naphthalene	7900	947	1617	1276	1358	25.4
Perylene	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Phenanthrene	76.5	9.17	15.7	12.4	13.1	0.25
Picene	<60	<7.20	<12.3	<9.69	<10.3	<0.19
Pyrene	62.5	7.50	12.8	10.1	10.7	0.20
Tetralin	242	29.0	49.5	39.1	41.6	0.78
m-terphenyl	<12	<1.44	<2.46	<1.94	<2.06	<0.039
o-Terphenyl	<12	<1.44	<2.46	<1.94	<2.06	<0.039
p-terphenyl	<12	<1.44	<2.46	<1.94	<2.06	<0.039
Total	<10076	<1208	<2063	<1627	<1732	<32.4

Dry Gas Volume Sampled (Rm³*) :	4.885
Actual Flowrate (m³/s) :	26.8
Dry Reference Flowrate (Rm³/s*) :	15.7
Dry Adjusted Flowrate (Rm³/s**) :	19.9
Wet Reference Flowrate (Rm³/s*) :	18.7

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

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Acenaphthylene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Anthracene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(a)Anthracene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(b)Fluoranthene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(k)Fluoranthene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(a)fluorene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(b)fluorene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(g,h,i)Perylene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(a)Pyrene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Benzo(e)Pyrene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Biphenyl	44.6	5.28	9.14	7.10	7.67	0.14
2-Chloronaphthalene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Chrysene/Triphenylene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Coronene	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Dibenzo(a,e)pyrene	<60	<7.10	<12.3	<9.56	<10.3	<0.19
9,10-dimethylanthracene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
7,12-Dimethylbenzo(a)anthracene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Fluoranthene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Fluorene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Indeno(1,2,3-cd)Pyrene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
2-methylanthracene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
3-Methylcholanthrene	<60	<7.10	<12.3	<9.56	<10.3	<0.19
1-Methylnaphthalene	23.0	2.72	4.71	3.66	3.96	0.074
2-Methylnaphthalene	41.2	4.87	8.44	6.56	7.09	0.13
1-Methylphenanthrene	13.4	1.59	2.75	2.13	2.31	0.043
9-Methylphenanthrene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Naphthalene	314	37.1	64.4	50.0	54.0	1.01
Perylene	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Phenanthrene	45.1	5.34	9.24	7.18	7.76	0.15
Picene	<60	<7.10	<12.3	<9.56	<10.3	<0.19
Pyrene	16.2	1.92	3.32	2.58	2.79	0.05
Tetralin	195	23.1	40.0	31.1	33.6	0.63
m-terphenyl	<12	<1.42	<2.46	<1.91	<2.06	<0.039
o-Terphenyl	<12	<1.42	<2.46	<1.91	<2.06	<0.039
p-terphenyl	<12	<1.42	<2.46	<1.91	<2.06	<0.039
Total	<1233	<146	<253	<196	<212	<3.97

Dry Gas Volume Sampled (Rm³*) :	4.879
Actual Flowrate (m³/s) :	27.2
Dry Reference Flowrate (Rm³/s*) :	15.7
Dry Adjusted Flowrate (Rm³/s**) :	20.2
Wet Reference Flowrate (Rm³/s*) :	18.7

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

Compound	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Acenaphthene	<1.47	2.34	<1.42	<1.74	29.7
Acenaphthylene	<1.47	2.12	<1.42	<1.67	23.5
Anthracene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(a)Anthracene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(b)Fluoranthene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(k)Fluoranthene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(a)fluorene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(b)fluorene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(g,h,i)Perylene	2.14	2.42	<1.42	<1.99	25.9
Benzo(a)Pyrene	<1.47	<1.44	<1.42	<1.44	1.7
Benzo(e)Pyrene	<1.47	<1.44	<1.42	<1.44	1.7
Biphenyl	2.15	7.29	5.28	4.91	52.8
2-Chloronaphthalene	<1.47	<1.44	<1.42	<1.44	1.7
Chrysene/Triphenylene	<1.47	<1.44	<1.42	<1.44	1.7
Coronene	<7.34	<7.20	<7.10	<7.21	1.7
Dibenzo(a,c/a,h)Anthracene	<1.47	<1.44	<1.42	<1.44	1.7
Dibenzo(a,e)pyrene	<7.34	<7.20	<7.10	<7.21	1.7
9,10-dimethylanthracene	<1.47	<1.44	<1.42	<1.44	1.7
7,12-Dimethylbenzo(a)anthracene	<1.47	<1.44	<1.42	<1.44	1.7
Fluoranthene	3.11	4.35	<1.42	<2.96	49.7
Fluorene	<1.47	1.83	<1.42	<1.57	14.4
Indeno(1,2,3-cd)Pyrene	2.18	<1.44	<1.42	<1.68	25.7
2-methylanthracene	<1.47	<1.44	<1.42	<1.44	1.7
3-Methylcholanthrene	<7.34	<7.20	<7.10	<7.21	1.7
1-Methylnaphthalene	2.08	39.5	2.72	14.8	145
2-Methylnaphthalene	3.30	95.7	4.87	34.6	153
1-Methylphenanthrene	2.30	2.12	1.59	2.00	18.6
9-Methylphenanthrene	<1.47	<1.44	<1.42	<1.44	1.7
Naphthalene	18.2	947	37.1	334	159
Perylene	<1.47	<1.44	<1.42	<1.44	1.7
Phenanthrene	7.89	9.17	5.34	7.47	26.2
Picene	<7.34	<7.20	<7.10	<7.21	1.7
Pyrene	4.07	7.50	1.92	4.49	62.6
Tetralin	24.6	29.0	23.1	25.6	12.1
m-terphenyl	<1.47	<1.44	<1.42	<1.44	1.7
o-Terphenyl	<1.47	<1.44	<1.42	<1.44	1.7
p-terphenyl	<1.47	<1.44	<1.42	<1.44	1.7
Total	<134	<1208	<146	<496	124

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

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<2.48	3.99	<2.46	<2.98	29.5
Acenaphthylene	<2.48	3.62	<2.46	<2.85	23.4
Anthracene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(a)Anthracene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(b)Fluoranthene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(k)Fluoranthene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(a)fluorene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(b)fluorene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(g,h,i)Perylene	3.61	4.14	<2.46	<3.40	25.2
Benzo(a)Pyrene	<2.48	<2.46	<2.46	<2.46	0.5
Benzo(e)Pyrene	<2.48	<2.46	<2.46	<2.46	0.5
Biphenyl	3.63	12.4	9.14	8.41	53.0
2-Chloronaphthalene	<2.48	<2.46	<2.46	<2.46	0.5
Chrysene/Triphenylene	<2.48	<2.46	<2.46	<2.46	0.5
Coronene	<12.4	<12.3	<12.3	<12.3	0.5
Dibenzo(a,c/a,h)Anthracene	<2.48	<2.46	<2.46	<2.46	0.5
Dibenzo(a,e)pyrene	<12.4	<12.3	<12.3	<12.3	0.5
9,10-dimethylanthracene	<2.48	<2.46	<2.46	<2.46	0.5
7,12-Dimethylbenzo(a)anthracene	<2.48	<2.46	<2.46	<2.46	0.5
Fluoranthene	5.24	7.43	<2.46	<5.05	49.4
Fluorene	<2.48	3.13	<2.46	<2.69	14.2
Indeno(1,2,3-cd)Pyrene	3.68	<2.46	<2.46	<2.86	24.5
2-methylanthracene	<2.48	<2.46	<2.46	<2.46	0.5
3-Methylcholanthrene	<12.4	<12.3	<12.3	<12.3	0.5
1-Methylnaphthalene	3.51	67.3	4.71	25.2	145
2-Methylnaphthalene	5.58	163	8.44	59.1	153
1-Methylphenanthrene	3.88	3.62	2.75	3.42	17.4
9-Methylphenanthrene	<2.48	<2.46	<2.46	<2.46	0.5
Naphthalene	30.8	1617	64.4	571	159
Perylene	<2.48	<2.46	<2.46	<2.46	0.5
Phenanthrene	13.3	15.7	9.24	12.7	25.5
Picene	<12.4	<12.3	<12.3	<12.3	0.5
Pyrene	6.88	12.8	3.32	7.66	62.4
Tetralin	41.5	49.5	40.0	43.7	11.8
m-terphenyl	<2.48	<2.46	<2.46	<2.46	0.5
o-Terphenyl	<2.48	<2.46	<2.46	<2.46	0.5
p-terphenyl	<2.48	<2.46	<2.46	<2.46	0.5
Total	<226	<2063	<253	<847	124

* 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	<1.95	3.15	<1.91	<2.34	30.2
Acenaphthylene	<1.95	2.86	<1.91	<2.24	24.0
Anthracene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(a)Anthracene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(b)Fluoranthene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(k)Fluoranthene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(a)fluorene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(b)fluorene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(g,h,i)Perylene	2.84	3.26	<1.91	<2.67	25.9
Benzo(a)Pyrene	<1.95	<1.94	<1.91	<1.93	0.9
Benzo(e)Pyrene	<1.95	<1.94	<1.91	<1.93	0.9
Biphenyl	2.86	9.82	7.10	6.59	53.2
2-Chloronaphthalene	<1.95	<1.94	<1.91	<1.93	0.9
Chrysene/Triphenylene	<1.95	<1.94	<1.91	<1.93	0.9
Coronene	<9.73	<9.69	<9.56	<9.66	0.9
Dibenzo(a,c/a,h)Anthracene	<1.95	<1.94	<1.91	<1.93	0.9
Dibenzo(a,e)pyrene	<9.73	<9.69	<9.56	<9.66	0.9
9,10-dimethylanthracene	<1.95	<1.94	<1.91	<1.93	0.9
7,12-Dimethylbenzo(a)anthracene	<1.95	<1.94	<1.91	<1.93	0.9
Fluoranthene	4.12	5.86	<1.91	<3.97	49.9
Fluorene	<1.95	2.47	<1.91	<2.11	14.8
Indeno(1,2,3-cd)Pyrene	2.89	<1.94	<1.91	<2.25	24.8
2-methylanthracene	<1.95	<1.94	<1.91	<1.93	0.9
3-Methylcholanthrene	<9.73	<9.69	<9.56	<9.66	0.9
1-Methylnaphthalene	2.76	53.1	3.66	19.9	145
2-Methylnaphthalene	4.38	129	6.56	46.6	153
1-Methylphenanthrene	3.05	2.86	2.13	2.68	18.0
9-Methylphenanthrene	<1.95	<1.94	<1.91	<1.93	0.9
Naphthalene	24.2	1276	50.0	450	159
Perylene	<1.95	<1.94	<1.91	<1.93	0.9
Phenanthrene	10.5	12.4	7.18	10.0	26.2
Picene	<9.73	<9.69	<9.56	<9.66	0.9
Pyrene	5.40	10.1	2.58	6.03	63.0
Tetralin	32.6	39.1	31.1	34.3	12.4
m-terphenyl	<1.95	<1.94	<1.91	<1.93	0.9
o-Terphenyl	<1.95	<1.94	<1.91	<1.93	0.9
p-terphenyl	<1.95	<1.94	<1.91	<1.93	0.9
Total	<177	<1627	<196	<667	125

* 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	<2.09	3.35	<2.06	<2.50	29.5
Acenaphthylene	<2.09	3.04	<2.06	<2.40	23.3
Anthracene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(a)Anthracene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(b)Fluoranthene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(k)Fluoranthene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(a)fluorene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(b)fluorene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(g,h,i)Perylene	3.04	3.47	<2.06	<2.86	25.2
Benzo(a)Pyrene	<2.09	<2.06	<2.06	<2.07	0.6
Benzo(e)Pyrene	<2.09	<2.06	<2.06	<2.07	0.6
Biphenyl	3.06	10.4	7.67	7.06	52.9
2-Chloronaphthalene	<2.09	<2.06	<2.06	<2.07	0.6
Chrysene/Triphenylene	<2.09	<2.06	<2.06	<2.07	0.6
Coronene	<10.4	<10.3	<10.3	<10.4	0.6
Dibenzo(a,c/a,h)Anthracene	<2.09	<2.06	<2.06	<2.07	0.6
Dibenzo(a,e)pyrene	<10.4	<10.3	<10.3	<10.4	0.6
9,10-dimethylanthracene	<2.09	<2.06	<2.06	<2.07	0.6
7,12-Dimethylbenzo(a)anthracene	<2.09	<2.06	<2.06	<2.07	0.6
Fluoranthene	4.41	6.24	<2.06	<4.24	49.4
Fluorene	<2.09	2.63	<2.06	<2.26	14.2
Indeno(1,2,3-cd)Pyrene	3.09	<2.06	<2.06	<2.41	24.7
2-methylanthracene	<2.09	<2.06	<2.06	<2.07	0.6
3-Methylcholanthrene	<10.4	<10.3	<10.3	<10.4	0.6
1-Methylnaphthalene	2.95	56.5	3.96	21.2	145
2-Methylnaphthalene	4.69	137	7.09	49.6	153
1-Methylphenanthrene	3.27	3.04	2.31	2.87	17.5
9-Methylphenanthrene	<2.09	<2.06	<2.06	<2.07	0.6
Naphthalene	25.9	1358	54.0	479	159
Perylene	<2.09	<2.06	<2.06	<2.07	0.6
Phenanthrene	11.2	13.1	7.76	10.7	25.5
Picene	<10.4	<10.3	<10.3	<10.4	0.6
Pyrene	5.79	10.7	2.79	6.44	62.4
Tetralin	34.9	41.6	33.6	36.7	11.7
m-terphenyl	<2.09	<2.06	<2.06	<2.07	0.6
o-Terphenyl	<2.09	<2.06	<2.06	<2.07	0.6
p-terphenyl	<2.09	<2.06	<2.06	<2.07	0.6
Total	<190	<1732	<212	<711	124

* 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				Coefficient
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	of Variation %
Acenaphthene	<0.038	0.063	<0.039	<0.046	30.2
Acenaphthylene	<0.038	0.057	<0.039	<0.045	24.0
Anthracene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(a)Anthracene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(b)Fluoranthene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(k)Fluoranthene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(a)fluorene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(b)fluorene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(g,h,i)Perylene	0.056	0.065	<0.039	<0.053	25.1
Benzo(a)Pyrene	<0.038	<0.039	<0.039	<0.038	0.7
Benzo(e)Pyrene	<0.038	<0.039	<0.039	<0.038	0.7
Biphenyl	0.056	0.20	0.14	0.13	53.5
2-Chloronaphthalene	<0.038	<0.039	<0.039	<0.038	0.7
Chrysene/Triphenylene	<0.038	<0.039	<0.039	<0.038	0.7
Coronene	<0.19	<0.19	<0.19	<0.19	0.7
Dibenzo(a,c/a,h)Anthracene	<0.038	<0.039	<0.039	<0.038	0.7
Dibenzo(a,e)pyrene	<0.19	<0.19	<0.19	<0.19	0.7
9,10-dimethylanthracene	<0.038	<0.039	<0.039	<0.038	0.7
7,12-Dimethylbenzo(a)anthracene	<0.038	<0.039	<0.039	<0.038	0.7
Fluoranthene	0.081	0.12	<0.039	<0.079	49.7
Fluorene	<0.038	0.049	<0.039	<0.042	14.8
Indeno(1,2,3-cd)Pyrene	0.057	<0.039	<0.039	<0.045	23.3
2-methylanthracene	<0.038	<0.039	<0.039	<0.038	0.7
3-Methylcholanthrene	<0.19	<0.19	<0.19	<0.19	0.7
1-Methylnaphthalene	0.054	1.06	0.074	0.40	145
2-Methylnaphthalene	0.086	2.56	0.13	0.93	153
1-Methylphenanthrene	0.060	0.057	0.043	0.053	16.7
9-Methylphenanthrene	<0.038	<0.039	<0.039	<0.038	0.7
Naphthalene	0.47	25.4	1.01	8.96	159
Perylene	<0.038	<0.039	<0.039	<0.038	0.7
Phenanthrene	0.21	0.25	0.15	0.20	25.5
Picene	<0.19	<0.19	<0.19	<0.19	0.7
Pyrene	0.11	0.20	0.05	0.12	63.0
Tetralin	0.64	0.78	0.63	0.68	12.3
m-terphenyl	<0.038	<0.039	<0.039	<0.038	0.7
o-Terphenyl	<0.038	<0.039	<0.039	<0.038	0.7
p-terphenyl	<0.038	<0.039	<0.039	<0.038	0.7
Total	<3.48	<32.4	<3.97	<13.3	125

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

Compound	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	<1.74	<2.98	<2.34	<2.50	<0.046
Acenaphthylene	<1.67	<2.85	<2.24	<2.40	<0.045
Anthracene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(a)Anthracene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(b)Fluoranthene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(k)Fluoranthene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(a)fluorene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(b)fluorene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(g,h,i)Perylene	<1.99	<3.40	<2.67	<2.86	<0.053
Benzo(a)Pyrene	<1.44	<2.46	<1.93	<2.07	<0.038
Benzo(e)Pyrene	<1.44	<2.46	<1.93	<2.07	<0.038
Biphenyl	4.91	8.41	6.59	7.06	0.13
2-Chloronaphthalene	<1.44	<2.46	<1.93	<2.07	<0.038
Chrysene/Triphenylene	<1.44	<2.46	<1.93	<2.07	<0.038
Coronene	<7.21	<12.3	<9.66	<10.4	<0.19
Dibenzo(a,c/a,h)Anthracene	<1.44	<2.46	<1.93	<2.07	<0.038
Dibenzo(a,e)pyrene	<7.21	<12.3	<9.66	<10.4	<0.19
9,10-dimethylanthracene	<1.44	<2.46	<1.93	<2.07	<0.038
7,12-Dimethylbenzo(a)anthracene	<1.44	<2.46	<1.93	<2.07	<0.038
Fluoranthene	<2.96	<5.05	<3.97	<4.24	<0.079
Fluorene	<1.57	<2.69	<2.11	<2.26	<0.042
Indeno(1,2,3-cd)Pyrene	<1.68	<2.86	<2.25	<2.41	<0.045
2-methylanthracene	<1.44	<2.46	<1.93	<2.07	<0.038
3-Methylcholanthrene	<7.21	<12.3	<9.66	<10.4	<0.19
1-Methylnaphthalene	14.8	25.2	19.9	21.2	0.40
2-Methylnaphthalene	34.6	59.1	46.6	49.6	0.93
1-Methylphenanthrene	2.00	3.42	2.68	2.87	0.053
9-Methylphenanthrene	<1.44	<2.46	<1.93	<2.07	<0.038
Naphthalene	334	571	450	479	8.96
Perylene	<1.44	<2.46	<1.93	<2.07	<0.038
Phenanthrene	7.47	12.74	10.00	10.71	0.20
Picene	<7.21	<12.3	<9.66	<10.4	<0.19
Pyrene	4.49	7.66	6.03	6.44	0.12
Tetralin	25.6	43.7	34.3	36.7	0.68
m-terphenyl	<1.44	<2.46	<1.93	<2.07	<0.038
o-Terphenyl	<1.44	<2.46	<1.93	<2.07	<0.038
p-terphenyl	<1.44	<2.46	<1.93	<2.07	<0.038
Total	<496	<847	<667	<711	<13.3

* 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 ng	Media Blank ng
Acenaphthene	<12	<12
Acenaphthylene	<12	<12
Anthracene	<12	<12
Benzo(a)Anthracene	<12	<12
Benzo(b)Fluoranthene	<12	<12
Benzo(k)Fluoranthene	<12	<12
Benzo(a)fluorene	<12	<12
Benzo(b)fluorene	<12	<12
Benzo(g,h,i)Perylene	<12	<12
Benzo(a)Pyrene	<12	<12
Benzo(e)Pyrene	<12	<12
Biphenyl	<12	<12
2-Chloronaphthalene	<12	<12
Chrysene/Triphenylene	<12	<12
Coronene	<60	<60
Dibenzo(a,c/a,h)Anthracene	<12	<12
Dibenzo(a,e)pyrene	<60	<60
9,10-dimethylanthracene	<12	<12
7,12-Dimethylbenzo(a)anthracene	<12	<12
Fluoranthene	<12	<12
Fluorene	<12	<12
Indeno(1,2,3-cd)Pyrene	<12	<12
2-methylanthracene	<12	198
3-Methylcholanthrene	<60	<60
1-Methylnaphthalene	28.4	<12
2-Methylnaphthalene	58.9	<12
1-Methylphenanthrene	175	229
9-Methylphenanthrene	<12	79.0
Naphthalene	386	169
Perylene	<12	<12
Phenanthrene	25.7	<12
Picene	<60	<60
Pyrene	<12	<12
Tetralin	208	261
m-terphenyl	<12	<12
o-Terphenyl	<12	<12
p-terphenyl	<12	<12
Total	<1446	<1512

"<" indicates that the amount detected is less than the detection limit. 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 $\mu g/m^3$	Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Acetaldehyde Emission Rate mg/s
1	1.27	0.0350	21.5	36.2	28.5	30.6	0.56
2	1.09	0.0351	18.2	31.1	24.5	26.1	0.49
3	1.09	0.0333	19.2	32.8	25.9	27.5	0.51
Average			19.6	33.4	26.3	28.0	0.52
Blank	<0.1						

Formaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Formaldehyde Concentration Actual $\mu g/m^3$	Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Formaldehyde Emission Rate mg/s
1	0.82	0.0350	13.9	23.4	18.4	19.7	0.36
2	0.59	0.0351	9.83	16.8	13.3	14.1	0.26
3	0.52	0.0333	9.14	15.6	12.3	13.1	0.25
Average			10.9	18.6	14.7	15.7	0.29
Blank	0.57						

Acrolein

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acrolein Concentration Actual $\mu g/m^3$	Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Acrolein Emission Rate mg/s
1	<0.1	0.0350	<1.69	<2.85	<2.24	<2.41	<0.044
2	<0.1	0.0351	<1.67	<2.85	<2.25	<2.39	<0.045
3	<0.1	0.0333	<1.76	<3.01	<2.37	<2.52	<0.047
Average			<1.70	<2.90	<2.29	<2.44	<0.045
Blank	<0.1						

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

Sampling was conducted at a single point. Volumetric flowrates from 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 Emission Data
Test No. 2

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.21	5.26	8.89	6.98	7.48	0.14
Benzene	0.13	3.19	5.38	4.23	4.53	0.083
Bromodichloromethane	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
Bromoform	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
Bromomethane	<0.09	<2.28	<3.85	<3.02	<3.24	<0.059
1,3-Butadiene	<0.02	<0.51	<0.85	<0.67	<0.72	<0.013
2-Butanone	0.44	11.2	18.9	14.8	15.9	0.29
Carbon Tetrachloride	0.024	0.61	1.03	0.81	0.86	0.016
Chloroform	0.041	1.04	1.75	1.38	1.47	0.027
Cumene (Isopropylbenzene)	<0.02	<0.51	<0.85	<0.67	<0.72	<0.013
Dibromochloromethane	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
Dichlorodifluoromethane	0.21	5.19	8.76	6.88	7.37	0.13
1,2-Dichloroethane	0.011	0.28	0.47	0.37	0.40	0.0072
trans,1,2-Dichloroethene	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
1,1-Dichloroethene	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
1,2-Dichloropropane	0.039	0.99	1.67	1.31	1.40	0.026
Ethylbenzene	0.060	1.52	2.56	2.01	2.16	0.039
Ethylene Dibromide	<0.02	<0.51	<0.85	<0.67	<0.72	<0.013
Mesitylene (1,3,5-Trimethylbenzene)	0.028	0.71	1.20	0.94	1.01	0.018
Methylene Chloride	38.8	983	1660	1304	1397	25.6
Styrene	0.043	1.09	1.84	1.44	1.55	0.028
Tetrachloroethene	0.011	0.28	0.47	0.37	0.40	0.0072
Toluene	13.8	350	590	464	497	9.09
1,1,1-Trichloroethane	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.25	<0.43	<0.34	<0.36	<0.0066
Trichlorotrifluoroethane	<0.02	<0.51	<0.85	<0.67	<0.72	<0.013
Trichlorofluoromethane	0.043	1.09	1.84	1.44	1.55	0.028
M&P-Xylene	0.22	5.54	9.36	7.35	7.88	0.14
O-Xylene	0.065	1.65	2.78	2.18	2.34	0.043
Vinyl Chloride	<0.02	<0.51	<0.85	<0.67	<0.72	<0.013
Total	<54.5	<1379	<2328	<1829	<1959	<35.9

Dry Gas Volume Sampled (Rm^3*) :	0.0234
Actual Flowrate (m^3/s) :	26.0
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.3

* 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. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

TABLE 83
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 3

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.27	6.56	11.1	8.70	9.32	0.17
Benzene	0.13	3.20	5.39	4.24	4.54	0.083
Bromodichloromethane	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
Bromoform	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
Bromomethane	0.16	3.86	6.51	5.12	5.48	0.10
1,3-Butadiene	<0.02	<0.49	<0.83	<0.65	<0.70	<0.013
2-Butanone	0.11	2.63	4.44	3.49	3.74	0.068
Carbon Tetrachloride	0.026	0.64	1.08	0.85	0.91	0.017
Chloroform	0.055	1.35	2.28	1.79	1.92	0.035
Cumene (Isopropylbenzene)	<0.02	<0.49	<0.83	<0.65	<0.70	<0.013
Dibromochloromethane	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
Dichlorodifluoromethane	0.20	4.99	8.42	6.62	7.09	0.13
1,2-Dichloroethane	0.011	0.27	0.46	0.36	0.38	0.0070
trans,1,2-Dichloroethene	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
1,1-Dichloroethene	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
1,2-Dichloropropane	0.023	0.57	0.95	0.75	0.80	0.015
Ethylbenzene	0.077	1.89	3.20	2.51	2.69	0.049
Ethylene Dibromide	<0.02	<0.49	<0.83	<0.65	<0.70	<0.013
Mesitylene (1,3,5-Trimethylbenzene)	0.036	0.88	1.49	1.17	1.26	0.023
Methylene Chloride	10.8	265	447	351	376	6.88
Styrene	0.046	1.13	1.91	1.50	1.61	0.029
Tetrachloroethene	0.011	0.27	0.46	0.36	0.38	0.0070
Toluene	3.86	94.9	160	126	135	2.47
1,1,1-Trichloroethane	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.25	<0.41	<0.33	<0.35	<0.0064
Trichlorotrifluoroethane	<0.02	<0.49	<0.83	<0.65	<0.70	<0.013
Trichlorofluoromethane	0.072	1.77	2.99	2.35	2.51	0.046
M&P-Xylene	0.33	8.21	13.9	10.9	11.7	0.21
O-Xylene	0.10	2.48	4.19	3.29	3.53	0.065
Vinyl Chloride	<0.02	<0.49	<0.83	<0.65	<0.70	<0.013
Total	<16.4	<404	<683	<536	<574	<10.5

Dry Gas Volume Sampled (Rm^3*) :	0.0241
Actual Flowrate (m^3/s) :	26.0
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.3

* 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. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.
There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

TABLE 84
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 4

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.37	9.58	16.2	12.7	13.6	0.25
Benzene	0.43	11.2	18.9	14.8	15.9	0.29
Bromodichloromethane	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
Bromoform	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
Bromomethane	0.64	16.6	28.0	22.0	23.5	0.43
1,3-Butadiene	<0.02	<0.52	<0.88	<0.69	<0.74	<0.014
2-Butanone	0.24	6.34	10.7	8.41	9.01	0.16
Carbon Tetrachloride	0.062	1.62	2.73	2.15	2.30	0.042
Chloroform	0.061	1.59	2.69	2.11	2.26	0.041
Cumene (Isopropylbenzene)	0.053	1.38	2.33	1.83	1.96	0.036
Dibromochloromethane	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
Dichlorodifluoromethane	0.16	4.17	7.05	5.54	5.93	0.11
1,2-Dichloroethane	0.025	0.65	1.10	0.87	0.93	0.017
trans,1,2-Dichloroethene	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
1,1-Dichloroethene	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
1,2-Dichloropropane	0.049	1.28	2.16	1.70	1.82	0.033
Ethylbenzene	0.30	7.78	13.1	10.3	11.0	0.20
Ethylene Dibromide	<0.02	<0.52	<0.88	<0.69	<0.74	<0.014
Mesitylene (1,3,5-Trimethylbenzene)	0.13	3.47	5.86	4.60	4.93	0.090
Methylene Chloride	8.09	211	356	280	300	5.49
Styrene	0.14	3.63	6.12	4.81	5.15	0.094
Tetrachloroethene	0.023	0.60	1.01	0.80	0.85	0.016
Toluene	4.22	110	186	146	156	2.86
1,1,1-Trichloroethane	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.26	<0.44	<0.35	<0.37	<0.0068
Trichlorotrifluoroethane	<0.02	<0.52	<0.88	<0.69	<0.74	<0.014
Trichlorofluoromethane	0.091	2.37	4.01	3.15	3.37	0.062
M&P-Xylene	1.51	39.3	66.4	52.2	55.9	1.02
O-Xylene	0.49	12.8	21.6	17.0	18.2	0.33
Vinyl Chloride	<0.02	<0.52	<0.88	<0.69	<0.74	<0.014
Total	<17.2	<449	<759	<596	<638	<11.7

Dry Gas Volume Sampled (Rm^3*) :	0.0227
Actual Flowrate (m^3/s) :	26.0
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.3

* 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. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

TABLE 85
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Actual Concentrations

Compound	Actual Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/m³	µg/m³	µg/m³	µg/m³	%
Acetone	5.26	6.56	9.58	7.13	31.0
Benzene	3.19	3.20	11.2	5.85	78.7
Bromodichloromethane	<0.25	<0.25	<0.26	<0.25	3.0
Bromoform	<0.25	<0.25	<0.26	<0.25	3.0
Bromomethane	<2.28	3.86	16.6	<7.57	104
1,3-Butadiene	<0.51	<0.49	<0.52	<0.51	3.0
2-Butanone	11.2	2.63	6.34	6.72	63.9
Carbon Tetrachloride	0.61	0.64	1.62	0.95	60.2
Chloroform	1.04	1.35	1.59	1.33	20.9
Cumene (Isopropylbenzene)	<0.51	<0.49	1.38	<0.79	64.3
Dibromochloromethane	<0.25	<0.25	<0.26	<0.25	3.0
Dichlorodifluoromethane	5.19	4.99	4.17	4.78	11.2
1,2-Dichloroethane	0.28	0.27	0.65	0.40	54.5
trans,1,2-Dichloroethene	<0.25	<0.25	<0.26	<0.25	3.0
1,1-Dichloroethene	<0.25	<0.25	<0.26	<0.25	3.0
1,2-Dichloropropane	0.99	0.57	1.28	0.94	38.0
Ethylbenzene	1.52	1.89	7.78	3.73	94.1
Ethylene Dibromide	<0.51	<0.49	<0.52	<0.51	3.0
Mesitylene (1,3,5-Trimethylbenzene)	0.71	0.88	3.47	1.69	91.6
Methylene Chloride	983	265	211	486	88.7
Styrene	1.09	1.13	3.63	1.95	74.6
Tetrachloroethene	0.28	0.27	0.60	0.38	49.1
Toluene	350	94.9	110	185	77.3
1,1,1-Trichloroethane	<0.25	<0.25	<0.26	<0.25	3.0
Trichloroethene/1,1,2-Trichloroethene	<0.25	<0.25	<0.26	<0.25	3.0
Trichlorotrifluoroethane	<0.51	<0.49	<0.52	<0.51	3.0
Trichlorofluoromethane	1.09	1.77	2.37	1.74	36.9
M&P-Xylene	5.54	8.21	39.3	17.7	106
O-Xylene	1.65	2.48	12.8	5.64	110
Vinyl Chloride	<0.51	<0.49	<0.52	<0.51	3.0
Total	<1379	<404	<449	<744	73.9

TABLE 86
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Dry Reference Concentrations

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	8.89	11.1	16.2	12.0	31.0
Benzene	5.38	5.39	18.9	9.88	78.7
Bromodichloromethane	<0.43	<0.41	<0.44	<0.43	3.0
Bromoform	<0.43	<0.41	<0.44	<0.43	3.0
Bromomethane	<3.85	6.51	28.0	<12.8	104
1,3-Butadiene	<0.85	<0.83	<0.88	<0.86	3.0
2-Butanone	18.9	4.44	10.7	11.3	63.9
Carbon Tetrachloride	1.03	1.08	2.73	1.61	60.2
Chloroform	1.75	2.28	2.69	2.24	20.9
Cumene (Isopropylbenzene)	<0.85	<0.83	2.33	<1.34	64.3
Dibromochloromethane	<0.43	<0.41	<0.44	<0.43	3.0
Dichlorodifluoromethane	8.76	8.42	7.05	8.08	11.2
1,2-Dichloroethane	0.47	0.46	1.10	0.68	54.5
trans,1,2-Dichloroethene	<0.43	<0.41	<0.44	<0.43	3.0
1,1-Dichloroethene	<0.43	<0.41	<0.44	<0.43	3.0
1,2-Dichloropropane	1.67	0.95	2.16	1.59	38.0
Ethylbenzene	2.56	3.20	13.1	6.30	94.1
Ethylene Dibromide	<0.85	<0.83	<0.88	<0.86	3.0
Mesitylene (1,3,5-Trimethylbenzene)	1.20	1.49	5.86	2.85	91.6
Methylene Chloride	1660	447	356	821	88.7
Styrene	1.84	1.91	6.12	3.29	74.6
Tetrachloroethene	0.47	0.46	1.01	0.65	49.1
Toluene	590	160	186	312	77.3
1,1,1-Trichloroethane	<0.43	<0.41	<0.44	<0.43	3.0
Trichloroethene/1,1,2-Trichloroethene	<0.43	<0.41	<0.44	<0.43	3.0
Trichlorotrifluoroethane	<0.85	<0.83	<0.88	<0.86	3.0
Trichlorofluoromethane	1.84	2.99	4.01	2.94	36.9
M&P-Xylene	9.36	13.9	66.4	29.9	106
O-Xylene	2.78	4.19	21.6	9.52	110
Vinyl Chloride	<0.85	<0.83	<0.88	<0.86	3.0
Total	<2328	<683	<759	<1256	73.9

* At 25°C and 1 atmosphere

TABLE 87
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	6.98	8.70	12.7	9.46	31.0
Benzene	4.23	4.24	14.8	7.76	78.7
Bromodichloromethane	<0.34	<0.33	<0.35	<0.34	3.0
Bromoform	<0.34	<0.33	<0.35	<0.34	3.0
Bromomethane	<3.02	5.12	22.0	<10.0	104
1,3-Butadiene	<0.67	<0.65	<0.69	<0.67	3.0
2-Butanone	14.8	3.49	8.41	8.91	63.9
Carbon Tetrachloride	0.81	0.85	2.15	1.27	60.2
Chloroform	1.38	1.79	2.11	1.76	20.9
Cumene (Isopropylbenzene)	<0.67	<0.65	1.83	<1.05	64.3
Dibromochloromethane	<0.34	<0.33	<0.35	<0.34	3.0
Dichlorodifluoromethane	6.88	6.62	5.54	6.35	11.2
1,2-Dichloroethane	0.37	0.36	0.87	0.53	54.5
trans,1,2-Dichloroethene	<0.34	<0.33	<0.35	<0.34	3.0
1,1-Dichloroethene	<0.34	<0.33	<0.35	<0.34	3.0
1,2-Dichloropropane	1.31	0.75	1.70	1.25	38.0
Ethylbenzene	2.01	2.51	10.3	4.95	94.1
Ethylene Dibromide	<0.67	<0.65	<0.69	<0.67	3.0
Mesitylene (1,3,5-Trimethylbenzene)	0.94	1.17	4.60	2.24	91.6
Methylene Chloride	1304	351	280	645	88.7
Styrene	1.44	1.50	4.81	2.58	74.6
Tetrachloroethene	0.37	0.36	0.80	0.51	49.1
Toluene	464	126	146	245	77.3
1,1,1-Trichloroethane	<0.34	<0.33	<0.35	<0.34	3.0
Trichloroethene/1,1,2-Trichloroethene	<0.34	<0.33	<0.35	<0.34	3.0
Trichlorotrifluoroethane	<0.67	<0.65	<0.69	<0.67	3.0
Trichlorofluoromethane	1.44	2.35	3.15	2.31	36.9
M&P-Xylene	7.35	10.9	52.2	23.5	106
O-Xylene	2.18	3.29	17.0	7.48	110
Vinyl Chloride	<0.67	<0.65	<0.69	<0.67	3.0
Total	<1829	<536	<596	<987	73.9

* 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 Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	7.48	9.32	13.6	10.1	31.0
Benzene	4.53	4.54	15.9	8.31	78.7
Bromodichloromethane	<0.36	<0.35	<0.37	<0.36	3.0
Bromoform	<0.36	<0.35	<0.37	<0.36	3.0
Bromomethane	<3.24	5.48	23.5	<10.8	104
1,3-Butadiene	<0.72	<0.70	<0.74	<0.72	3.0
2-Butanone	15.9	3.74	9.01	9.55	63.9
Carbon Tetrachloride	0.86	0.91	2.30	1.36	60.2
Chloroform	1.47	1.92	2.26	1.89	20.9
Cumene (Isopropylbenzene)	<0.72	<0.70	1.96	<1.13	64.3
Dibromochloromethane	<0.36	<0.35	<0.37	<0.36	3.0
Dichlorodifluoromethane	7.37	7.09	5.93	6.80	11.2
1,2-Dichloroethane	0.40	0.38	0.93	0.57	54.5
trans,1,2-Dichloroethene	<0.36	<0.35	<0.37	<0.36	3.0
1,1-Dichloroethene	<0.36	<0.35	<0.37	<0.36	3.0
1,2-Dichloropropane	1.40	0.80	1.82	1.34	38.0
Ethylbenzene	2.16	2.69	11.0	5.30	94.1
Ethylene Dibromide	<0.72	<0.70	<0.74	<0.72	3.0
Mesitylene (1,3,5-Trimethylbenzene)	1.01	1.26	4.93	2.40	91.6
Methylene Chloride	1397	376	300	691	88.7
Styrene	1.55	1.61	5.15	2.77	74.6
Tetrachloroethene	0.40	0.38	0.85	0.54	49.1
Toluene	497	135	156	263	77.3
1,1,1-Trichloroethane	<0.36	<0.35	<0.37	<0.36	3.0
Trichloroethene/1,1,2-Trichloroethene	<0.36	<0.35	<0.37	<0.36	3.0
Trichlorotrifluoroethane	<0.72	<0.70	<0.74	<0.72	3.0
Trichlorofluoromethane	1.55	2.51	3.37	2.48	36.9
M&P-Xylene	7.88	11.7	55.9	25.1	106
O-Xylene	2.34	3.53	18.2	8.01	110
Vinyl Chloride	<0.72	<0.70	<0.74	<0.72	3.0
Total	<1959	<574	<638	<1057	73.9

* At 25°C and 1 atmosphere

TABLE 89
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organic Emission Rates

Compound	Emission Rate				Coefficient of Variation
	Test No. 2 mg/s	Test No. 3 mg/s	Test No. 4 mg/s	Average mg/s	%
Acetone	0.14	0.17	0.25	0.19	31.0
Benzene	0.083	0.083	0.29	0.15	78.7
Bromodichloromethane	<0.0066	<0.0064	<0.0068	<0.0066	3.0
Bromoform	<0.0066	<0.0064	<0.0068	<0.0066	3.0
Bromomethane	<0.059	0.10	0.43	<0.20	104
1,3-Butadiene	<0.013	<0.013	<0.014	<0.013	3.0
2-Butanone	0.29	0.068	0.16	0.17	63.9
Carbon Tetrachloride	0.016	0.017	0.042	0.025	60.2
Chloroform	0.027	0.035	0.041	0.035	20.9
Cumene (Isopropylbenzene)	<0.013	<0.013	0.036	<0.021	64.3
Dibromochloromethane	<0.0066	<0.0064	<0.0068	<0.0066	3.0
Dichlorodifluoromethane	0.13	0.13	0.11	0.12	11.2
1,2-Dichloroethane	0.0072	0.0070	0.017	0.010	54.5
trans,1,2-Dichloroethene	<0.0066	<0.0064	<0.0068	<0.0066	3.0
1,1-Dichloroethene	<0.0066	<0.0064	<0.0068	<0.0066	3.0
1,2-Dichloropropane	0.026	0.015	0.033	0.025	38.0
Ethylbenzene	0.039	0.049	0.20	0.097	94.1
Ethylene Dibromide	<0.013	<0.013	<0.014	<0.013	3.0
Mesitylene (1,3,5-Trimethylbenzene)	0.018	0.023	0.090	0.044	91.6
Methylene Chloride	25.6	6.88	5.49	12.6	88.7
Styrene	0.028	0.029	0.094	0.051	74.6
Tetrachloroethene	0.0072	0.0070	0.016	0.010	49.1
Toluene	9.09	2.47	2.86	4.81	77.3
1,1,1-Trichloroethane	<0.0066	<0.0064	<0.0068	<0.0066	3.0
Trichloroethene/1,1,2-Trichloroethene	<0.0066	<0.0064	<0.0068	<0.0066	3.0
Trichlorotrifluoroethane	<0.013	<0.013	<0.014	<0.013	3.0
Trichlorofluoromethane	0.028	0.046	0.062	0.045	36.9
M&P-Xylene	0.14	0.21	1.02	0.46	106
O-Xylene	0.043	0.065	0.33	0.15	110
Vinyl Chloride	<0.013	<0.013	<0.014	<0.013	3.0
Total	<35.9	<10.5	<11.7	<19.3	73.9

TABLE 90
Covanta - Durham York Energy Centre
Boiler No. 1 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	7.13	12.0	9.46	10.1	0.19
Benzene	5.85	9.88	7.76	8.31	0.15
Bromodichloromethane	<0.25	<0.43	<0.34	<0.36	<0.0066
Bromoform	<0.25	<0.43	<0.34	<0.36	<0.0066
Bromomethane	<7.57	<12.8	<10.0	<10.8	<0.20
1,3-Butadiene	<0.51	<0.86	<0.67	<0.72	<0.013
2-Butanone	6.72	11.3	8.91	9.55	0.17
Carbon Tetrachloride	0.95	1.61	1.27	1.36	0.025
Chloroform	1.33	2.24	1.76	1.89	0.035
Cumene (Isopropylbenzene)	<0.79	<1.34	<1.05	<1.13	<0.021
Dibromochloromethane	<0.25	<0.43	<0.34	<0.36	<0.0066
Dichlorodifluoromethane	4.78	8.08	6.35	6.80	0.12
1,2-Dichloroethane	0.40	0.68	0.53	0.57	0.010
trans,1,2-Dichloroethene	<0.25	<0.43	<0.34	<0.36	<0.0066
1,1-Dichloroethene	<0.25	<0.43	<0.34	<0.36	<0.0066
1,2-Dichloropropane	0.94	1.59	1.25	1.34	0.025
Ethylbenzene	3.73	6.30	4.95	5.30	0.097
Ethylene Dibromide	<0.51	<0.86	<0.67	<0.72	<0.013
Mesitylene (1,3,5-Trimethylbenzene)	1.69	2.85	2.24	2.40	0.044
Methylene Chloride	486	821	645	691	12.6
Styrene	1.95	3.29	2.58	2.77	0.051
Tetrachloroethene	0.38	0.65	0.51	0.54	0.010
Toluene	185	312	245	263	4.81
1,1,1-Trichloroethane	<0.25	<0.43	<0.34	<0.36	<0.0066
Trichloroethene/1,1,2-Trichloroethene	<0.25	<0.43	<0.34	<0.36	<0.0066
Trichlorotrifluoroethane	<0.51	<0.86	<0.67	<0.72	<0.013
Trichlorofluoromethane	1.74	2.94	2.31	2.48	0.045
M&P-Xylene	17.7	29.9	23.5	25.1	0.46
O-Xylene	5.64	9.52	7.48	8.01	0.15
Vinyl Chloride	<0.51	<0.86	<0.67	<0.72	<0.013
Total	<744	<1256	<987	<1057	<19.3

* At 25°C and 1 atmosphere

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

TABLE 91
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Blank Volatile Organic Analyses

Compound	Field Blank 1 Tube 10A/10B	Field Blank 2 Tube 9A/9B	Trip Blank Tube 16A/16B	Method Blank
	µg	µg	µg	µg
Acetone	0.85	0.50	0.52	<0.1
Benzene	0.11	0.10	0.11	<0.05
Bromodichloromethane	<0.01	<0.01	<0.01	<0.01
Bromoform	<0.01	<0.01	<0.01	<0.01
Bromomethane	0.43	0.17	<0.09	<0.09
1,3-Butadiene	<0.02	<0.02	<0.02	<0.02
2-Butanone	1.11	0.87	0.64	<0.01
Carbon Tetrachloride	0.017	0.013	0.015	<0.01
Chloroform	0.01	<0.01	<0.01	<0.01
Cumene (Isopropylbenzene)	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	<0.01	<0.01	<0.01	<0.01
Dichlorodifluoromethane	0.32	0.12	0.029	<0.02
1,2-Dichloroethane	<0.01	<0.01	<0.01	<0.01
trans,1,2-Dichloroethene	0.010	<0.01	<0.01	<0.01
1,1-Dichloroethene	<0.01	<0.01	<0.01	<0.01
1,2-Dichloropropane	0.030	0.033	0.038	<0.01
Ethylbenzene	0.046	0.042	0.050	<0.01
Ethylene Dibromide	<0.02	<0.02	<0.02	<0.02
Mesitylene (1,3,5-Trimethylbenzene)	0.025	0.023	0.028	<0.02
Methylene Chloride	24.4	16.9	13.3	<0.1
Styrene	0.033	0.033	0.042	<0.02
Tetrachloroethene	<0.01	<0.01	<0.01	<0.01
Toluene	6.93	6.78	7.74	<0.05
1,1,1-Trichloroethane	<0.01	<0.01	<0.01	<0.01
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.01	<0.01	<0.02
Trichlorotrifluoroethane	<0.02	<0.02	<0.02	<0.02
Trichlorofluoromethane	0.27	<0.02	<0.02	<0.02
M&P-Xylene	0.19	0.16	0.20	<0.03
O-Xylene	0.062	0.053	0.068	<0.01
Vinyl Chloride	<0.02	<0.02	<0.02	<0.02
Total	<35.0	<26.0	<23.1	<0.76

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.
There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

APPENDIX 2

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

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

Particulate and Metals Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 16, 2022	10:22	13:32	180
2	May 16, 2022	14:14	17:25	180
3	May 17, 2022	16:04	19:10	180

Particle Size Distribution Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 17, 2022	8:41	10:44	120
2	May 17, 2022	11:35	13:38	120
3	May 17, 2022	14:30	16:33	120

Acid Gases Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 16, 2022	10:23	11:23	60
2	May 16, 2022	12:01	13:01	60
3	May 16, 2022	13:32	14:32	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	May 18, 2022	8:32	12:49	240
2	May 18, 2022	13:58	18:08	240
3	May 19, 2022	8:37	12:46	240

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

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

Acrolein and Aldehydes Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 18, 2022	12:24	13:24	60
2	May 18, 2022	13:58	14:58	60
3	May 18, 2022	15:05	16:05	60

Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	May 18, 2022	8:38	9:18	40
2	May 18, 2022	9:32	10:12	40
3	May 18, 2022	10:21	11:01	40
4	May 18, 2022	11:08	11:48	40

Total Hydrocarbons Trains

Sampling Location	Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
BH Outlet	1	May 16, 2022	11:20	12:20	60
BH Outlet	2	May 16, 2022	12:30	13:30	60
BH Outlet	3	May 16, 2022	13:40	14:40	60
Quench Inlet	1	May 16, 2022	11:20	12:20	60
Quench Inlet	2	May 16, 2022	12:30	13:30	60
Quench Inlet	3	May 16, 2022	14;50	15:50	60

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	0.843	0.977	6.34	3.638	99.4
2	0.843	0.977	6.34	3.749	100.6
3	0.847	1.008	6.38	4.060	101.9

Particle Size Distribution Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.854	0.995	4.51	1.191	96.6
2	0.854	0.995	4.51	1.170	89.3
3	0.854	0.995	4.51	1.182	92.1

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.847	1.008	6.38	1.269	100.2
2	0.847	1.008	6.38	1.278	97.7
3	0.847	1.008	6.38	1.270	101.5

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	0.845	0.977	6.36	5.083	100.5
2	0.845	0.977	6.36	5.160	100.4
3	0.845	0.977	6.36	4.966	101.1

* 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.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	137	13.9	18.0	-2.61	96.7	9.85	9.35
2	137	15.8	18.8	-2.61	96.7	10.8	8.36
3	142	16.3	20.0	-2.69	97.5	10.2	8.86
Average	139	15.3	18.9	-2.64	97.0	10.3	8.86

Particle Size Distribution Trains

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	140	15.6	18.2	-2.69	97.1	10.4	8.67
2	140	15.8	19.4	-2.69	97.3	10.4	8.63
3	141	16.1	19.1	-2.69	97.4	10.3	8.74
Average	140	15.8	18.9	-2.69	97.3	10.4	8.68

Acid Gases Trains **

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	141	13.7	18.5	-2.61	96.7	9.75	9.33
2	141	13.6	19.2	-2.61	96.6	9.65	9.63
3	141	16.2	18.9	-2.61	96.6	10.5	8.66
Average	141	14.5	18.9	-2.61	96.7	9.96	9.21

Semi-Volatile Organics Trains

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	138	15.4	18.6	-2.71	98.2	10.6	8.51
2	140	14.0	18.8	-2.71	97.8	10.5	8.51
3	139	16.1	18.6	-2.84	96.7	10.7	8.23
Average	139	15.2	18.6	-2.76	97.5	10.6	8.42

* Dry basis, measured by the DYEC CEMS

** Sampling was conducted isokinetically on a single traverse 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	15.9	18.5	18.5
2	27.7	16.2	20.5	19.2
3	29.5	17.0	20.7	20.4
Average	27.9	16.4	19.9	19.4

Particle 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	27.0	15.8	19.5	18.7
2	28.7	16.8	20.8	19.9
3	28.3	16.4	20.1	19.6
Average	28.0	16.3	20.2	19.4

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	27.4	16.3	19.0	18.8
2	28.3	16.8	19.1	19.5
3	28.0	16.1	19.9	19.2
Average	27.9	16.4	19.3	19.2

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	27.4	16.3	20.4	19.3
2	27.7	16.6	20.8	19.3
3	27.4	15.9	20.3	18.9
Average	27.5	16.3	20.5	19.2

* At 25°C and 1 atmosphere

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

*** Sampling was conducted isokinetically on a single traverse 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			Dry Gas Volume Sampled	Actual	Particulate Concentration			Particulate Emission Rate
	Probe Rinse	Main Filter	Total			Dry Reference	Dry Adjusted	Wet Reference	
	mg	mg	mg	Rm^3*	mg/m^3	mg/Rm^3*	mg/Rm^3**	mg/Rm^3*	mg/s
1	9.8	3.1	12.9	3.638	2.12	3.55	3.04	3.05	56.4
2	0.6	2.6	3.2	3.749	0.50	0.85	0.67	0.72	13.8
3	2.9	2.1	5.0	4.060	0.71	1.23	1.01	1.03	21.0
Average					1.11	1.88	1.58	1.60	30.4
Blank	0.3	2.6	2.9						

* 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*	$PM_{2.5}$ 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	0.8	1.191	0.39	0.67	0.54	0.57	10.6
2	0.7	1.170	0.35	0.60	0.48	0.51	10.1
3	<0.4	1.182	<0.20	<0.34	<0.28	<0.28	<5.55
Average			<0.31	<0.54	<0.43	<0.45	<8.74
Blank	1.0						

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	1.6	1.191	0.79	1.34	1.09	1.14	21.2
2	1.1	1.170	0.55	0.94	0.76	0.79	15.8
3	<0.8	1.182	<0.39	<0.68	<0.55	<0.57	<11.1
Average			<0.58	<0.99	<0.80	<0.83	<16.0
Blank	1.5						

* 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 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	3.5	1.191	1.72	2.94	2.38	2.48	46.4
2	4.1	1.170	2.05	3.50	2.83	2.96	58.9
3	3.1	1.182	1.52	2.62	2.14	2.19	43.0
Average			1.76	3.02	2.45	2.55	49.4
Blank	0.2						

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	2.0	1.191	0.98	1.68	1.36	1.42	26.5
2	2.6	1.170	1.30	2.22	1.79	1.88	37.3
3	2.1	1.182	1.03	1.78	1.45	1.49	29.1
Average			1.10	1.89	1.53	1.59	31.0
Blank	1.2						

* 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 mg	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	6.31	1.269	2.97	4.97	4.26	4.28	79.0
2	6.49	1.278	3.03	5.08	4.35	4.37	80.7
3	5.50	1.270	2.53	4.33	3.42	3.64	70.1
Average			2.84	4.79	4.01	4.10	76.6
Blank	0.157						

Hydrogen Fluoride

Test No.	HF Collected mg	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	<0.145	1.269	<0.068	<0.11	<0.098	<0.098	<1.82
2	<0.138	1.278	<0.064	<0.11	<0.093	<0.093	<1.72
3	<0.163	1.270	<0.075	<0.13	<0.10	<0.11	<2.08
Average			<0.069	<0.12	<0.097	<0.10	<1.87
Blank	<0.105						

Ammonia

Test No.	Ammonia Collected mg	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	0.851	1.269	0.40	0.67	0.57	0.58	10.7
2	0.825	1.278	0.39	0.65	0.55	0.56	10.3
3	4.82	1.270	2.22	3.80	3.00	3.19	61.4
Average			1.00	1.70	1.37	1.44	27.5
Blank	<0.283						

Note: "<" indicates that the analyte was not detected 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 16 to May 19, 2022

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (%, 1 hr Avg)	8.02	8.74	9.76
BH Outlet	Carbon Monoxide (mg/Rm^3, 1 hr Avg) *	8	15	35
BH Outlet	Carbon Monoxide (mg/Rm^3, 4 hr Avg) *	9.0	15.3	29.8
BH Outlet	Sulphur Dioxide (mg/Rm^3, 1 hr Avg) *	0	0.7	32
BH Outlet	Sulphur Dioxide (mg/Rm^3, 24 hr Avg) *	0	0.9	2.0
BH Outlet	Nitrogen Oxides (mg/Rm^3, 1 hr Avg) *	82	109	119
BH Outlet	Nitrogen Oxides (mg/Rm^3, 24 hr Avg) *	108	110	111
BH Outlet	Hydrogen Chloride (mg/Rm^3, 1 hr Avg) *	2	4	5
BH Outlet	Hydrogen Chloride (mg/Rm^3, 24 hr Avg) *	3.2	3.6	3.9
BH Outlet	Total Hydrocarbons (mg/Rm^3, 1 hr Avg) *	0	0	0
Quench Inlet	Oxygen (%, 1 hr Avg)	8	9	9

Data measured by the ORTECH CEMS on May 16, 2022

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.4	1.6
BH Outlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.7	1.4
BH Outlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.2	1.0
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.4	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	1.2	5.3
Quench Inlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0.3	1.8	9.4
Quench Inlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0.1	1.4	11.8
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		1.5	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 10-min Avg)	0.7	1.3	2.4
Quench Inlet	2	Total Hydrocarbons (ppm dry, 10-min Avg)	0.8	1.8	3.5
Quench Inlet	3	Total Hydrocarbons (ppm dry, 10-min Avg)	0.4	1.4	3.0
Average		Total Hydrocarbons (ppm dry, 10-min Avg)		1.5	

* Reference conditions, dry basis adjusted to 11% oxygen

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	1.15	<0.1	1.15
Arsenic	<1	<0.2	<0.20
Barium	5.44	1.18	6.62
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.22	0.051	0.27
Chromium	2.73	0.79	3.52
Cobalt	<0.2	0.16	0.16
Copper	6.80	3.26	10.1
Lead	1.12	0.48	1.60
Mercury *	<0.015	<0.35	<0.35
Molybdenum	34.5	<0.1	34.5
Nickel	1.87	0.87	2.74
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	23.8	7.77	31.6
Total			<94.4

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected. 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	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	0.66	<0.1	0.66
Arsenic	<1	<0.2	<0.20
Barium	5.80	0.95	6.75
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	<0.05	<0.10
Chromium	2.86	3.38	6.24
Cobalt	<0.2	0.17	0.17
Copper	6.93	3.19	10.1
Lead	0.59	0.42	1.01
Mercury *	<0.015	<0.39	<0.39
Molybdenum	35.2	0.13	35.3
Nickel	1.68	1.93	3.61
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	11.4	5.56	17.0
Total			<83.2

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected. 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	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	0.22	<0.1	0.22
Arsenic	<1	<0.2	<0.20
Barium	8.05	1.14	9.19
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.17	<0.05	0.17
Chromium	2.55	0.78	3.33
Cobalt	<0.2	0.10	0.10
Copper	7.71	2.99	10.7
Lead	0.78	0.46	1.24
Mercury *	<0.015	<0.46	<0.46
Molybdenum	36.0	0.10	36.1
Nickel	1.73	0.83	2.56
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	20.6	7.98	28.6
Total			<94.5

* Includes the permanganate impingers

Note: "<" indicates that the analyte was not detected. 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	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	1.15	0.19	0.32	0.27	0.27	0.0050
Arsenic	<0.20	<0.033	<0.055	<0.047	<0.047	<0.00087
Barium	6.62	1.09	1.82	1.56	1.56	0.029
Beryllium	<0.20	<0.033	<0.055	<0.047	<0.047	<0.00087
Cadmium	0.27	0.044	0.074	0.064	0.064	0.0012
Chromium	3.52	0.58	0.97	0.83	0.83	0.015
Cobalt	0.16	0.025	0.043	0.037	0.037	0.00068
Copper	10.1	1.65	2.77	2.38	2.38	0.044
Lead	1.60	0.26	0.44	0.38	0.38	0.0070
Mercury	<0.35	<0.058	<0.096	<0.083	<0.083	<0.0015
Molybdenum	34.5	5.67	9.48	8.15	8.15	0.15
Nickel	2.74	0.45	0.75	0.65	0.65	0.012
Selenium	<1.00	<0.16	<0.27	<0.24	<0.24	<0.0044
Silver	<0.20	<0.033	<0.055	<0.047	<0.047	<0.00087
Thallium	<0.20	<0.033	<0.055	<0.047	<0.047	<0.00087
Vanadium	<0.10	<0.016	<0.027	<0.024	<0.024	<0.00044
Zinc	31.6	5.19	8.68	7.46	7.46	0.14
Total	<94.4	<15.5	<26.0	<22.3	<22.3	<0.41

Dry Gas Volume Sampled (Rm^3*) :	3.638
Actual Flowrate (m^3/s) :	26.6
Dry Reference Flowrate (Rm^3/s*) :	15.9
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	18.5

* 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	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	0.66	0.10	0.18	0.14	0.15	0.0029
Arsenic	<0.20	<0.031	<0.053	<0.042	<0.045	<0.00086
Barium	6.75	1.05	1.80	1.42	1.52	0.029
Beryllium	<0.20	<0.031	<0.053	<0.042	<0.045	<0.00086
Cadmium	<0.10	<0.016	<0.027	<0.021	<0.023	<0.00043
Chromium	6.24	0.97	1.66	1.32	1.40	0.027
Cobalt	0.17	0.026	0.044	0.035	0.037	0.00071
Copper	10.1	1.58	2.70	2.13	2.28	0.044
Lead	1.01	0.16	0.27	0.21	0.23	0.0044
Mercury	<0.39	<0.061	<0.10	<0.082	<0.088	<0.0017
Molybdenum	35.3	5.51	9.42	7.45	7.95	0.15
Nickel	3.61	0.56	0.96	0.76	0.81	0.016
Selenium	<1.00	<0.16	<0.27	<0.21	<0.23	<0.0043
Silver	<0.20	<0.031	<0.053	<0.042	<0.045	<0.00086
Thallium	<0.20	<0.031	<0.053	<0.042	<0.045	<0.00086
Vanadium	<0.10	<0.016	<0.027	<0.021	<0.023	<0.00043
Zinc	17.0	2.65	4.52	3.57	3.82	0.073
Total	<83.2	<13.0	<22.2	<17.5	<18.7	<0.36

Dry Gas Volume Sampled (Rm^3*) :	3.749
Actual Flowrate (m^3/s) :	27.7
Dry Reference Flowrate (Rm^3/s*) :	16.2
Dry Adjusted Flowrate (Rm^3/s**) :	20.5
Wet Reference Flowrate (Rm^3/s*) :	19.2

* 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	0.22	0.031	0.053	0.044	0.044	0.00090
Arsenic	<0.20	<0.028	<0.049	<0.040	<0.041	<0.00084
Barium	9.19	1.30	2.26	1.86	1.89	0.038
Beryllium	<0.20	<0.028	<0.049	<0.040	<0.041	<0.00084
Cadmium	0.17	0.023	0.041	0.033	0.034	0.00069
Chromium	3.33	0.47	0.82	0.67	0.68	0.014
Cobalt	0.10	0.015	0.025	0.021	0.021	0.00043
Copper	10.7	1.52	2.64	2.16	2.20	0.045
Lead	1.24	0.18	0.30	0.25	0.25	0.0052
Mercury	<0.46	<0.065	<0.11	<0.092	<0.093	<0.0019
Molybdenum	36.1	5.12	8.89	7.30	7.41	0.15
Nickel	2.56	0.36	0.63	0.52	0.53	0.011
Selenium	<1.00	<0.14	<0.25	<0.20	<0.21	<0.0042
Silver	<0.20	<0.028	<0.049	<0.040	<0.041	<0.00084
Thallium	<0.20	<0.028	<0.049	<0.040	<0.041	<0.00084
Vanadium	<0.10	<0.014	<0.025	<0.020	<0.021	<0.00042
Zinc	28.6	4.06	7.04	5.78	5.87	0.12
Total	<94.5	<13.4	<23.3	<19.1	<19.4	<0.40

Dry Gas Volume Sampled (Rm^3*) :	4.060
Actual Flowrate (m^3/s) :	29.5
Dry Reference Flowrate (Rm^3/s*) :	17.0
Dry Adjusted Flowrate (Rm^3/s**) :	20.7
Wet Reference Flowrate (Rm^3/s*) :	20.4

* 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 of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/m³	µg/m³	µg/m³	µg/m³	%
Antimony	0.19	0.10	0.031	0.11	73.7
Arsenic	<0.033	<0.031	<0.028	<0.031	7.3
Barium	1.09	1.05	1.30	1.15	11.9
Beryllium	<0.033	<0.031	<0.028	<0.031	7.3
Cadmium	0.044	<0.016	0.023	<0.028	53.4
Chromium	0.58	0.97	0.47	0.68	39.0
Cobalt	0.025	0.026	0.015	0.022	28.9
Copper	1.65	1.58	1.52	1.58	4.2
Lead	0.26	0.16	0.18	0.20	28.5
Mercury	<0.058	<0.061	<0.065	<0.061	5.8
Molybdenum	5.67	5.51	5.12	5.43	5.2
Nickel	0.45	0.56	0.36	0.46	21.9
Selenium	<0.16	<0.16	<0.14	<0.15	7.3
Silver	<0.033	<0.031	<0.028	<0.031	7.3
Thallium	<0.033	<0.031	<0.028	<0.031	7.3
Vanadium	<0.016	<0.016	<0.014	<0.015	7.3
Zinc	5.19	2.65	4.06	3.96	32.1
Total	<15.5	<13.0	<13.4	<14.0	9.7

TABLE 18
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Metal Dry Reference Concentrations

Metal	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	0.32	0.18	0.053	0.18	72.3
Arsenic	<0.055	<0.053	<0.049	<0.053	5.6
Barium	1.82	1.80	2.26	1.96	13.4
Beryllium	<0.055	<0.053	<0.049	<0.053	5.6
Cadmium	0.074	<0.027	0.041	<0.047	51.6
Chromium	0.97	1.66	0.82	1.15	39.1
Cobalt	0.043	0.044	0.025	0.037	27.8
Copper	2.77	2.70	2.64	2.70	2.4
Lead	0.44	0.27	0.30	0.34	26.7
Mercury	<0.096	<0.10	<0.11	<0.10	7.6
Molybdenum	9.48	9.42	8.89	9.27	3.5
Nickel	0.75	0.96	0.63	0.78	21.5
Selenium	<0.27	<0.27	<0.25	<0.26	5.6
Silver	<0.055	<0.053	<0.049	<0.053	5.6
Thallium	<0.055	<0.053	<0.049	<0.053	5.6
Vanadium	<0.027	<0.027	<0.025	<0.026	5.6
Zinc	8.68	4.52	7.04	6.75	31.0
Total	<26.0	<22.2	<23.3	<23.8	8.1

* 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	0.27	0.14	0.044	0.15	75.5
Arsenic	<0.047	<0.042	<0.040	<0.043	8.2
Barium	1.56	1.42	1.86	1.62	13.8
Beryllium	<0.047	<0.042	<0.040	<0.043	8.2
Cadmium	0.064	<0.021	0.033	<0.039	55.6
Chromium	0.83	1.32	0.67	0.94	35.5
Cobalt	0.037	0.035	0.021	0.031	28.1
Copper	2.38	2.13	2.16	2.22	6.0
Lead	0.38	0.21	0.25	0.28	31.0
Mercury	<0.083	<0.082	<0.092	<0.086	6.5
Molybdenum	8.15	7.45	7.30	7.63	5.9
Nickel	0.65	0.76	0.52	0.64	19.0
Selenium	<0.24	<0.21	<0.20	<0.22	8.2
Silver	<0.047	<0.042	<0.040	<0.043	8.2
Thallium	<0.047	<0.042	<0.040	<0.043	8.2
Vanadium	<0.024	<0.021	<0.020	<0.022	8.2
Zinc	7.46	3.57	5.78	5.60	34.7
Total	<22.3	<17.5	<19.1	<19.7	12.3

** 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/Rm³*	µg/Rm³*	µg/Rm³*	µg/Rm³*	%
Antimony	0.27	0.15	0.044	0.15	73.5
Arsenic	<0.047	<0.045	<0.041	<0.044	7.1
Barium	1.56	1.52	1.89	1.66	12.1
Beryllium	<0.047	<0.045	<0.041	<0.044	7.1
Cadmium	0.064	<0.023	0.034	<0.040	53.1
Chromium	0.83	1.40	0.68	0.97	39.1
Cobalt	0.037	0.037	0.021	0.032	28.7
Copper	2.38	2.28	2.20	2.28	4.0
Lead	0.38	0.23	0.25	0.29	28.2
Mercury	<0.083	<0.088	<0.093	<0.088	6.1
Molybdenum	8.15	7.95	7.41	7.84	4.9
Nickel	0.65	0.81	0.53	0.66	21.8
Selenium	<0.24	<0.23	<0.21	<0.22	7.1
Silver	<0.047	<0.045	<0.041	<0.044	7.1
Thallium	<0.047	<0.045	<0.041	<0.044	7.1
Vanadium	<0.024	<0.023	<0.021	<0.022	7.1
Zinc	7.46	3.82	5.87	5.71	31.9
Total	<22.3	<18.7	<19.4	<20.1	9.4

* 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	0.0050	0.0029	0.00090	0.0029	70.4
Arsenic	<0.00087	<0.00086	<0.00084	<0.00086	2.2
Barium	0.029	0.029	0.038	0.032	16.9
Beryllium	<0.00087	<0.00086	<0.00084	<0.00086	2.2
Cadmium	0.0012	<0.00043	0.00069	<0.00077	49.3
Chromium	0.015	0.027	0.014	0.019	38.0
Cobalt	0.00068	0.00071	0.00043	0.00061	25.3
Copper	0.044	0.044	0.045	0.044	1.3
Lead	0.0070	0.0044	0.0052	0.0055	24.5
Mercury	<0.0015	<0.0017	<0.0019	<0.0017	11.1
Molybdenum	0.15	0.15	0.15	0.15	0.7
Nickel	0.012	0.016	0.011	0.013	19.9
Selenium	<0.0044	<0.0043	<0.0042	<0.0043	2.2
Silver	<0.00087	<0.00086	<0.00084	<0.00086	2.2
Thallium	<0.00087	<0.00086	<0.00084	<0.00086	2.2
Vanadium	<0.00044	<0.00043	<0.00042	<0.00043	2.2
Zinc	0.14	0.073	0.12	0.11	30.2
Total	<0.41	<0.36	<0.40	<0.39	7.0

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

Metal	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg/m³	µg/Rm³*	µg/Rm³**	µg/Rm³*	mg/s
Antimony	0.11	0.18	0.15	0.15	0.0029
Arsenic	<0.031	<0.053	<0.043	<0.044	<0.00086
Barium	1.15	1.96	1.62	1.66	0.032
Beryllium	<0.031	<0.053	<0.043	<0.044	<0.00086
Cadmium	<0.028	<0.047	<0.039	<0.040	<0.00077
Chromium	0.68	1.15	0.94	0.97	0.019
Cobalt	0.022	0.037	0.031	0.032	0.00061
Copper	1.58	2.70	2.22	2.28	0.044
Lead	0.20	0.34	0.28	0.29	0.0055
Mercury	<0.061	<0.10	<0.086	<0.088	<0.0017
Molybdenum	5.43	9.27	7.63	7.84	0.15
Nickel	0.46	0.78	0.64	0.66	0.013
Selenium	<0.15	<0.26	<0.22	<0.22	<0.0043
Silver	<0.031	<0.053	<0.043	<0.044	<0.00086
Thallium	<0.031	<0.053	<0.043	<0.044	<0.00086
Vanadium	<0.015	<0.026	<0.022	<0.022	<0.00043
Zinc	3.96	6.75	5.60	5.71	0.11
Total	<14.0	<23.8	<19.7	<20.1	<0.39

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	<5	0.67	0.67
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	<0.05	<0.10
Chromium	2.01	1.39	3.40
Cobalt	<0.2	<0.1	<0.10
Copper	5.14	2.76	7.90
Lead	0.54	0.21	0.75
Mercury *	<0.015	<0.15	<0.15
Molybdenum	33.2	<0.1	33.2
Nickel	1.10	1.19	2.29
Selenium	<2	<1	<1.00
Silver	<0.2	<0.1	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	<6	<3	<6.00
Total			<56.7

* Includes the permanganate impingers.

Note: "<" indicates that the analyte was not detected. 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	77.5	0.0091	0.015	0.012	0.013	0.25
Pentachlorodibenzo-p-dioxins	53.3	0.0062	0.010	0.0084	0.0089	0.17
Hexachlorodibenzo-p-dioxins	153	0.018	0.030	0.024	0.025	0.49
Heptachlorodibenzo-p-dioxins	38.7	0.0045	0.0076	0.0061	0.0064	0.12
Octachlorodibenzo-p-dioxin	<33	<0.0039	<0.0065	<0.0052	<0.0055	<0.11
Total	<356	<0.042	<0.070	<0.056	<0.059	<1.14

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<3.2	<0.00037	<0.00063	<0.00050	<0.00053	<0.010
Pentachlorodibenzofurans	23.6	0.0028	0.0046	0.0037	0.0039	0.076
Hexachlorodibenzofurans	12.0	0.0014	0.0024	0.0019	0.0020	0.038
Heptachlorodibenzofurans	12.0	0.0014	0.0024	0.0019	0.0020	0.038
Octachlorodibenzofuran	<7.8	<0.00091	<0.0015	<0.0012	<0.0013	<0.025
Total	<58.6	<0.0069	<0.012	<0.0092	<0.0097	<0.19

Dry Gas Volume Sampled (Rm^3*) :	5.083
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	16.3
Dry Adjusted Flowrate (Rm^3/s**) :	20.4
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	48.6	0.0056	0.0094	0.0075	0.0081	0.16
Pentachlorodibenzo-p-dioxins	108	0.013	0.021	0.017	0.018	0.35
Hexachlorodibenzo-p-dioxins	140	0.016	0.027	0.022	0.023	0.45
Heptachlorodibenzo-p-dioxins	72.0	0.0084	0.014	0.011	0.012	0.23
Octachlorodibenzo-p-dioxin	40.7	0.0047	0.0079	0.0063	0.0068	0.13
Total	409	0.048	0.079	0.063	0.068	1.32

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<3.1	<0.00036	<0.00060	<0.00048	<0.00052	<0.010
Pentachlorodibenzofurans	17.1	0.0020	0.0033	0.0026	0.0029	0.055
Hexachlorodibenzofurans	29.2	0.0034	0.0057	0.0045	0.0049	0.094
Heptachlorodibenzofurans	<1.8	<0.00021	<0.00035	<0.00028	<0.00030	<0.0058
Octachlorodibenzofuran	9.02	0.0010	0.0017	0.0014	0.0015	0.029
Total	<60.2	<0.0070	<0.012	<0.0093	<0.010	<0.19

Dry Gas Volume Sampled (Rm^3*) :	5.160
Actual Flowrate (m^3/s) :	27.7
Dry Reference Flowrate (Rm^3/s*) :	16.6
Dry Adjusted Flowrate (Rm^3/s**) :	20.8
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	85.0	0.0099	0.017	0.013	0.014	0.27
Pentachlorodibenzo-p-dioxins	11.4	0.0013	0.0023	0.0018	0.0019	0.037
Hexachlorodibenzo-p-dioxins	6.82	0.00080	0.0014	0.0011	0.0012	0.022
Heptachlorodibenzo-p-dioxins	45.8	0.0054	0.0092	0.0072	0.0078	0.15
Octachlorodibenzo-p-dioxin	<36	<0.0042	<0.0072	<0.0057	<0.0061	<0.12
Total	<185	<0.022	<0.037	<0.029	<0.031	<0.59

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<4.7	<0.00055	<0.00095	<0.00074	<0.00080	<0.015
Pentachlorodibenzofurans	18.0	0.0021	0.0036	0.0028	0.0030	0.058
Hexachlorodibenzofurans	7.99	0.00093	0.0016	0.0013	0.0014	0.026
Heptachlorodibenzofurans	9.27	0.0011	0.0019	0.0015	0.0016	0.030
Octachlorodibenzofuran	14.0	0.0016	0.0028	0.0022	0.0024	0.045
Total	<54.0	<0.0063	<0.011	<0.0085	<0.0091	<0.17

Dry Gas Volume Sampled (Rm^3*) :	4.966
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	15.9
Dry Adjusted Flowrate (Rm^3/s**) :	20.3
Wet Reference Flowrate (Rm^3/s*) :	18.9

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

Dioxins

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzo-p-dioxins	0.0091	0.0056	0.0099	0.0082	27.6
Pentachlorodibenzo-p-dioxins	0.0062	0.013	0.0013	0.0067	83.8
Hexachlorodibenzo-p-dioxins	0.018	0.016	0.00080	0.012	81.0
Heptachlorodibenzo-p-dioxins	0.0045	0.0084	0.0054	0.0061	33.2
Octachlorodibenzo-p-dioxin	<0.0039	0.0047	<0.0042	<0.0043	10.2
Total	<0.042	0.048	<0.022	<0.037	36.8

Furans

Congener Group	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Tetrachlorodibenzofurans	<0.00037	<0.00036	<0.00055	<0.00043	24.6
Pentachlorodibenzofurans	0.0028	0.0020	0.0021	0.0023	18.3
Hexachlorodibenzofurans	0.0014	0.0034	0.00093	0.0019	68.3
Heptachlorodibenzofurans	0.0014	<0.00021	0.0011	<0.00090	68.8
Octachlorodibenzofuran	<0.00091	0.0010	0.0016	<0.0012	32.1
Total	<0.0069	<0.0070	<0.0063	<0.0067	5.4

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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.015	0.0094	0.017	0.014	28.8
Pentachlorodibenzo-p-dioxins	0.010	0.021	0.0023	0.011	83.1
Hexachlorodibenzo-p-dioxins	0.030	0.027	0.0014	0.020	80.9
Heptachlorodibenzo-p-dioxins	0.0076	0.014	0.0092	0.010	32.1
Octachlorodibenzo-p-dioxin	<0.0065	0.0079	<0.0072	<0.0072	9.7
Total	<0.070	0.079	<0.037	<0.062	35.5

Furans

Congener Group	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzofurans	<0.00063	<0.00060	<0.00095	<0.00073	26.4
Pentachlorodibenzofurans	0.0046	0.0033	0.0036	0.0039	18.0
Hexachlorodibenzofurans	0.0024	0.0057	0.0016	0.0032	67.1
Heptachlorodibenzofurans	0.0024	<0.00035	0.0019	<0.0015	68.7
Octachlorodibenzofuran	<0.0015	0.0017	0.0028	<0.0020	33.8
Total	<0.012	<0.012	<0.011	<0.011	3.8

* 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	0.012	0.0075	0.013	0.011	28.2
Pentachlorodibenzo-p-dioxins	0.0084	0.017	0.0018	0.0090	83.4
Hexachlorodibenzo-p-dioxins	0.024	0.022	0.0011	0.016	81.0
Heptachlorodibenzo-p-dioxins	0.0061	0.011	0.0072	0.0081	32.5
Octachlorodibenzo-p-dioxin	<0.0052	0.0063	<0.0057	<0.0057	9.7
Total	<0.056	0.063	<0.029	<0.049	36.3

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	<0.00050	<0.00048	<0.00074	<0.00057	25.2
Pentachlorodibenzofurans	0.0037	0.0026	0.0028	0.0031	18.5
Hexachlorodibenzofurans	0.0019	0.0045	0.0013	0.0026	67.6
Heptachlorodibenzofurans	0.0019	<0.00028	0.0015	<0.0012	68.9
Octachlorodibenzofuran	<0.0012	0.0014	0.0022	<0.0016	32.6
Total	<0.0092	<0.0093	<0.0085	<0.0090	4.9

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.013	0.0081	0.014	0.012	27.9
Pentachlorodibenzo-p-dioxins	0.0089	0.018	0.0019	0.0096	84.0
Hexachlorodibenzo-p-dioxins	0.025	0.023	0.0012	0.017	80.8
Heptachlorodibenzo-p-dioxins	0.0064	0.012	0.0078	0.0087	33.3
Octachlorodibenzo-p-dioxin	<0.0055	0.0068	<0.0061	<0.0061	10.6
Total	<0.059	0.068	<0.031	<0.053	36.3

Furans

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzofurans	<0.00053	<0.00052	<0.00080	<0.00061	25.6
Pentachlorodibenzofurans	0.0039	0.0029	0.0030	0.0033	17.4
Hexachlorodibenzofurans	0.0020	0.0049	0.0014	0.0027	68.3
Heptachlorodibenzofurans	0.0020	<0.00030	0.0016	<0.0013	68.4
Octachlorodibenzofuran	<0.0013	0.0015	0.0024	<0.0017	33.1
Total	<0.0097	<0.010	<0.0091	<0.0096	4.7

* 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	0.25	0.16	0.27	0.23	27.1
Pentachlorodibenzo-p-dioxins	0.17	0.35	0.037	0.18	84.3
Hexachlorodibenzo-p-dioxins	0.49	0.45	0.022	0.32	81.0
Heptachlorodibenzo-p-dioxins	0.12	0.23	0.15	0.17	33.9
Octachlorodibenzo-p-dioxin	<0.11	0.13	<0.12	<0.12	10.8
Total	<1.14	1.32	<0.59	<1.02	37.2

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	<0.010	<0.010	<0.015	<0.012	24.2
Pentachlorodibenzofurans	0.076	0.055	0.058	0.063	17.9
Hexachlorodibenzofurans	0.038	0.094	0.026	0.053	69.0
Heptachlorodibenzofurans	0.038	<0.0058	0.030	<0.025	68.6
Octachlorodibenzofuran	<0.025	0.029	0.045	<0.033	31.8
Total	<0.19	<0.19	<0.17	<0.18	5.9

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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzo-p-dioxins	0.0082	0.014	0.011	0.012	0.23
Pentachlorodibenzo-p-dioxins	0.0067	0.011	0.0090	0.0096	0.18
Hexachlorodibenzo-p-dioxins	0.012	0.020	0.016	0.017	0.32
Heptachlorodibenzo-p-dioxins	0.0061	0.010	0.0081	0.0087	0.17
Octachlorodibenzo-p-dioxin	<0.0043	<0.0072	<0.0057	<0.0061	<0.12
Total	<0.037	<0.062	<0.049	<0.053	<1.02

Furans

Congener Group	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	ng/s
Tetrachlorodibenzofurans	<0.00043	<0.00073	<0.00057	<0.00061	<0.012
Pentachlorodibenzofurans	0.0023	0.0039	0.0031	0.0033	0.063
Hexachlorodibenzofurans	0.0019	0.0032	0.0026	0.0027	0.053
Heptachlorodibenzofurans	<0.00090	<0.0015	<0.0012	<0.0013	<0.025
Octachlorodibenzofuran	<0.0012	<0.0020	<0.0016	<0.0017	<0.033
Total	<0.0067	<0.011	<0.0090	<0.0096	<0.18

* 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	Method Blank
	pg	pg
Tetrachlorodibenzo-p-dioxins	<1.4	<1.5
Pentachlorodibenzo-p-dioxins	<0.87	<0.88
Hexachlorodibenzo-p-dioxins	<0.65	<1.0
Heptachlorodibenzo-p-dioxins	2.88	<1.4
Octachlorodibenzo-p-dioxin	<3.4	21.5
Total	<9.20	<26.3

Furans

Congener Group	Blank Train	Laboratory Blank
	pg	pg
Tetrachlorodibenzofurans	<0.83	<1.1
Pentachlorodibenzofurans	<0.69	<1.2
Hexachlorodibenzofurans	3.63	6.01
Heptachlorodibenzofurans	<1.1	2.95
Octachlorodibenzofuran	<1.8	9.49
Total	<8.05	<20.8

"<" indicates that the amount detected is less than the detection limit
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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<5.9	<0.69	<1.16	<0.93	<0.98	<0.019
12378-pentachlorodibenzo-p-dioxin	<5.7	<0.67	<1.12	<0.90	<0.95	<0.018
123478-hexachlorodibenzo-p-dioxin	<4.1	<0.48	<0.81	<0.64	<0.68	<0.013
123678-hexachlorodibenzo-p-dioxin	<15	<1.76	<2.95	<2.36	<2.49	<0.048
123789-hexachlorodibenzo-p-dioxin	8.43	0.99	1.66	1.33	1.40	0.027
1234678-heptachlorodibenzo-p-dioxin	90.0	10.5	17.7	14.1	15.0	0.29
Octachlorodibenzo-p-dioxin	<77	<9.01	<15.1	<12.1	<12.8	<0.25
2378-tetrachlorodibenzofuran	<7.3	<0.85	<1.44	<1.15	<1.21	<0.023
12378-pentachlorodibenzofuran	<4.8	<0.56	<0.94	<0.75	<0.80	<0.015
23478-pentachlorodibenzofuran	17.3	2.02	3.40	2.72	2.87	0.055
123478-hexachlorodibenzofuran	<6.6	<0.77	<1.30	<1.04	<1.10	<0.021
123678-hexachlorodibenzofuran	<6.6	<0.77	<1.30	<1.04	<1.10	<0.021
234678-hexachlorodibenzofuran	<8.0	<0.94	<1.57	<1.26	<1.33	<0.026
123789-hexachlorodibenzofuran	<22	<2.57	<4.33	<3.46	<3.66	<0.071
1234678-heptachlorodibenzofuran	27.9	3.27	5.49	4.39	4.64	0.089
1234789-heptachlorodibenzofuran	<6.5	<0.76	<1.28	<1.02	<1.08	<0.021
Octachlorodibenzofuran	<18	<2.11	<3.54	<2.83	<2.99	<0.058
PCB 81	<6.1	<0.71	<1.20	<0.96	<1.01	<0.020
PCB 77	<37	<4.33	<7.28	<5.82	<6.15	<0.12
PCB 123	<7.8	<0.91	<1.53	<1.23	<1.30	<0.025
PCB 118	1170	137	230	184	194	3.75
PCB 114	<31	<3.63	<6.10	<4.87	<5.15	<0.099
PCB 105	392	45.9	77.1	61.6	65.1	1.26
PCB 126	<16	<1.87	<3.15	<2.52	<2.66	<0.051
PCB 167	12.5	1.46	2.46	1.96	2.08	0.040
PCB 156/157	33.0	3.86	6.49	5.19	5.48	0.11
PCB 169	<3.7	<0.43	<0.73	<0.58	<0.61	<0.012
PCB 189	<2.9	<0.34	<0.57	<0.46	<0.48	<0.0093
Total Dioxins & Furans Only	<331	<38.8	<65.1	<52.1	<55.0	<1.06
Total PCBs Only	<1712	<200	<337	<269	<284	<5.49
Total Dioxins & Furans and PCBs	<2043	<239	<402	<321	<339	<6.55

Dry Gas Volume Sampled (Rm³*) :	5.083
Actual Flowrate (m³/s) :	27.4
Dry Reference Flowrate (Rm³/s*) :	16.3
Dry Adjusted Flowrate (Rm³/s**) :	20.4
Wet Reference Flowrate (Rm³/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<7.8	<0.91	<1.51	<1.21	<1.30	<0.025
12378-pentachlorodibenzo-p-dioxin	<4.2	<0.49	<0.81	<0.65	<0.70	<0.014
123478-hexachlorodibenzo-p-dioxin	<4.3	<0.50	<0.83	<0.67	<0.72	<0.014
123678-hexachlorodibenzo-p-dioxin	19.3	2.24	3.74	2.99	3.22	0.062
123789-hexachlorodibenzo-p-dioxin	<6.4	<0.74	<1.24	<0.99	<1.07	<0.021
1234678-heptachlorodibenzo-p-dioxin	92.1	10.7	17.8	14.2	15.4	0.30
Octachlorodibenzo-p-dioxin	96.9	11.3	18.8	15.0	16.2	0.31
2378-tetrachlorodibenzofuran	<6.9	<0.80	<1.34	<1.07	<1.15	<0.022
12378-pentachlorodibenzofuran	8.73	1.01	1.69	1.35	1.46	0.028
23478-pentachlorodibenzofuran	12.0	1.39	2.33	1.86	2.00	0.039
123478-hexachlorodibenzofuran	<7.0	<0.81	<1.36	<1.08	<1.17	<0.023
123678-hexachlorodibenzofuran	<10	<1.16	<1.94	<1.55	<1.67	<0.032
234678-hexachlorodibenzofuran	15.4	1.79	2.98	2.38	2.57	0.050
123789-hexachlorodibenzofuran	<15	<1.74	<2.91	<2.32	<2.50	<0.048
1234678-heptachlorodibenzofuran	<24	<2.79	<4.65	<3.71	<4.00	<0.077
1234789-heptachlorodibenzofuran	<4.3	<0.50	<0.83	<0.67	<0.72	<0.014
Octachlorodibenzofuran	21.5	2.50	4.17	3.33	3.58	0.069
PCB 81	<4.6	<0.53	<0.89	<0.71	<0.77	<0.015
PCB 77	40.0	4.65	7.75	6.19	6.67	0.13
PCB 123	24.9	2.89	4.83	3.85	4.15	0.080
PCB 118	1220	142	236	189	203	3.92
PCB 114	33.4	3.88	6.47	5.17	5.57	0.11
PCB 105	387	44.9	75.0	59.9	64.5	1.25
PCB 126	<4.5	<0.52	<0.87	<0.70	<0.75	<0.014
PCB 167	13.0	1.51	2.52	2.01	2.17	0.042
PCB 156/157	30.1	3.50	5.83	4.66	5.02	0.097
PCB 169	<3.4	<0.39	<0.66	<0.53	<0.57	<0.011
PCB 189	<2.2	<0.26	<0.43	<0.34	<0.37	<0.0071
Total Dioxins & Furans Only	<356	<41.3	<69.0	<55.0	<59.3	<1.14
Total PCBs Only	<1763	<205	<342	<273	<294	<5.67
Total Dioxins & Furans and PCBs	<2119	<246	<411	<328	<353	<6.82

Dry Gas Volume Sampled (Rm³*) :	5.160
Actual Flowrate (m³/s) :	27.7
Dry Reference Flowrate (Rm³/s*) :	16.6
Dry Adjusted Flowrate (Rm³/s**) :	20.8
Wet Reference Flowrate (Rm³/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<7.5	<0.88	<1.51	<1.18	<1.27	<0.024
12378-pentachlorodibenzo-p-dioxin	<8.0	<0.93	<1.61	<1.26	<1.36	<0.026
123478-hexachlorodibenzo-p-dioxin	<8.3	<0.97	<1.67	<1.31	<1.41	<0.027
123678-hexachlorodibenzo-p-dioxin	14.5	1.69	2.92	2.29	2.46	0.046
123789-hexachlorodibenzo-p-dioxin	<9.8	<1.15	<1.97	<1.55	<1.66	<0.031
1234678-heptachlorodibenzo-p-dioxin	<83	<9.70	<16.7	<13.1	<14.1	<0.27
Octachlorodibenzo-p-dioxin	<86	<10.0	<17.3	<13.6	<14.6	<0.28
2378-tetrachlorodibenzofuran	<9.2	<1.08	<1.85	<1.45	<1.56	<0.029
12378-pentachlorodibenzofuran	<7.0	<0.82	<1.41	<1.10	<1.19	<0.022
23478-pentachlorodibenzofuran	<7.4	<0.86	<1.49	<1.17	<1.25	<0.024
123478-hexachlorodibenzofuran	11.0	1.29	2.22	1.73	1.86	0.035
123678-hexachlorodibenzofuran	5.31	0.62	1.07	0.84	0.90	0.017
234678-hexachlorodibenzofuran	<11	<1.29	<2.22	<1.73	<1.86	<0.035
123789-hexachlorodibenzofuran	<20	<2.34	<4.03	<3.15	<3.39	<0.064
1234678-heptachlorodibenzofuran	22.1	2.58	4.45	3.49	3.74	0.071
1234789-heptachlorodibenzofuran	<7.6	<0.89	<1.53	<1.20	<1.29	<0.024
Octachlorodibenzofuran	33.3	3.89	6.71	5.25	5.64	0.11
PCB 81	<7.7	<0.90	<1.55	<1.21	<1.30	<0.025
PCB 77	43.8	5.12	8.82	6.91	7.42	0.14
PCB 123	<11	<1.29	<2.22	<1.73	<1.86	<0.035
PCB 118	1280	150	258	202	217	4.10
PCB 114	33.1	3.87	6.67	5.22	5.61	0.11
PCB 105	441	51.5	88.8	69.6	74.7	1.41
PCB 126	<14	<1.64	<2.82	<2.21	<2.37	<0.045
PCB 167	11.8	1.38	2.38	1.86	2.00	0.038
PCB 156/157	34.4	4.02	6.93	5.43	5.83	0.11
PCB 169	<4.5	<0.53	<0.91	<0.71	<0.76	<0.014
PCB 189	<2.5	<0.29	<0.50	<0.39	<0.42	<0.0080
Total Dioxins & Furans Only	<351	<41.0	<70.7	<55.4	<59.5	<1.12
Total PCBs Only	<1884	<220	<379	<297	<319	<6.03
Total Dioxins & Furans and PCBs	<2235	<261	<450	<352	<379	<7.16

Dry Gas Volume Sampled (Rm³*) :	4.966
Actual Flowrate (m³/s) :	27.4
Dry Reference Flowrate (Rm³/s*) :	15.9
Dry Adjusted Flowrate (Rm³/s**) :	20.3
Wet Reference Flowrate (Rm³/s*) :	18.9

* 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 37
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/m³	pg/m³	pg/m³	pg/m³	%
2378-tetrachlorodibenzo-p-dioxin	<0.69	<0.91	<0.88	<0.82	14.2
12378-pentachlorodibenzo-p-dioxin	<0.67	<0.49	<0.93	<0.70	32.3
123478-hexachlorodibenzo-p-dioxin	<0.48	<0.50	<0.97	<0.65	42.7
123678-hexachlorodibenzo-p-dioxin	<1.76	2.24	1.69	<1.90	15.8
123789-hexachlorodibenzo-p-dioxin	0.99	<0.74	<1.15	<0.96	21.1
1234678-heptachlorodibenzo-p-dioxin	10.5	10.7	<9.70	<10.3	5.2
Octachlorodibenzo-p-dioxin	<9.01	11.3	<10.0	<10.1	11.1
2378-tetrachlorodibenzofuran	<0.85	<0.80	<1.08	<0.91	15.9
12378-pentachlorodibenzofuran	<0.56	1.01	<0.82	<0.80	28.4
23478-pentachlorodibenzofuran	2.02	1.39	<0.86	<1.43	40.7
123478-hexachlorodibenzofuran	<0.77	<0.81	1.29	<0.96	29.8
123678-hexachlorodibenzofuran	<0.77	<1.16	0.62	<0.85	32.8
234678-hexachlorodibenzofuran	<0.94	1.79	<1.29	<1.34	32.1
123789-hexachlorodibenzofuran	<2.57	<1.74	<2.34	<2.22	19.3
1234678-heptachlorodibenzofuran	3.27	<2.79	2.58	<2.88	12.2
1234789-heptachlorodibenzofuran	<0.76	<0.50	<0.89	<0.72	27.7
Octachlorodibenzofuran	<2.11	2.50	3.89	<2.83	33.1
PCB 81	<0.71	<0.53	<0.90	<0.72	25.5
PCB 77	<4.33	4.65	5.12	<4.70	8.4
PCB 123	<0.91	2.89	<1.29	<1.70	62.0
PCB 118	137	142	150	143	4.5
PCB 114	<3.63	3.88	3.87	<3.79	3.7
PCB 105	45.9	44.9	51.5	47.5	7.5
PCB 126	<1.87	<0.52	<1.64	<1.34	53.6
PCB 167	1.46	1.51	1.38	1.45	4.6
PCB 156/157	3.86	3.50	4.02	3.79	7.1
PCB 169	<0.43	<0.39	<0.53	<0.45	14.9
PCB 189	<0.34	<0.26	<0.29	<0.30	14.2
Total Dioxins & Furans Only	<38.8	<41.3	<41.0	<40.4	3.5
Total PCBs Only	<200	<205	<220	<208	5.0
Total Dioxins & Furans and PCBs	<239	<246	<261	<249	4.5

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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<1.16	<1.51	<1.51	<1.39	14.5
12378-pentachlorodibenzo-p-dioxin	<1.12	<0.81	<1.61	<1.18	34.0
123478-hexachlorodibenzo-p-dioxin	<0.81	<0.83	<1.67	<1.10	44.6
123678-hexachlorodibenzo-p-dioxin	<2.95	3.74	2.92	<3.20	14.5
123789-hexachlorodibenzo-p-dioxin	1.66	<1.24	<1.97	<1.62	22.6
1234678-heptachlorodibenzo-p-dioxin	17.7	17.8	<16.7	<17.4	3.5
Octachlorodibenzo-p-dioxin	<15.1	18.8	<17.3	<17.1	10.7
2378-tetrachlorodibenzofuran	<1.44	<1.34	<1.85	<1.54	17.7
12378-pentachlorodibenzofuran	<0.94	1.69	<1.41	<1.35	28.0
23478-pentachlorodibenzofuran	3.40	2.33	<1.49	<2.41	39.9
123478-hexachlorodibenzofuran	<1.30	<1.36	2.22	<1.62	31.6
123678-hexachlorodibenzofuran	<1.30	<1.94	1.07	<1.44	31.4
234678-hexachlorodibenzofuran	<1.57	2.98	<2.22	<2.26	31.3
123789-hexachlorodibenzofuran	<4.33	<2.91	<4.03	<3.75	19.9
1234678-heptachlorodibenzofuran	5.49	<4.65	4.45	<4.86	11.3
1234789-heptachlorodibenzofuran	<1.28	<0.83	<1.53	<1.21	29.1
Octachlorodibenzofuran	<3.54	4.17	6.71	<4.80	34.9
PCB 81	<1.20	<0.89	<1.55	<1.21	27.2
PCB 77	<7.28	7.75	8.82	<7.95	9.9
PCB 123	<1.53	4.83	<2.22	<2.86	60.8
PCB 118	230	236	258	241	6.0
PCB 114	<6.10	6.47	6.67	<6.41	4.5
PCB 105	77.1	75.0	88.8	80.3	9.3
PCB 126	<3.15	<0.87	<2.82	<2.28	54.0
PCB 167	2.46	2.52	2.38	2.45	2.9
PCB 156/157	6.49	5.83	6.93	6.42	8.6
PCB 169	<0.73	<0.66	<0.91	<0.76	16.7
PCB 189	<0.57	<0.43	<0.50	<0.50	14.4
Total Dioxins & Furans Only	<65.1	<69.0	<70.7	<68.3	4.2
Total PCBs Only	<337	<342	<379	<353	6.6
Total Dioxins & Furans and PCBs	<402	<411	<450	<421	6.1

* 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. 2 BH Outlet
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<0.93	<1.21	<1.18	<1.11	14.0
12378-pentachlorodibenzo-p-dioxin	<0.90	<0.65	<1.26	<0.94	32.9
123478-hexachlorodibenzo-p-dioxin	<0.64	<0.67	<1.31	<0.87	43.3
123678-hexachlorodibenzo-p-dioxin	<2.36	2.99	2.29	<2.54	15.1
123789-hexachlorodibenzo-p-dioxin	1.33	<0.99	<1.55	<1.29	21.7
1234678-heptachlorodibenzo-p-dioxin	14.1	14.2	<13.1	<13.8	4.6
Octachlorodibenzo-p-dioxin	<12.1	15.0	<13.6	<13.6	10.6
2378-tetrachlorodibenzofuran	<1.15	<1.07	<1.45	<1.22	16.6
12378-pentachlorodibenzofuran	<0.75	1.35	<1.10	<1.07	28.0
23478-pentachlorodibenzofuran	2.72	1.86	<1.17	<1.91	40.6
123478-hexachlorodibenzofuran	<1.04	<1.08	1.73	<1.29	30.4
123678-hexachlorodibenzofuran	<1.04	<1.55	0.84	<1.14	32.1
234678-hexachlorodibenzofuran	<1.26	2.38	<1.73	<1.79	31.5
123789-hexachlorodibenzofuran	<3.46	<2.32	<3.15	<2.98	19.8
1234678-heptachlorodibenzofuran	4.39	<3.71	3.49	<3.86	12.1
1234789-heptachlorodibenzofuran	<1.02	<0.67	<1.20	<0.96	28.3
Octachlorodibenzofuran	<2.83	3.33	5.25	<3.80	33.7
PCB 81	<0.96	<0.71	<1.21	<0.96	26.2
PCB 77	<5.82	6.19	6.91	<6.30	8.8
PCB 123	<1.23	3.85	<1.73	<2.27	61.3
PCB 118	184	189	202	191	4.9
PCB 114	<4.87	5.17	5.22	<5.09	3.7
PCB 105	61.6	59.9	69.6	63.7	8.1
PCB 126	<2.52	<0.70	<2.21	<1.81	53.9
PCB 167	1.96	2.01	1.86	1.95	3.9
PCB 156/157	5.19	4.66	5.43	5.09	7.7
PCB 169	<0.58	<0.53	<0.71	<0.61	15.6
PCB 189	<0.46	<0.34	<0.39	<0.40	14.6
Total Dioxins & Furans Only	<52.1	<55.0	<55.4	<54.1	3.4
Total PCBs Only	<269	<273	<297	<280	5.4
Total Dioxins & Furans and PCBs	<321	<328	<352	<334	4.9

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	pg/Rm³*	pg/Rm³*	pg/Rm³*	pg/Rm³*	%
2378-tetrachlorodibenzo-p-dioxin	<0.98	<1.30	<1.27	<1.18	14.9
12378-pentachlorodibenzo-p-dioxin	<0.95	<0.70	<1.36	<1.00	33.1
123478-hexachlorodibenzo-p-dioxin	<0.68	<0.72	<1.41	<0.93	43.7
123678-hexachlorodibenzo-p-dioxin	<2.49	3.22	2.46	<2.72	15.8
123789-hexachlorodibenzo-p-dioxin	1.40	<1.07	<1.66	<1.38	21.6
1234678-heptachlorodibenzo-p-dioxin	15.0	15.4	<14.1	<14.8	4.5
Octachlorodibenzo-p-dioxin	<12.8	16.2	<14.6	<14.5	11.6
2378-tetrachlorodibenzofuran	<1.21	<1.15	<1.56	<1.31	16.8
12378-pentachlorodibenzofuran	<0.80	1.46	<1.19	<1.15	28.8
23478-pentachlorodibenzofuran	2.87	2.00	<1.25	<2.04	39.7
123478-hexachlorodibenzofuran	<1.10	<1.17	1.86	<1.38	30.8
123678-hexachlorodibenzofuran	<1.10	<1.67	0.90	<1.22	32.6
234678-hexachlorodibenzofuran	<1.33	2.57	<1.86	<1.92	32.3
123789-hexachlorodibenzofuran	<3.66	<2.50	<3.39	<3.18	19.0
1234678-heptachlorodibenzofuran	4.64	<4.00	3.74	<4.13	11.1
1234789-heptachlorodibenzofuran	<1.08	<0.72	<1.29	<1.03	28.1
Octachlorodibenzofuran	<2.99	3.58	5.64	<4.07	34.2
PCB 81	<1.01	<0.77	<1.30	<1.03	26.2
PCB 77	<6.15	6.67	7.42	<6.75	9.5
PCB 123	<1.30	4.15	<1.86	<2.44	62.0
PCB 118	194	203	217	205	5.5
PCB 114	<5.15	5.57	5.61	<5.44	4.6
PCB 105	65.1	64.5	74.7	68.1	8.4
PCB 126	<2.66	<0.75	<2.37	<1.93	53.4
PCB 167	2.08	2.17	2.00	2.08	4.0
PCB 156/157	5.48	5.02	5.83	5.44	7.5
PCB 169	<0.61	<0.57	<0.76	<0.65	15.7
PCB 189	<0.48	<0.37	<0.42	<0.42	13.6
Total Dioxins & Furans Only	<55.0	<59.3	<59.5	<57.9	4.4
Total PCBs Only	<284	<294	<319	<299	6.0
Total Dioxins & Furans and PCBs	<339	<353	<379	<357	5.6

* 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 41
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Rates

Specific Isomer	Emission Rate				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/s	ng/s	ng/s	ng/s	%
2378-tetrachlorodibenzo-p-dioxin	<0.019	<0.025	<0.024	<0.023	14.5
12378-pentachlorodibenzo-p-dioxin	<0.018	<0.014	<0.026	<0.019	31.9
123478-hexachlorodibenzo-p-dioxin	<0.013	<0.014	<0.027	<0.018	42.4
123678-hexachlorodibenzo-p-dioxin	<0.048	0.062	0.046	<0.052	16.5
123789-hexachlorodibenzo-p-dioxin	0.027	<0.021	<0.031	<0.026	20.6
1234678-heptachlorodibenzo-p-dioxin	0.29	0.30	<0.27	<0.28	5.6
Octachlorodibenzo-p-dioxin	<0.25	0.31	<0.28	<0.28	11.7
2378-tetrachlorodibenzofuran	<0.023	<0.022	<0.029	<0.025	15.5
12378-pentachlorodibenzofuran	<0.015	0.028	<0.022	<0.022	28.9
23478-pentachlorodibenzofuran	0.055	0.039	<0.024	<0.039	40.5
123478-hexachlorodibenzofuran	<0.021	<0.023	0.035	<0.026	29.5
123678-hexachlorodibenzofuran	<0.021	<0.032	0.017	<0.023	33.4
234678-hexachlorodibenzofuran	<0.026	0.050	<0.035	<0.037	32.7
123789-hexachlorodibenzofuran	<0.071	<0.048	<0.064	<0.061	18.8
1234678-heptachlorodibenzofuran	0.089	<0.077	0.071	<0.079	12.0
1234789-heptachlorodibenzofuran	<0.021	<0.014	<0.024	<0.020	27.2
Octachlorodibenzofuran	<0.058	0.069	0.11	<0.078	32.9
PCB 81	<0.020	<0.015	<0.025	<0.020	25.1
PCB 77	<0.12	0.13	0.14	<0.13	8.4
PCB 123	<0.025	0.080	<0.035	<0.047	62.7
PCB 118	3.75	3.92	4.10	3.92	4.4
PCB 114	<0.099	0.11	0.11	<0.10	4.1
PCB 105	1.26	1.25	1.41	1.30	7.1
PCB 126	<0.051	<0.014	<0.045	<0.037	53.3
PCB 167	0.040	0.042	0.038	0.040	5.1
PCB 156/157	0.11	0.097	0.11	0.10	6.5
PCB 169	<0.012	<0.011	<0.014	<0.012	14.5
PCB 189	<0.0093	<0.0071	<0.0080	<0.0081	13.7
Total Dioxins & Furans Only	<1.06	<1.14	<1.12	<1.11	3.9
Total PCBs Only	<5.49	<5.67	<6.03	<5.73	4.8
Total Dioxins & Furans and PCBs	<6.55	<6.82	<7.16	<6.84	4.4

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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg/m³	pg/Rm³*	pg/Rm³**	pg/Rm³*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<0.82	<1.39	<1.11	<1.18	<0.023
12378-pentachlorodibenzo-p-dioxin	<0.70	<1.18	<0.94	<1.00	<0.019
123478-hexachlorodibenzo-p-dioxin	<0.65	<1.10	<0.87	<0.93	<0.018
123678-hexachlorodibenzo-p-dioxin	<1.90	<3.20	<2.54	<2.72	<0.052
123789-hexachlorodibenzo-p-dioxin	<0.96	<1.62	<1.29	<1.38	<0.026
1234678-heptachlorodibenzo-p-dioxin	<10.3	<17.4	<13.8	<14.8	<0.28
Octachlorodibenzo-p-dioxin	<10.1	<17.1	<13.6	<14.5	<0.28
2378-tetrachlorodibenzofuran	<0.91	<1.54	<1.22	<1.31	<0.025
12378-pentachlorodibenzofuran	<0.80	<1.35	<1.07	<1.15	<0.022
23478-pentachlorodibenzofuran	<1.43	<2.41	<1.91	<2.04	<0.039
123478-hexachlorodibenzofuran	<0.96	<1.62	<1.29	<1.38	<0.026
123678-hexachlorodibenzofuran	<0.85	<1.44	<1.14	<1.22	<0.023
234678-hexachlorodibenzofuran	<1.34	<2.26	<1.79	<1.92	<0.037
123789-hexachlorodibenzofuran	<2.22	<3.75	<2.98	<3.18	<0.061
1234678-heptachlorodibenzofuran	<2.88	<4.86	<3.86	<4.13	<0.079
1234789-heptachlorodibenzofuran	<0.72	<1.21	<0.96	<1.03	<0.020
Octachlorodibenzofuran	<2.83	<4.80	<3.80	<4.07	<0.078
PCB 81	<0.72	<1.21	<0.96	<1.03	<0.020
PCB 77	<4.70	<7.95	<6.30	<6.75	<0.13
PCB 123	<1.70	<2.86	<2.27	<2.44	<0.047
PCB 118	143	241	191	205	3.92
PCB 114	<3.79	<6.41	<5.09	<5.44	<0.10
PCB 105	47.5	80.3	63.7	68.1	1.30
PCB 126	<1.34	<2.28	<1.81	<1.93	<0.037
PCB 167	1.45	2.45	1.95	2.08	0.040
PCB 156/157	3.79	6.42	5.09	5.44	0.10
PCB 169	<0.45	<0.76	<0.61	<0.65	<0.012
PCB 189	<0.30	<0.50	<0.40	<0.42	<0.0081
Total Dioxins & Furans Only	<40.4	<68.3	<54.1	<57.9	<1.11
Total PCBs Only	<208	<353	<280	<299	<5.73
Total Dioxins & Furans and PCBs	<249	<421	<334	<357	<6.84

* 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	Method Blank pg
2378-tetrachlorodibenzo-p-dioxin	<1.4	<1.5
12378-pentachlorodibenzo-p-dioxin	<0.87	<0.88
123478-hexachlorodibenzo-p-dioxin	<0.65	<1.0
123678-hexachlorodibenzo-p-dioxin	<0.61	<2.1
123789-hexachlorodibenzo-p-dioxin	<0.63	<1.3
1234678-heptachlorodibenzo-p-dioxin	2.88	<4.5
Octachlorodibenzo-p-dioxin	<3.4	21.5
2378-tetrachlorodibenzofuran	<0.83	<1.1
12378-pentachlorodibenzofuran	<1.2	<1.8
23478-pentachlorodibenzofuran	<0.65	<1.2
123478-hexachlorodibenzofuran	<0.52	<0.95
123678-hexachlorodibenzofuran	<0.52	<0.95
234678-hexachlorodibenzofuran	<0.54	<1.2
123789-hexachlorodibenzofuran	3.12	6.01
1234678-heptachlorodibenzofuran	<0.90	<2.2
1234789-heptachlorodibenzofuran	<1.1	2.95
Octachlorodibenzofuran	<1.8	9.49
PCB 81	<2.0	<2.1
PCB 77	<2.0	2.67
PCB 123	<1.5	<2.3
PCB 118	20.2	<6.8
PCB 114	<1.4	<2.7
PCB 105	9.56	6.82
PCB 126	<1.5	<2.2
PCB 167	<1.4	<2.0
PCB 156/157	<2.6	<3.4
PCB 169	<1.4	<1.6
PCB 189	<0.84	<1.3
Total Dioxins & Furans Only	<21.6	<60.6
Total PCBs Only	<44.4	<33.9
Total Dioxins & Furans and PCBs	<66.0	<94.5

"<" indicates that the amount detected is less than the detection limit
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	1.00000	<0.69	<0.91	<0.88	<0.82
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.67	<0.49	<0.93	<0.70
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.048	<0.050	<0.097	<0.065
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.18	0.22	0.17	<0.19
123789-hexachlorodibenzo-p-dioxin	0.10000	0.099	<0.074	<0.11	<0.096
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.11	0.11	<0.097	<0.10
Octachlorodibenzo-p-dioxin	0.00030	<0.0027	0.0034	<0.0030	<0.0030
2378-tetrachlorodibenzofuran	0.10000	<0.085	<0.080	<0.11	<0.091
12378-pentachlorodibenzofuran	0.03000	<0.017	0.030	<0.025	<0.024
23478-pentachlorodibenzofuran	0.30000	0.61	0.42	<0.26	<0.43
123478-hexachlorodibenzofuran	0.10000	<0.077	<0.081	0.13	<0.096
123678-hexachlorodibenzofuran	0.10000	<0.077	<0.12	0.062	<0.085
234678-hexachlorodibenzofuran	0.10000	<0.094	0.18	<0.13	<0.13
123789-hexachlorodibenzofuran	0.10000	<0.26	<0.17	<0.23	<0.22
1234678-heptachlorodibenzofuran	0.01000	0.033	<0.028	0.026	<0.029
1234789-heptachlorodibenzofuran	0.01000	<0.0076	<0.0050	<0.0089	<0.0072
Octachlorodibenzofuran	0.00030	<0.00063	0.00075	0.0012	<0.00085
PCB 81	0.00030	<0.00021	<0.00016	<0.00027	<0.00021
PCB 77	0.00010	<0.00043	0.00046	0.00051	<0.00047
PCB 123	0.00003	<0.000027	0.000087	<0.000039	<0.000051
PCB 118	0.00003	0.0041	0.0043	0.0045	0.0043
PCB 114	0.00003	<0.00011	0.00012	0.00012	<0.00011
PCB 105	0.00003	0.0014	0.0013	0.0015	0.0014
PCB 126	0.10000	<0.19	<0.052	<0.16	<0.13
PCB 167	0.00003	0.000044	0.000045	0.000041	0.000044
PCB 156/157	0.00003	0.00012	0.00010	0.00012	0.00011
PCB 169	0.03000	<0.013	<0.012	<0.016	<0.014
PCB 189	0.00003	<0.000010	<0.0000077	<0.0000088	<0.0000089
Total Dioxins & Furans Only		<3.04	<2.97	<3.27	<3.09
Total PCBs Only		<0.21	<0.071	<0.19	<0.15
Total Dioxins & Furans and PCBs		<3.25	<3.04	<3.46	<3.25

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 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	1.00000	<1.16	<1.51	<1.51	<1.39
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.12	<0.81	<1.61	<1.18
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.081	<0.083	<0.17	<0.11
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.30	0.37	0.29	<0.32
123789-hexachlorodibenzo-p-dioxin	0.10000	0.17	<0.12	<0.20	<0.16
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.18	0.18	<0.17	<0.17
Octachlorodibenzo-p-dioxin	0.00030	<0.0045	0.0056	<0.0052	<0.0051
2378-tetrachlorodibenzofuran	0.10000	<0.14	<0.13	<0.19	<0.15
12378-pentachlorodibenzofuran	0.03000	<0.028	0.051	<0.042	<0.040
23478-pentachlorodibenzofuran	0.30000	1.02	0.70	<0.45	<0.72
123478-hexachlorodibenzofuran	0.10000	<0.13	<0.14	0.22	<0.16
123678-hexachlorodibenzofuran	0.10000	<0.13	<0.19	0.11	<0.14
234678-hexachlorodibenzofuran	0.10000	<0.16	0.30	<0.22	<0.23
123789-hexachlorodibenzofuran	0.10000	<0.43	<0.29	<0.40	<0.38
1234678-heptachlorodibenzofuran	0.01000	0.055	<0.047	0.045	<0.049
1234789-heptachlorodibenzofuran	0.01000	<0.013	<0.0083	<0.015	<0.012
Octachlorodibenzofuran	0.00030	<0.0011	0.0013	0.0020	<0.0014
PCB 81	0.00030	<0.00036	<0.00027	<0.00047	<0.00036
PCB 77	0.00010	<0.00073	0.00078	0.00088	<0.00080
PCB 123	0.00003	<0.000046	0.00014	<0.000066	<0.000086
PCB 118	0.00003	0.0069	0.0071	0.0077	0.0072
PCB 114	0.00003	<0.00018	0.00019	0.00020	<0.00019
PCB 105	0.00003	0.0023	0.0023	0.0027	0.0024
PCB 126	0.10000	<0.31	<0.087	<0.28	<0.23
PCB 167	0.00003	0.000074	0.000076	0.000071	0.000074
PCB 156/157	0.00003	0.00019	0.00018	0.00021	0.00019
PCB 169	0.03000	<0.022	<0.020	<0.027	<0.023
PCB 189	0.00003	<0.000017	<0.000013	<0.000015	<0.000015
Total Dioxins & Furans Only		<5.12	<4.95	<5.64	<5.23
Total PCBs Only		<0.35	<0.12	<0.32	<0.26
Total Dioxins & Furans and PCBs		<5.46	<5.07	<5.96	<5.50

* 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	1.00000	<0.93	<1.21	<1.18	<1.11
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.90	<0.65	<1.26	<0.94
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.064	<0.067	<0.13	<0.087
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.24	0.30	0.23	<0.25
123789-hexachlorodibenzo-p-dioxin	0.10000	0.13	<0.099	<0.15	<0.13
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.14	0.14	<0.13	<0.14
Octachlorodibenzo-p-dioxin	0.00030	<0.0036	0.0045	<0.0041	<0.0041
2378-tetrachlorodibenzofuran	0.10000	<0.11	<0.11	<0.15	<0.12
12378-pentachlorodibenzofuran	0.03000	<0.023	0.041	<0.033	<0.032
23478-pentachlorodibenzofuran	0.30000	0.82	0.56	<0.35	<0.57
123478-hexachlorodibenzofuran	0.10000	<0.10	<0.11	0.17	<0.13
123678-hexachlorodibenzofuran	0.10000	<0.10	<0.15	0.084	<0.11
234678-hexachlorodibenzofuran	0.10000	<0.13	0.24	<0.17	<0.18
123789-hexachlorodibenzofuran	0.10000	<0.35	<0.23	<0.32	<0.30
1234678-heptachlorodibenzofuran	0.01000	0.044	<0.037	0.035	<0.039
1234789-heptachlorodibenzofuran	0.01000	<0.010	<0.0067	<0.012	<0.0096
Octachlorodibenzofuran	0.00030	<0.00085	0.0010	0.0016	<0.0011
PCB 81	0.00030	<0.00029	<0.00021	<0.00036	<0.00029
PCB 77	0.00010	<0.00058	0.00062	0.00069	<0.00063
PCB 123	0.00003	<0.000037	0.00012	<0.000052	<0.000068
PCB 118	0.00003	0.0055	0.0057	0.0061	0.0057
PCB 114	0.00003	<0.00015	0.00015	0.00016	<0.00015
PCB 105	0.00003	0.0018	0.0018	0.0021	0.0019
PCB 126	0.10000	<0.25	<0.070	<0.22	<0.18
PCB 167	0.00003	0.000059	0.000060	0.000056	0.000058
PCB 156/157	0.00003	0.00016	0.00014	0.00016	0.00015
PCB 169	0.03000	<0.017	<0.016	<0.021	<0.018
PCB 189	0.00003	<0.000014	<0.000010	<0.000012	<0.000012
Total Dioxins & Furans Only		<4.09	<3.95	<4.42	<4.15
Total PCBs Only		<0.28	<0.094	<0.25	<0.21
Total Dioxins & Furans and PCBs		<4.37	<4.04	<4.67	<4.36

* 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 46A
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
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	1.00000	0.46	0.60	0.59	0.55
12378-pentachlorodibenzo-p-dioxin	1.00000	0.45	0.32	0.63	0.47
123478-hexachlorodibenzo-p-dioxin	0.10000	0.03	0.033	0.065	0.044
123678-hexachlorodibenzo-p-dioxin	0.10000	0.12	0.30	0.23	0.22
123789-hexachlorodibenzo-p-dioxin	0.10000	0.13	0.049	0.077	0.086
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.14	0.14	0.065	0.12
Octachlorodibenzo-p-dioxin	0.00030	0.0018	0.0045	0.0020	0.0028
2378-tetrachlorodibenzofuran	0.10000	0.057	0.053	0.073	0.061
12378-pentachlorodibenzofuran	0.03000	0.011	0.041	0.017	0.023
23478-pentachlorodibenzofuran	0.30000	0.82	0.56	0.18	0.52
123478-hexachlorodibenzofuran	0.10000	0.052	0.054	0.17	0.093
123678-hexachlorodibenzofuran	0.10000	0.052	0.077	0.084	0.071
234678-hexachlorodibenzofuran	0.10000	0.063	0.24	0.087	0.13
123789-hexachlorodibenzofuran	0.10000	0.17	0.12	0.16	0.15
1234678-heptachlorodibenzofuran	0.01000	0.044	0.019	0.035	0.032
1234789-heptachlorodibenzofuran	0.01000	0.0051	0.0033	0.0060	0.0048
Octachlorodibenzofuran	0.00030	0.00042	0.0010	0.0016	0.0010
PCB 81	0.00030	0.00014	0.00011	0.00018	0.00014
PCB 77	0.00010	0.00029	0.00062	0.00069	0.00053
PCB 123	0.00003	0.000018	0.00012	0.000026	0.000053
PCB 118	0.00003	0.0055	0.0057	0.0061	0.0057
PCB 114	0.00003	0.000073	0.00015	0.00016	0.00013
PCB 105	0.00003	0.0018	0.0018	0.0021	0.0019
PCB 126	0.10000	0.13	0.035	0.11	0.090
PCB 167	0.00003	0.000059	0.000060	0.000056	0.000058
PCB 156/157	0.00003	0.00016	0.00014	0.00016	0.00015
PCB 169	0.03000	0.0087	0.0079	0.011	0.0091
PCB 189	0.00003	0.0000068	0.0000051	0.0000059	0.0000060
Total Dioxins & Furans Only		2.61	2.62	2.47	2.57
Total PCBs Only		0.14	0.051	0.13	0.11
Total Dioxins & Furans and PCBs		2.75	2.67	2.60	2.67

* 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 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	1.00	<0.93	<1.21	<1.18	<1.11
12378-pentachlorodibenzo-p-dioxin	0.50	<0.45	<0.32	<0.63	<0.47
123478-hexachlorodibenzo-p-dioxin	0.10	<0.064	<0.067	<0.13	<0.087
123678-hexachlorodibenzo-p-dioxin	0.10	<0.24	0.30	0.23	<0.25
123789-hexachlorodibenzo-p-dioxin	0.10	0.13	<0.099	<0.15	<0.13
1234678-heptachlorodibenzo-p-dioxin	0.01	0.14	0.14	<0.13	<0.14
Octachlorodibenzo-p-dioxin	0.00	<0.012	0.015	<0.014	<0.014
2378-tetrachlorodibenzofuran	0.10	<0.11	<0.11	<0.15	<0.12
12378-pentachlorodibenzofuran	0.05	<0.038	0.068	<0.055	<0.053
23478-pentachlorodibenzofuran	0.50	1.36	0.93	<0.58	<0.96
123478-hexachlorodibenzofuran	0.10	<0.10	<0.11	0.17	<0.13
123678-hexachlorodibenzofuran	0.10	<0.10	<0.15	0.084	<0.11
234678-hexachlorodibenzofuran	0.10	<0.13	0.24	<0.17	<0.18
123789-hexachlorodibenzofuran	0.10	<0.35	<0.23	<0.32	<0.30
1234678-heptachlorodibenzofuran	0.01	0.044	<0.037	0.035	<0.039
1234789-heptachlorodibenzofuran	0.01	<0.010	<0.0067	<0.012	<0.0096
Octachlorodibenzofuran	0.00	<0.0028	0.0033	0.0053	<0.0038
Total Dioxins & Furans		<4.21	<4.04	<4.05	<4.10
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	1.00000	<0.98	<1.30	<1.27	<1.18
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.95	<0.70	<1.36	<1.00
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.068	<0.072	<0.14	<0.093
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.25	0.32	0.25	<0.27
123789-hexachlorodibenzo-p-dioxin	0.10000	0.14	<0.11	<0.17	<0.14
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.15	0.15	<0.14	<0.15
Octachlorodibenzo-p-dioxin	0.00030	<0.0038	0.0048	<0.0044	<0.0044
2378-tetrachlorodibenzofuran	0.10000	<0.12	<0.12	<0.16	<0.13
12378-pentachlorodibenzofuran	0.03000	<0.024	0.044	<0.036	<0.034
23478-pentachlorodibenzofuran	0.30000	0.86	0.60	<0.38	<0.61
123478-hexachlorodibenzofuran	0.10000	<0.11	<0.12	0.19	<0.14
123678-hexachlorodibenzofuran	0.10000	<0.11	<0.17	0.090	<0.12
234678-hexachlorodibenzofuran	0.10000	<0.13	0.26	<0.19	<0.19
123789-hexachlorodibenzofuran	0.10000	<0.37	<0.25	<0.34	<0.32
1234678-heptachlorodibenzofuran	0.01000	0.046	<0.040	0.037	<0.041
1234789-heptachlorodibenzofuran	0.01000	<0.011	<0.0072	<0.013	<0.010
Octachlorodibenzofuran	0.00030	<0.00090	0.0011	0.0017	<0.0012
PCB 81	0.00030	<0.00030	<0.00023	<0.00039	<0.00031
PCB 77	0.00010	<0.00061	0.00067	0.00074	<0.00067
PCB 123	0.00003	<0.000039	0.00012	<0.000056	<0.000073
PCB 118	0.00003	0.0058	0.0061	0.0065	0.0061
PCB 114	0.00003	<0.00015	0.00017	0.00017	<0.00016
PCB 105	0.00003	0.0020	0.0019	0.0022	0.0020
PCB 126	0.10000	<0.27	<0.075	<0.24	<0.19
PCB 167	0.00003	0.000062	0.000065	0.000060	0.000062
PCB 156/157	0.00003	0.00016	0.00015	0.00017	0.00016
PCB 169	0.03000	<0.018	<0.017	<0.023	<0.019
PCB 189	0.00003	<0.000014	<0.000011	<0.000013	<0.000013
Total Dioxins & Furans Only		<4.32	<4.26	<4.74	<4.44
Total PCBs Only		<0.29	<0.10	<0.27	<0.22
Total Dioxins & Furans and PCBs		<4.62	<4.36	<5.01	<4.66

* 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	1.00000	<0.019	<0.025	<0.024	<0.023
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.018	<0.014	<0.026	<0.019
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.0013	<0.0014	<0.0027	<0.0018
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.0048	0.0062	0.0046	<0.0052
123789-hexachlorodibenzo-p-dioxin	0.10000	0.0027	<0.0021	<0.0031	<0.0026
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.0029	0.0030	<0.0027	<0.0028
Octachlorodibenzo-p-dioxin	0.00030	<0.000074	0.000094	<0.000083	<0.000083
2378-tetrachlorodibenzofuran	0.10000	<0.0023	<0.0022	<0.0029	<0.0025
12378-pentachlorodibenzofuran	0.03000	<0.00046	0.00084	<0.00067	<0.00066
23478-pentachlorodibenzofuran	0.30000	0.017	0.012	<0.0071	<0.012
123478-hexachlorodibenzofuran	0.10000	<0.0021	<0.0023	0.0035	<0.0026
123678-hexachlorodibenzofuran	0.10000	<0.0021	<0.0032	0.0017	<0.0023
234678-hexachlorodibenzofuran	0.10000	<0.0026	0.0050	<0.0035	<0.0037
123789-hexachlorodibenzofuran	0.10000	<0.0071	<0.0048	<0.0064	<0.0061
1234678-heptachlorodibenzofuran	0.01000	0.00089	<0.00077	0.00071	<0.00079
1234789-heptachlorodibenzofuran	0.01000	<0.00021	<0.00014	<0.00024	<0.00020
Octachlorodibenzofuran	0.00030	<0.000017	0.000021	0.000032	<0.000023
PCB 81	0.00030	<0.0000059	<0.0000044	<0.0000074	<0.0000059
PCB 77	0.00010	<0.000012	0.000013	0.000014	<0.000013
PCB 123	0.00003	<0.00000075	0.0000024	<0.0000011	<0.0000014
PCB 118	0.00003	0.00011	0.00012	0.00012	0.00012
PCB 114	0.00003	<0.0000030	0.0000032	0.0000032	<0.0000031
PCB 105	0.00003	0.000038	0.000037	0.000042	0.000039
PCB 126	0.10000	<0.0051	<0.0014	<0.0045	<0.0037
PCB 167	0.00003	0.0000012	0.0000013	0.0000011	0.0000012
PCB 156/157	0.00003	0.0000032	0.0000029	0.0000033	0.0000031
PCB 169	0.03000	<0.00036	<0.00033	<0.00043	<0.00037
PCB 189	0.00003	<0.00000028	<0.00000021	<0.00000024	<0.00000024
Total Dioxins & Furans Only		<0.083	<0.082	<0.090	<0.085
Total PCBs Only		<0.0057	<0.0020	<0.0051	<0.0042
Total Dioxins & Furans and PCBs		<0.089	<0.084	<0.095	<0.089

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	<0.82	<1.39	<1.11	<1.18	<0.023
12378-pentachlorodibenzo-p-dioxin	<0.70	<1.18	<0.94	<1.00	<0.019
123478-hexachlorodibenzo-p-dioxin	<0.065	<0.11	<0.087	<0.093	<0.0018
123678-hexachlorodibenzo-p-dioxin	<0.19	<0.32	<0.25	<0.27	<0.0052
123789-hexachlorodibenzo-p-dioxin	<0.096	<0.16	<0.13	<0.14	<0.0026
1234678-heptachlorodibenzo-p-dioxin	<0.10	<0.17	<0.14	<0.15	<0.0028
Octachlorodibenzo-p-dioxin	<0.0030	<0.0051	<0.0041	<0.0044	<0.000083
2378-tetrachlorodibenzofuran	<0.091	<0.15	<0.12	<0.13	<0.0025
12378-pentachlorodibenzofuran	<0.024	<0.040	<0.032	<0.034	<0.00066
23478-pentachlorodibenzofuran	<0.43	<0.72	<0.57	<0.61	<0.012
123478-hexachlorodibenzofuran	<0.096	<0.16	<0.13	<0.14	<0.0026
123678-hexachlorodibenzofuran	<0.085	<0.14	<0.11	<0.12	<0.0023
234678-hexachlorodibenzofuran	<0.13	<0.23	<0.18	<0.19	<0.0037
123789-hexachlorodibenzofuran	<0.22	<0.38	<0.30	<0.32	<0.0061
1234678-heptachlorodibenzofuran	<0.029	<0.049	<0.039	<0.041	<0.00079
1234789-heptachlorodibenzofuran	<0.0072	<0.012	<0.0096	<0.010	<0.00020
Octachlorodibenzofuran	<0.00085	<0.0014	<0.0011	<0.0012	<0.000023
PCB 81	<0.00021	<0.00036	<0.00029	<0.00031	<0.0000059
PCB 77	<0.00047	<0.00080	<0.00063	<0.00067	<0.000013
PCB 123	<0.000051	<0.000086	<0.000068	<0.000073	<0.0000014
PCB 118	0.0043	0.0072	0.0057	0.0061	0.00012
PCB 114	<0.00011	<0.00019	<0.00015	<0.00016	<0.0000031
PCB 105	0.0014	0.0024	0.0019	0.0020	0.000039
PCB 126	<0.13	<0.23	<0.18	<0.19	<0.0037
PCB 167	0.000044	0.000074	0.000058	0.000062	0.0000012
PCB 156/157	0.00011	0.00019	0.00015	0.00016	0.0000031
PCB 169	<0.014	<0.023	<0.018	<0.019	<0.00037
PCB 189	<0.0000089	<0.000015	<0.000012	<0.000013	<0.00000024
Total Dioxins & Furans Only	<3.09	<5.23	<4.15	<4.44	<0.085
Total PCBs Only	<0.15	<0.26	<0.21	<0.22	<0.0042
Total Dioxins & Furans and PCBs	<3.25	<5.50	<4.36	<4.66	<0.089

* 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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg TEQ/m³	pg TEQ/Rm³*	pg TEQ/Rm³**	pg TEQ/Rm³*	ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	0.41	0.70	0.55	0.59	0.011
12378-pentachlorodibenzo-p-dioxin	0.35	0.59	0.47	0.50	0.0096
123478-hexachlorodibenzo-p-dioxin	0.032	0.055	0.044	0.047	0.00089
123678-hexachlorodibenzo-p-dioxin	0.16	0.27	0.22	0.23	0.0044
123789-hexachlorodibenzo-p-dioxin	0.064	0.11	0.086	0.092	0.0018
1234678-heptachlorodibenzo-p-dioxin	0.087	0.15	0.12	0.12	0.0024
Octachlorodibenzo-p-dioxin	0.0021	0.0035	0.0028	0.0030	0.000057
2378-tetrachlorodibenzofuran	0.046	0.077	0.061	0.065	0.0013
12378-pentachlorodibenzofuran	0.017	0.029	0.023	0.024	0.00047
23478-pentachlorodibenzofuran	0.39	0.65	0.52	0.55	0.011
123478-hexachlorodibenzofuran	0.069	0.12	0.093	0.10	0.0019
123678-hexachlorodibenzofuran	0.053	0.090	0.071	0.076	0.0015
234678-hexachlorodibenzofuran	0.097	0.16	0.13	0.14	0.0027
123789-hexachlorodibenzofuran	0.11	0.19	0.15	0.16	0.0030
1234678-heptachlorodibenzofuran	0.024	0.041	0.032	0.035	0.00066
1234789-heptachlorodibenzofuran	0.0036	0.0061	0.0048	0.0051	0.000098
Octachlorodibenzofuran	0.00074	0.0013	0.0010	0.0011	0.000020
PCB 81	0.00011	0.00018	0.00014	0.00015	0.0000030
PCB 77	0.00040	0.00067	0.00053	0.00057	0.000011
PCB 123	0.000040	0.000067	0.000053	0.000057	0.0000011
PCB 118	0.0043	0.0072	0.0057	0.0061	0.00012
PCB 114	0.000096	0.00016	0.00013	0.00014	0.0000026
PCB 105	0.0014	0.0024	0.0019	0.0020	0.000039
PCB 126	0.067	0.11	0.090	0.096	0.0018
PCB 167	0.000044	0.000074	0.000058	0.000062	0.0000012
PCB 156/157	0.00011	0.00019	0.00015	0.00016	0.0000031
PCB 169	0.0068	0.011	0.0091	0.0097	0.00019
PCB 189	0.0000044	0.0000075	0.0000060	0.0000064	0.00000012
Total Dioxins & Furans Only	1.91	3.23	2.57	2.74	0.053
Total PCBs Only	0.080	0.14	0.11	0.12	0.0022
Total Dioxins & Furans and PCBs	1.99	3.37	2.67	2.86	0.055

* 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	361	42.2	71.0	56.7	60.0	1.16
1,3-Dichlorobenzene	60.5	7.08	11.9	9.51	10.1	0.19
1,4-Dichlorobenzene	72.4	8.47	14.2	11.4	12.0	0.23
1,2-Dichlorobenzene	59.2	6.93	11.6	9.31	9.84	0.19
Total Dichlorobenzene	192	22.5	37.8	30.2	31.9	0.62
1,3,5-trichlorobenzene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
1,2,4-trichlorobenzene	17.3	2.02	3.40	2.72	2.87	0.055
1,2,3-trichlorobenzene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Total Trichlorobenzene	<41.3	<4.83	<8.1	<6.49	<6.86	<0.13
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.40	<2.36	<1.89	<1.99	<0.038
1,2,3,4-tetrachlorobenzene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Total Tetrachlorobenzene	<24.0	<2.81	<4.72	<3.77	<3.99	<0.077
Pentachlorobenzene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Hexachlorobenzene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Total Chlorobenzenes	<642	<75.2	<126	<101	<107	<2.06

Dry Gas Volume Sampled (Rm^3*) :	5.083
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	16.3
Dry Adjusted Flowrate (Rm^3/s**) :	20.4
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	214	24.9	41.5	33.1	35.7	0.69
1,3-Dichlorobenzene	59.6	6.92	11.6	9.22	9.93	0.19
1,4-Dichlorobenzene	66.3	7.70	12.8	10.3	11.1	0.21
1,2-Dichlorobenzene	58.6	6.81	11.4	9.06	9.77	0.19
Total Dichlorobenzene	185	21.4	35.8	28.5	30.8	0.59
1,3,5-trichlorobenzene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
1,2,4-trichlorobenzene	18.3	2.13	3.55	2.83	3.05	0.059
1,2,3-trichlorobenzene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Total Trichlorobenzene	<42.3	<4.91	<8.20	<6.54	<7.05	<0.14
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.39	<2.33	<1.86	<2.00	<0.039
1,2,3,4-tetrachlorobenzene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Total Tetrachlorobenzene	<24.0	<2.79	<4.65	<3.71	<4.00	<0.077
Pentachlorobenzene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Hexachlorobenzene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Total Chlorobenzenes	<489	<56.8	<94.7	<75.6	<81.5	<1.57

Dry Gas Volume Sampled (Rm^3*) :	5.160
Actual Flowrate (m^3/s) :	27.7
Dry Reference Flowrate (Rm^3/s*) :	16.6
Dry Adjusted Flowrate (Rm^3/s**) :	20.8
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Monochlorobenzene	246	28.7	49.5	38.8	41.7	0.79
1,3-Dichlorobenzene	66.5	7.77	13.4	10.5	11.3	0.21
1,4-Dichlorobenzene	93.7	10.9	18.9	14.8	15.9	0.30
1,2-Dichlorobenzene	65.4	7.64	13.2	10.3	11.1	0.21
Total Dichlorobenzene	226	26.4	45.4	35.6	38.2	0.72
1,3,5-trichlorobenzene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
1,2,4-trichlorobenzene	21.4	2.50	4.31	3.38	3.63	0.069
1,2,3-trichlorobenzene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Total Trichlorobenzene	<45.4	<5.31	<9.14	<7.16	<7.69	<0.15
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.40	<2.42	<1.89	<2.03	<0.038
1,2,3,4-tetrachlorobenzene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Total Tetrachlorobenzene	<24.0	<2.80	<4.83	<3.79	<4.07	<0.077
Pentachlorobenzene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Hexachlorobenzene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Total Chlorobenzenes	<565	<66.0	<114	<89.1	<95.7	<1.81

Dry Gas Volume Sampled (Rm^3*) :	4.966
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	15.9
Dry Adjusted Flowrate (Rm^3/s**) :	20.3
Wet Reference Flowrate (Rm^3/s*) :	18.9

* 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 54
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Actual Concentrations for Chlorobenzenes

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Monochlorobenzene	42.2	24.9	28.7	31.9	28.6
1,3-Dichlorobenzene	7.08	6.92	7.77	7.26	6.2
1,4-Dichlorobenzene	8.47	7.70	10.9	9.04	18.8
1,2-Dichlorobenzene	6.93	6.81	7.64	7.13	6.3
Total Dichlorobenzene	22.5	21.4	26.4	23.4	11.1
1,3,5-trichlorobenzene	<1.40	<1.39	<1.40	<1.40	0.4
1,2,4-trichlorobenzene	2.02	2.13	2.50	2.22	11.3
1,2,3-trichlorobenzene	<1.40	<1.39	<1.40	<1.40	0.4
Total Trichlorobenzene	<4.83	<4.91	<5.31	<5.02	5.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.40	<1.39	<1.40	<1.40	0.4
1,2,3,4-tetrachlorobenzene	<1.40	<1.39	<1.40	<1.40	0.4
Total Tetrachlorobenzene	<2.81	<2.79	<2.80	<2.80	0.4
Pentachlorobenzene	<1.40	<1.39	<1.40	<1.40	0.4
Hexachlorobenzene	<1.40	<1.39	<1.40	<1.40	0.4
Total Chlorobenzenes	<75.2	<56.8	<66.0	<66.0	14.0

TABLE 55
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dry Reference Concentrations for Chlorobenzenes

Specific Isomer	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Monochlorobenzene	71.0	41.5	49.5	54.0	28.3
1,3-Dichlorobenzene	11.9	11.6	13.4	12.3	8.0
1,4-Dichlorobenzene	14.2	12.8	18.9	15.3	20.6
1,2-Dichlorobenzene	11.6	11.4	13.2	12.1	8.1
Total Dichlorobenzene	37.8	35.8	45.4	39.7	12.9
1,3,5-trichlorobenzene	<2.36	<2.33	<2.42	<2.37	1.9
1,2,4-trichlorobenzene	3.40	3.55	4.31	3.75	13.0
1,2,3-trichlorobenzene	<2.36	<2.33	<2.42	<2.37	1.9
Total Trichlorobenzene	<8.1	<8.20	<9.14	<8.49	6.7
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.36	<2.33	<2.42	<2.37	1.9
1,2,3,4-tetrachlorobenzene	<2.36	<2.33	<2.42	<2.37	1.9
Total Tetrachlorobenzene	<4.72	<4.65	<4.83	<4.74	1.9
Pentachlorobenzene	<2.36	<2.33	<2.42	<2.37	1.9
Hexachlorobenzene	<2.36	<2.33	<2.42	<2.37	1.9
Total Chlorobenzenes	<126	<94.7	<114	<112	14.3

* 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				Coefficient of Variation %
	Test No. 1 ng/Rm³*	Test No. 2 ng/Rm³*	Test No. 3 ng/Rm³*	Average ng/Rm³*	
Monochlorobenzene	56.7	33.1	38.8	42.9	28.8
1,3-Dichlorobenzene	9.51	9.22	10.5	9.74	6.8
1,4-Dichlorobenzene	11.4	10.3	14.8	12.1	19.4
1,2-Dichlorobenzene	9.31	9.06	10.3	9.56	6.9
Total Dichlorobenzene	30.2	28.5	35.6	31.4	11.7
1,3,5-trichlorobenzene	<1.89	<1.86	<1.89	<1.88	1.0
1,2,4-trichlorobenzene	2.72	2.83	3.38	2.98	11.8
1,2,3-trichlorobenzene	<1.89	<1.86	<1.89	<1.88	1.0
Total Trichlorobenzene	<6.49	<6.54	<7.16	<6.73	5.5
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.89	<1.86	<1.89	<1.88	1.0
1,2,3,4-tetrachlorobenzene	<1.89	<1.86	<1.89	<1.88	1.0
Total Tetrachlorobenzene	<3.77	<3.71	<3.79	<3.76	1.0
Pentachlorobenzene	<1.89	<1.86	<1.89	<1.88	1.0
Hexachlorobenzene	<1.89	<1.86	<1.89	<1.88	1.0
Total Chlorobenzenes	<101	<75.6	<89.1	<88.6	14.3

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Monochlorobenzene	60.0	35.7	41.7	45.8	27.7
1,3-Dichlorobenzene	10.1	9.93	11.3	10.4	7.1
1,4-Dichlorobenzene	12.0	11.1	15.9	13.0	19.6
1,2-Dichlorobenzene	9.84	9.77	11.1	10.2	7.2
Total Dichlorobenzene	31.9	30.8	38.2	33.6	11.9
1,3,5-trichlorobenzene	<1.99	<2.00	<2.03	<2.01	1.0
1,2,4-trichlorobenzene	2.87	3.05	3.63	3.18	12.3
1,2,3-trichlorobenzene	<1.99	<2.00	<2.03	<2.01	1.0
Total Trichlorobenzene	<6.86	<7.05	<7.69	<7.20	6.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.99	<2.00	<2.03	<2.01	1.0
1,2,3,4-tetrachlorobenzene	<1.99	<2.00	<2.03	<2.01	1.0
Total Tetrachlorobenzene	<3.99	<4.00	<4.07	<4.02	1.0
Pentachlorobenzene	<1.99	<2.00	<2.03	<2.01	1.0
Hexachlorobenzene	<1.99	<2.00	<2.03	<2.01	1.0
Total Chlorobenzenes	<107	<81.5	<95.7	<94.6	13.4

* 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				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
Monochlorobenzene	1.16	0.69	0.79	0.88	28.2
1,3-Dichlorobenzene	0.19	0.19	0.21	0.20	5.8
1,4-Dichlorobenzene	0.23	0.21	0.30	0.25	18.4
1,2-Dichlorobenzene	0.19	0.19	0.21	0.20	6.0
Total Dichlorobenzene	0.62	0.59	0.72	0.64	10.7
1,3,5-trichlorobenzene	<0.038	<0.039	<0.038	<0.039	0.2
1,2,4-trichlorobenzene	0.055	0.059	0.069	0.061	11.1
1,2,3-trichlorobenzene	<0.038	<0.039	<0.038	<0.039	0.2
Total Trichlorobenzene	<0.13	<0.14	<0.15	<0.14	4.8
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.038	<0.039	<0.038	<0.039	0.2
1,2,3,4-tetrachlorobenzene	<0.038	<0.039	<0.038	<0.039	0.2
Total Tetrachlorobenzene	<0.077	<0.077	<0.077	<0.077	0.2
Pentachlorobenzene	<0.038	<0.039	<0.038	<0.039	0.2
Hexachlorobenzene	<0.038	<0.039	<0.038	<0.039	0.2
Total Chlorobenzenes	<2.06	<1.57	<1.81	<1.81	13.4

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
Monochlorobenzene	31.9	54.0	42.9	45.8	0.88
1,3-Dichlorobenzene	7.26	12.3	9.74	10.4	0.20
1,4-Dichlorobenzene	9.04	15.3	12.1	13.0	0.25
1,2-Dichlorobenzene	7.13	12.1	9.56	10.2	0.20
Total Dichlorobenzene	23.4	39.7	31.4	33.6	0.64
1,3,5-trichlorobenzene	<1.40	<2.37	<1.88	<2.01	<0.039
1,2,4-trichlorobenzene	2.22	3.75	2.98	3.18	0.061
1,2,3-trichlorobenzene	<1.40	<2.37	<1.88	<2.01	<0.039
Total Trichlorobenzene	<5.02	<8.49	<6.73	<7.20	<0.14
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.40	<2.37	<1.88	<2.01	<0.039
1,2,3,4-tetrachlorobenzene	<1.40	<2.37	<1.88	<2.01	<0.039
Total Tetrachlorobenzene	<2.80	<4.74	<3.76	<4.02	<0.077
Pentachlorobenzene	<1.40	<2.37	<1.88	<2.01	<0.039
Hexachlorobenzene	<1.40	<2.37	<1.88	<2.01	<0.039
Total Chlorobenzenes	<66.0	<112	<88.6	<94.6	<1.81

* 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 ng	Method Blank Total ng
Monochlorobenzene	NQ	216
1,3-Dichlorobenzene	<12	<12
1,4-Dichlorobenzene	19.8	12.9
1,2-Dichlorobenzene	<12	<12
Total Dichlorobenzene	<43.8	<36.9
1,3,5-trichlorobenzene	<12	<12
1,2,4-trichlorobenzene	<12	<12
1,2,3-trichlorobenzene	<12	<12
Total Trichlorobenzene	<36.0	<36.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<12
1,2,3,4-tetrachlorobenzene	<12	<12
Total Tetrachlorobenzene	<24.0	<24.0
Pentachlorobenzene	<12	<12
Hexachlorobenzene	<12	<12
Total Chlorobenzenes	<128	<337

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

"NQ" indcates that the compound could not be quantified by the analytical laboratory.

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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
3-monochlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
4-monochlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
Total Monochlorophenols	<180	<21.1	<35.4	<28.3	<29.9	<0.58
2,6-dichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,4 & 2,5-dichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
3,5-dichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,3-dichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
3,4-dichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
Total Dichlorophenols	<300	<35.1	<59.0	<47.2	<49.8	<0.96
2,4,6-trichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,3,6-trichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,3,5-trichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,4,5-trichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,3,4-trichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
3,4,5-trichlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
Total Trichlorophenols	<360	<42.1	<70.8	<56.6	<59.8	<1.15
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
2,3,4,5-tetrachlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
Total Tetrachlorophenols	<120	<14.0	<23.6	<18.9	<19.9	<0.38
Pentachlorophenol	<60	<7.02	<11.8	<9.43	<9.97	<0.19
Total Chlorophenols	<1020	<119	<201	<160	<169	<3.27

Dry Gas Volume Sampled (Rm^3*) :	5.083
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	16.3
Dry Adjusted Flowrate (Rm^3/s**) :	20.4
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
3-monochlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
4-monochlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Total Monochlorophenols	<180	<20.9	<34.9	<27.8	<30.0	<0.58
2,6-dichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,4 & 2,5-dichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
3,5-dichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,3-dichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
3,4-dichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Total Dichlorophenols	<300	<34.8	<58.1	<46.4	<50.0	<0.97
2,4,6-trichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,3,6-trichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,3,5-trichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,4,5-trichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,3,4-trichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
3,4,5-trichlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Total Trichlorophenols	<360	<41.8	<69.8	<55.7	<60.0	<1.16
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
2,3,4,5-tetrachlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Total Tetrachlorophenols	<120	<13.9	<23.3	<18.6	<20.0	<0.39
Pentachlorophenol	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Total Chlorophenols	<1020	<118	<198	<158	<170	<3.28

Dry Gas Volume Sampled (Rm^3*) :	5.160
Actual Flowrate (m^3/s) :	27.7
Dry Reference Flowrate (Rm^3/s*) :	16.6
Dry Adjusted Flowrate (Rm^3/s**) :	20.8
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
3-monochlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
4-monochlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Total Monochlorophenols	<180	<21.0	<36.2	<28.4	<30.5	<0.58
2,6-dichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,4 & 2,5-dichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
3,5-dichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,3-dichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
3,4-dichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Total Dichlorophenols	<300	<35.1	<60.4	<47.3	<50.8	<0.96
2,4,6-trichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,3,6-trichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,3,5-trichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,4,5-trichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,3,4-trichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
3,4,5-trichlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Total Trichlorophenols	<360	<42.1	<72.5	<56.8	<61.0	<1.15
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
2,3,4,5-tetrachlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Total Tetrachlorophenols	<120	<14.0	<24.2	<18.9	<20.3	<0.38
Pentachlorophenol	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Total Chlorophenols	<1020	<119	<205	<161	<173	<3.27

Dry Gas Volume Sampled (Rm^3*) :	4.966
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	15.9
Dry Adjusted Flowrate (Rm^3/s**) :	20.3
Wet Reference Flowrate (Rm^3/s*) :	18.9

* 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 64
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Actual Concentrations

Specific Isomer	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
2-monochlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
3-monochlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
4-monochlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
Total Monochlorophenols	<21.1	<20.9	<21.0	<21.0	0.4
2,6-dichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,4 & 2,5-dichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
3,5-dichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,3-dichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
3,4-dichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
Total Dichlorophenols	<35.1	<34.8	<35.1	<35.0	0.4
2,4,6-trichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,3,6-trichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,3,5-trichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,4,5-trichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,3,4-trichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
3,4,5-trichlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
Total Trichlorophenols	<42.1	<41.8	<42.1	<42.0	0.4
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
2,3,4,5-tetrachlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
Total Tetrachlorophenols	<14.0	<13.9	<14.0	<14.0	0.4
Pentachlorophenol	<7.02	<6.97	<7.01	<7.00	0.4
Total Chlorophenols	<119	<118	<119	<119	0.4

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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
3-monochlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
4-monochlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
Total Monochlorophenols	<35.4	<34.9	<36.2	<35.5	1.9
2,6-dichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,4 & 2,5-dichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
3,5-dichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,3-dichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
3,4-dichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
Total Dichlorophenols	<59.0	<58.1	<60.4	<59.2	1.9
2,4,6-trichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,3,6-trichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,3,5-trichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,4,5-trichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,3,4-trichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
3,4,5-trichlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
Total Trichlorophenols	<70.8	<69.8	<72.5	<71.0	1.9
2,3,5,6/2,3,4,6-tetrachlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
2,3,4,5-tetrachlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
Total Tetrachlorophenols	<23.6	<23.3	<24.2	<23.7	1.9
Pentachlorophenol	<11.8	<11.6	<12.1	<11.8	1.9
Total Chlorophenols	<201	<198	<205	<201	1.9

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
3-monochlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
4-monochlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
Total Monochlorophenols	<28.3	<27.8	<28.4	<28.2	1.0
2,6-dichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,4 & 2,5-dichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
3,5-dichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,3-dichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
3,4-dichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
Total Dichlorophenols	<47.2	<46.4	<47.3	<47.0	1.0
2,4,6-trichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,3,6-trichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,3,5-trichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,4,5-trichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,3,4-trichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
3,4,5-trichlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
Total Trichlorophenols	<56.6	<55.7	<56.8	<56.3	1.0
2,3,5,6/2,3,4,6-tetrachlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
2,3,4,5-tetrachlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
Total Tetrachlorophenols	<18.9	<18.6	<18.9	<18.8	1.0
Pentachlorophenol	<9.43	<9.28	<9.46	<9.39	1.0
Total Chlorophenols	<160	<158	<161	<160	1.0

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
3-monochlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
4-monochlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
Total Monochlorophenols	<29.9	<30.0	<30.5	<30.1	1.0
2,6-dichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,4 & 2,5-dichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
3,5-dichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,3-dichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
3,4-dichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
Total Dichlorophenols	<49.8	<50.0	<50.8	<50.2	1.0
2,4,6-trichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,3,6-trichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,3,5-trichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,4,5-trichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,3,4-trichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
3,4,5-trichlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
Total Trichlorophenols	<59.8	<60.0	<61.0	<60.3	1.0
2,3,5,6/2,3,4,6-tetrachlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
2,3,4,5-tetrachlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
Total Tetrachlorophenols	<19.9	<20.0	<20.3	<20.1	1.0
Pentachlorophenol	<9.97	<10.0	<10.2	<10.0	1.0
Total Chlorophenols	<169	<170	<173	<171	1.0

* 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				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
2-monochlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
3-monochlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
4-monochlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
Total Monochlorophenols	<0.58	<0.58	<0.58	<0.58	0.2
2,6-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,4 & 2,5-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
3,5-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,3-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
3,4-dichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
Total Dichlorophenols	<0.96	<0.97	<0.96	<0.96	0.2
2,4,6-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,3,6-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,3,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,4,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,3,4-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
3,4,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
Total Trichlorophenols	<1.15	<1.16	<1.15	<1.16	0.2
2,3,5,6/2,3,4,6-tetrachlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
2,3,4,5-tetrachlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
Total Tetrachlorophenols	<0.38	<0.39	<0.38	<0.39	0.2
Pentachlorophenol	<0.19	<0.19	<0.19	<0.19	0.2
Total Chlorophenols	<3.27	<3.28	<3.27	<3.27	0.2

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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
3-monochlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
4-monochlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
Total Monochlorophenols	<21.0	<35.5	<28.2	<30.1	<0.58
2,6-dichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,4 & 2,5-dichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
3,5-dichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,3-dichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
3,4-dichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
Total Dichlorophenols	<35.0	<59.2	<47.0	<50.2	<0.96
2,4,6-trichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,3,6-trichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,3,5-trichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,4,5-trichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,3,4-trichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
3,4,5-trichlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
Total Trichlorophenols	<42.0	<71.0	<56.3	<60.3	<1.16
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
2,3,4,5-tetrachlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
Total Tetrachlorophenols	<14.0	<23.7	<18.8	<20.1	<0.39
Pentachlorophenol	<7.00	<11.8	<9.39	<10.0	<0.19
Total Chlorophenols	<119	<201	<160	<171	<3.27

* 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 ng	Blank Train Total ng
2-monochlorophenol	<60	<60
3-monochlorophenol	<60	<60
4-monochlorophenol	<60	<60
Total Monochlorophenols	<180	<180
2,6-dichlorophenol	<60	<60
2,4 & 2,5-dichlorophenol	<60	<60
3,5-dichlorophenol	<60	<60
2,3-dichlorophenol	<60	<60
3,4-dichlorophenol	<60	<60
Total Dichlorophenols	<300	<300
2,4,6-trichlorophenol	<60	<60
2,3,6-trichlorophenol	<60	<60
2,3,5-trichlorophenol	<60	<60
2,4,5-trichlorophenol	<60	<60
2,3,4-trichlorophenol	<60	<60
3,4,5-trichlorophenol	<60	<60
Total Trichlorophenols	<360	<360
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<60
2,3,4,5-tetrachlorophenol	<60	<60
Total Tetrachlorophenols	<120	<120
Pentachlorophenol	<60	<60
Total Chlorophenols	<1020	<1020

"<" indicates that the amount detected is less than the detection limit. 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Acenaphthylene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Anthracene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(a)Anthracene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(b)Fluoranthene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(k)Fluoranthene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(a)fluorene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(b)fluorene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(g,h,i)Perylene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(a)Pyrene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Benzo(e)Pyrene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Biphenyl	13.9	1.63	2.73	2.19	2.31	0.045
2-Chloronaphthalene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Chrysene/Triphenylene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Coronene	<60	<7.02	<11.8	<9.43	<10.0	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Dibenzo(a,e)pyrene	<60	<7.02	<11.8	<9.43	<10.0	<0.19
9,10-dimethylanthracene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
7,12-Dimethylbenzo(a)anthracene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Fluoranthene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Fluorene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Indeno(1,2,3-cd)Pyrene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
2-methylanthracene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
3-Methylcholanthrene	<60	<7.02	<11.8	<9.43	<10.0	<0.19
1-Methylnaphthalene	24.1	2.82	4.74	3.79	4.00	0.077
2-Methylnaphthalene	46.1	5.40	9.07	7.25	7.66	0.15
1-Methylphenanthrene	17.4	2.04	3.42	2.74	2.89	0.056
9-Methylphenanthrene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Naphthalene	348	40.7	68.5	54.7	57.8	1.12
Perylene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Phenanthrene	45.0	5.27	8.85	7.07	7.48	0.14
Picene	<60	<7.02	<11.8	<9.43	<10.0	<0.19
Pyrene	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Tetralin	185	21.7	36.4	29.1	30.7	0.59
m-terphenyl	<12	<1.40	<2.36	<1.89	<1.99	<0.038
o-Terphenyl	<12	<1.40	<2.36	<1.89	<1.99	<0.038
p-terphenyl	<12	<1.40	<2.36	<1.89	<1.99	<0.038
Total	<1232	<144	<242	<194	<205	<3.95

Dry Gas Volume Sampled (Rm³*) :	5.083
Actual Flowrate (m³/s) :	27.4
Dry Reference Flowrate (Rm³/s*) :	16.3
Dry Adjusted Flowrate (Rm³/s**) :	20.4
Wet Reference Flowrate (Rm³/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Acenaphthylene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Anthracene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(a)Anthracene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(b)Fluoranthene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(k)Fluoranthene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(a)fluorene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(b)fluorene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(g,h,i)Perylene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(a)Pyrene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Benzo(e)Pyrene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Biphenyl	13.4	1.56	2.60	2.07	2.23	0.043
2-Chloronaphthalene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Chrysene/Triphenylene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Coronene	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Dibenzo(a,e)pyrene	<60	<6.97	<11.6	<9.28	<10.0	<0.19
9,10-dimethylanthracene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
7,12-Dimethylbenzo(a)anthracene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Fluoranthene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Fluorene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Indeno(1,2,3-cd)Pyrene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
2-methylanthracene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
3-Methylcholanthrene	<60	<6.97	<11.6	<9.28	<10.0	<0.19
1-Methylnaphthalene	22.9	2.66	4.44	3.54	3.82	0.074
2-Methylnaphthalene	43.6	5.06	8.45	6.74	7.27	0.14
1-Methylphenanthrene	16.3	1.89	3.16	2.52	2.72	0.052
9-Methylphenanthrene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Naphthalene	318	36.9	61.6	49.2	53.0	1.02
Perylene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Phenanthrene	44.5	5.17	8.62	6.88	7.42	0.14
Picene	<60	<6.97	<11.6	<9.28	<10.0	<0.19
Pyrene	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Tetralin	158	18.3	30.6	24.4	26.3	0.51
m-terphenyl	<12	<1.39	<2.33	<1.86	<2.00	<0.039
o-Terphenyl	<12	<1.39	<2.33	<1.86	<2.00	<0.039
p-terphenyl	<12	<1.39	<2.33	<1.86	<2.00	<0.039
Total	<1169	<136	<226	<181	<195	<3.76

Dry Gas Volume Sampled (Rm³*) :	5.160
Actual Flowrate (m³/s) :	27.7
Dry Reference Flowrate (Rm³/s*) :	16.6
Dry Adjusted Flowrate (Rm³/s**) :	20.8
Wet Reference Flowrate (Rm³/s*) :	19.3

* 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 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	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
Acenaphthene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Acenaphthylene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Anthracene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(a)Anthracene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(b)Fluoranthene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(k)Fluoranthene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(a)fluorene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(b)fluorene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(g,h,i)Perylene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(a)Pyrene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Benzo(e)Pyrene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Biphenyl	20.6	2.41	4.15	3.25	3.49	0.066
2-Chloronaphthalene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Chrysene/Triphenylene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Coronene	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Dibenzo(a,e)pyrene	<60	<7.01	<12.1	<9.46	<10.2	<0.19
9,10-dimethylanthracene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
7,12-Dimethylbenzo(a)anthracene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Fluoranthene	13.9	1.62	2.80	2.19	2.35	0.045
Fluorene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Indeno(1,2,3-cd)Pyrene	12.4	1.45	2.50	1.96	2.10	0.040
2-methylanthracene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
3-Methylcholanthrene	<60	<7.01	<12.1	<9.46	<10.2	<0.19
1-Methylnaphthalene	29.5	3.45	5.94	4.65	5.00	0.094
2-Methylnaphthalene	53.6	6.26	10.8	8.45	9.08	0.17
1-Methylphenanthrene	21.5	2.51	4.33	3.39	3.64	0.069
9-Methylphenanthrene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Naphthalene	395	46.2	79.5	62.3	66.9	1.26
Perylene	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Phenanthrene	56.6	6.61	11.4	8.93	9.59	0.18
Picene	<60	<7.01	<12.1	<9.46	<10.2	<0.19
Pyrene	14.8	1.73	2.98	2.33	2.51	0.047
Tetralin	213	24.9	42.9	33.6	36.1	0.68
m-terphenyl	<12	<1.40	<2.42	<1.89	<2.03	<0.038
o-Terphenyl	<12	<1.40	<2.42	<1.89	<2.03	<0.038
p-terphenyl	<12	<1.40	<2.42	<1.89	<2.03	<0.038
Total	<1347	<157	<271	<212	<228	<4.31

Dry Gas Volume Sampled (Rm³*) :	4.966
Actual Flowrate (m³/s) :	27.4
Dry Reference Flowrate (Rm³/s*) :	15.9
Dry Adjusted Flowrate (Rm³/s**) :	20.3
Wet Reference Flowrate (Rm³/s*) :	18.9

* 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 74
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Actual Concentrations

Compound	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/m³	ng/m³	ng/m³	ng/m³	%
Acenaphthene	<1.40	<1.39	<1.40	<1.40	0.4
Acenaphthylene	<1.40	<1.39	<1.40	<1.40	0.4
Anthracene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(a)Anthracene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(b)Fluoranthene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(k)Fluoranthene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(a)fluorene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(b)fluorene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(g,h,i)Perylene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(a)Pyrene	<1.40	<1.39	<1.40	<1.40	0.4
Benzo(e)Pyrene	<1.40	<1.39	<1.40	<1.40	0.4
Biphenyl	1.63	1.56	2.41	1.86	25.3
2-Chloronaphthalene	<1.40	<1.39	<1.40	<1.40	0.4
Chrysene/Triphenylene	<1.40	<1.39	<1.40	<1.40	0.4
Coronene	<7.02	<6.97	<7.01	<7.00	0.4
Dibenzo(a,c/a,h)Anthracene	<1.40	<1.39	<1.40	<1.40	0.4
Dibenzo(a,e)pyrene	<7.02	<6.97	<7.01	<7.00	0.4
9,10-dimethylanthracene	<1.40	<1.39	<1.40	<1.40	0.4
7,12-Dimethylbenzo(a)anthracene	<1.40	<1.39	<1.40	<1.40	0.4
Fluoranthene	<1.40	<1.39	1.62	<1.47	8.8
Fluorene	<1.40	<1.39	<1.40	<1.40	0.4
Indeno(1,2,3-cd)Pyrene	<1.40	<1.39	1.45	<1.42	2.1
2-methylanthracene	<1.40	<1.39	<1.40	<1.40	0.4
3-Methylcholanthrene	<7.02	<6.97	<7.01	<7.00	0.4
1-Methylnaphthalene	2.82	2.66	3.45	2.98	14.0
2-Methylnaphthalene	5.40	5.06	6.26	5.57	11.1
1-Methylphenanthrene	2.04	1.89	2.51	2.15	15.1
9-Methylphenanthrene	<1.40	<1.39	<1.40	<1.40	0.4
Naphthalene	40.7	36.9	46.2	41.3	11.2
Perylene	<1.40	<1.39	<1.40	<1.40	0.4
Phenanthrene	5.27	5.17	6.61	5.68	14.2
Picene	<7.02	<6.97	<7.01	<7.00	0.4
Pyrene	<1.40	<1.39	1.73	<1.51	12.6
Tetralin	21.7	18.3	24.9	21.6	15.1
m-terphenyl	<1.40	<1.39	<1.40	<1.40	0.4
o-Terphenyl	<1.40	<1.39	<1.40	<1.40	0.4
p-terphenyl	<1.40	<1.39	<1.40	<1.40	0.4
Total	<144	<136	<157	<146	7.5

TABLE 75
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Reference Concentrations

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<2.36	<2.33	<2.42	<2.37	1.9
Acenaphthylene	<2.36	<2.33	<2.42	<2.37	1.9
Anthracene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(a)Anthracene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(b)Fluoranthene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(k)Fluoranthene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(a)fluorene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(b)fluorene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(g,h,i)Perylene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(a)Pyrene	<2.36	<2.33	<2.42	<2.37	1.9
Benzo(e)Pyrene	<2.36	<2.33	<2.42	<2.37	1.9
Biphenyl	2.73	2.60	4.15	3.16	27.2
2-Chloronaphthalene	<2.36	<2.33	<2.42	<2.37	1.9
Chrysene/Triphenylene	<2.36	<2.33	<2.42	<2.37	1.9
Coronene	<11.8	<11.6	<12.1	<11.8	1.9
Dibenzo(a,c/a,h)Anthracene	<2.36	<2.33	<2.42	<2.37	1.9
Dibenzo(a,e)pyrene	<11.8	<11.6	<12.1	<11.8	1.9
9,10-dimethylanthracene	<2.36	<2.33	<2.42	<2.37	1.9
7,12-Dimethylbenzo(a)anthracene	<2.36	<2.33	<2.42	<2.37	1.9
Fluoranthene	<2.36	<2.33	2.80	<2.50	10.6
Fluorene	<2.36	<2.33	<2.42	<2.37	1.9
Indeno(1,2,3-cd)Pyrene	<2.36	<2.33	2.50	<2.39	3.8
2-methylanthracene	<2.36	<2.33	<2.42	<2.37	1.9
3-Methylcholanthrene	<11.8	<11.6	<12.1	<11.8	1.9
1-Methylnaphthalene	4.74	4.44	5.94	5.04	15.8
2-Methylnaphthalene	9.07	8.45	10.8	9.44	12.9
1-Methylphenanthrene	3.42	3.16	4.33	3.64	16.9
9-Methylphenanthrene	<2.36	<2.33	<2.42	<2.37	1.9
Naphthalene	68.5	61.6	79.5	69.9	12.9
Perylene	<2.36	<2.33	<2.42	<2.37	1.9
Phenanthrene	8.85	8.62	11.4	9.6	16.0
Picene	<11.8	<11.6	<12.1	<11.8	1.9
Pyrene	<2.36	<2.33	2.98	<2.56	14.4
Tetralin	36.4	30.6	42.9	36.6	16.8
m-terphenyl	<2.36	<2.33	<2.42	<2.37	1.9
o-Terphenyl	<2.36	<2.33	<2.42	<2.37	1.9
p-terphenyl	<2.36	<2.33	<2.42	<2.37	1.9
Total	<242	<226	<271	<247	9.2

* 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				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<1.89	<1.86	<1.89	<1.88	1.0
Acenaphthylene	<1.89	<1.86	<1.89	<1.88	1.0
Anthracene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(a)Anthracene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(b)Fluoranthene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(k)Fluoranthene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(a)fluorene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(b)fluorene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(g,h,i)Perylene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(a)Pyrene	<1.89	<1.86	<1.89	<1.88	1.0
Benzo(e)Pyrene	<1.89	<1.86	<1.89	<1.88	1.0
Biphenyl	2.19	2.07	3.25	2.50	25.9
2-Chloronaphthalene	<1.89	<1.86	<1.89	<1.88	1.0
Chrysene/Triphenylene	<1.89	<1.86	<1.89	<1.88	1.0
Coronene	<9.43	<9.28	<9.46	<9.39	1.0
Dibenzo(a,c/a,h)Anthracene	<1.89	<1.86	<1.89	<1.88	1.0
Dibenzo(a,e)pyrene	<9.43	<9.28	<9.46	<9.39	1.0
9,10-dimethylanthracene	<1.89	<1.86	<1.89	<1.88	1.0
7,12-Dimethylbenzo(a)anthracene	<1.89	<1.86	<1.89	<1.88	1.0
Fluoranthene	<1.89	<1.86	2.19	<1.98	9.4
Fluorene	<1.89	<1.86	<1.89	<1.88	1.0
Indeno(1,2,3-cd)Pyrene	<1.89	<1.86	1.96	<1.90	2.7
2-methylanthracene	<1.89	<1.86	<1.89	<1.88	1.0
3-Methylcholanthrene	<9.43	<9.28	<9.46	<9.39	1.0
1-Methylnaphthalene	3.79	3.54	4.65	3.99	14.6
2-Methylnaphthalene	7.25	6.74	8.45	7.48	11.8
1-Methylphenanthrene	2.74	2.52	3.39	2.88	15.7
9-Methylphenanthrene	<1.89	<1.86	<1.89	<1.88	1.0
Naphthalene	54.7	49.2	62.3	55.4	11.9
Perylene	<1.89	<1.86	<1.89	<1.88	1.0
Phenanthrene	7.07	6.88	8.93	7.63	14.8
Picene	<9.43	<9.28	<9.46	<9.39	1.0
Pyrene	<1.89	<1.86	2.33	<2.03	13.2
Tetralin	29.1	24.4	33.6	29.0	15.8
m-terphenyl	<1.89	<1.86	<1.89	<1.88	1.0
o-Terphenyl	<1.89	<1.86	<1.89	<1.88	1.0
p-terphenyl	<1.89	<1.86	<1.89	<1.88	1.0
Total	<194	<181	<212	<196	8.1

* 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 of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<1.99	<2.00	<2.03	<2.01	1.0
Acenaphthylene	<1.99	<2.00	<2.03	<2.01	1.0
Anthracene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(a)Anthracene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(b)Fluoranthene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(k)Fluoranthene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(a)fluorene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(b)fluorene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(g,h,i)Perylene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(a)Pyrene	<1.99	<2.00	<2.03	<2.01	1.0
Benzo(e)Pyrene	<1.99	<2.00	<2.03	<2.01	1.0
Biphenyl	2.31	2.23	3.49	2.68	26.3
2-Chloronaphthalene	<1.99	<2.00	<2.03	<2.01	1.0
Chrysene/Triphenylene	<1.99	<2.00	<2.03	<2.01	1.0
Coronene	<10.0	<10.0	<10.2	<10.0	1.0
Dibenzo(a,c/a,h)Anthracene	<1.99	<2.00	<2.03	<2.01	1.0
Dibenzo(a,e)pyrene	<10.0	<10.0	<10.2	<10.0	1.0
9,10-dimethylanthracene	<1.99	<2.00	<2.03	<2.01	1.0
7,12-Dimethylbenzo(a)anthracene	<1.99	<2.00	<2.03	<2.01	1.0
Fluoranthene	<1.99	<2.00	2.35	<2.12	9.8
Fluorene	<1.99	<2.00	<2.03	<2.01	1.0
Indeno(1,2,3-cd)Pyrene	<1.99	<2.00	2.10	<2.03	2.9
2-methylanthracene	<1.99	<2.00	<2.03	<2.01	1.0
3-Methylcholanthrene	<10.0	<10.0	<10.2	<10.0	1.0
1-Methylnaphthalene	4.00	3.82	5.00	4.27	14.8
2-Methylnaphthalene	7.66	7.27	9.08	8.00	11.9
1-Methylphenanthrene	2.89	2.72	3.64	3.08	15.9
9-Methylphenanthrene	<1.99	<2.00	<2.03	<2.01	1.0
Naphthalene	57.8	53.0	66.9	59.2	11.9
Perylene	<1.99	<2.00	<2.03	<2.01	1.0
Phenanthrene	7.48	7.42	9.59	8.16	15.2
Picene	<10.0	<10.0	<10.2	<10.0	1.0
Pyrene	<1.99	<2.00	2.51	<2.17	13.6
Tetralin	30.7	26.3	36.1	31.1	15.7
m-terphenyl	<1.99	<2.00	<2.03	<2.01	1.0
o-Terphenyl	<1.99	<2.00	<2.03	<2.01	1.0
p-terphenyl	<1.99	<2.00	<2.03	<2.01	1.0
Total	<205	<195	<228	<209	8.2

* 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 of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
Acenaphthene	<0.038	<0.039	<0.038	<0.039	0.2
Acenaphthylene	<0.038	<0.039	<0.038	<0.039	0.2
Anthracene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(a)Anthracene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(b)Fluoranthene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(k)Fluoranthene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(a)fluorene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(b)fluorene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(g,h,i)Perylene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(a)Pyrene	<0.038	<0.039	<0.038	<0.039	0.2
Benzo(e)Pyrene	<0.038	<0.039	<0.038	<0.039	0.2
Biphenyl	0.045	0.043	0.066	0.051	25.0
2-Chloronaphthalene	<0.038	<0.039	<0.038	<0.039	0.2
Chrysene/Triphenylene	<0.038	<0.039	<0.038	<0.039	0.2
Coronene	<0.19	<0.19	<0.19	<0.19	0.2
Dibenzo(a,c/a,h)Anthracene	<0.038	<0.039	<0.038	<0.039	0.2
Dibenzo(a,e)pyrene	<0.19	<0.19	<0.19	<0.19	0.2
9,10-dimethylanthracene	<0.038	<0.039	<0.038	<0.039	0.2
7,12-Dimethylbenzo(a)anthracene	<0.038	<0.039	<0.038	<0.039	0.2
Fluoranthene	<0.038	<0.039	0.045	<0.041	8.5
Fluorene	<0.038	<0.039	<0.038	<0.039	0.2
Indeno(1,2,3-cd)Pyrene	<0.038	<0.039	0.040	<0.039	1.7
2-methylanthracene	<0.038	<0.039	<0.038	<0.039	0.2
3-Methylcholanthrene	<0.19	<0.19	<0.19	<0.19	0.2
1-Methylnaphthalene	0.077	0.074	0.094	0.082	13.6
2-Methylnaphthalene	0.15	0.14	0.17	0.15	10.7
1-Methylphenanthrene	0.056	0.052	0.069	0.059	14.7
9-Methylphenanthrene	<0.038	<0.039	<0.038	<0.039	0.2
Naphthalene	1.12	1.02	1.26	1.13	10.7
Perylene	<0.038	<0.039	<0.038	<0.039	0.2
Phenanthrene	0.14	0.14	0.18	0.16	13.9
Picene	<0.19	<0.19	<0.19	<0.19	0.2
Pyrene	<0.038	<0.039	0.047	<0.041	12.3
Tetralin	0.59	0.51	0.68	0.59	14.6
m-terphenyl	<0.038	<0.039	<0.038	<0.039	0.2
o-Terphenyl	<0.038	<0.039	<0.038	<0.039	0.2
p-terphenyl	<0.038	<0.039	<0.038	<0.039	0.2
Total	<3.95	<3.76	<4.31	<4.01	7.0

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	<1.40	<2.37	<1.88	<2.01	<0.039
Acenaphthylene	<1.40	<2.37	<1.88	<2.01	<0.039
Anthracene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(a)Anthracene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(b)Fluoranthene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(k)Fluoranthene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(a)fluorene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(b)fluorene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(g,h,i)Perylene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(a)Pyrene	<1.40	<2.37	<1.88	<2.01	<0.039
Benzo(e)Pyrene	<1.40	<2.37	<1.88	<2.01	<0.039
Biphenyl	1.86	3.16	2.50	2.68	0.051
2-Chloronaphthalene	<1.40	<2.37	<1.88	<2.01	<0.039
Chrysene/Triphenylene	<1.40	<2.37	<1.88	<2.01	<0.039
Coronene	<7.00	<11.8	<9.39	<10.0	<0.19
Dibenzo(a,c/a,h)Anthracene	<1.40	<2.37	<1.88	<2.01	<0.039
Dibenzo(a,e)pyrene	<7.00	<11.8	<9.39	<10.0	<0.19
9,10-dimethylanthracene	<1.40	<2.37	<1.88	<2.01	<0.039
7,12-Dimethylbenzo(a)anthracene	<1.40	<2.37	<1.88	<2.01	<0.039
Fluoranthene	<1.47	<2.50	<1.98	<2.12	<0.041
Fluorene	<1.40	<2.37	<1.88	<2.01	<0.039
Indeno(1,2,3-cd)Pyrene	<1.42	<2.39	<1.90	<2.03	<0.039
2-methylanthracene	<1.40	<2.37	<1.88	<2.01	<0.039
3-Methylcholanthrene	<7.00	<11.8	<9.39	<10.0	<0.19
1-Methylnaphthalene	2.98	5.04	3.99	4.27	0.082
2-Methylnaphthalene	5.57	9.44	7.48	8.00	0.15
1-Methylphenanthrene	2.15	3.64	2.88	3.08	0.059
9-Methylphenanthrene	<1.40	<2.37	<1.88	<2.01	<0.039
Naphthalene	41.3	69.9	55.4	59.2	1.13
Perylene	<1.40	<2.37	<1.88	<2.01	<0.039
Phenanthrene	5.68	9.6	7.63	8.16	0.16
Picene	<7.00	<11.8	<9.39	<10.0	<0.19
Pyrene	<1.51	<2.56	<2.03	<2.17	<0.041
Tetralin	21.6	36.6	29.0	31.1	0.59
m-terphenyl	<1.40	<2.37	<1.88	<2.01	<0.039
o-Terphenyl	<1.40	<2.37	<1.88	<2.01	<0.039
p-terphenyl	<1.40	<2.37	<1.88	<2.01	<0.039
Total	<146	<247	<196	<209	<4.01

* 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 ng	Media Blank ng
Acenaphthene	<12	<12
Acenaphthylene	<12	<12
Anthracene	<12	<12
Benzo(a)Anthracene	<12	<12
Benzo(b)Fluoranthene	<12	<12
Benzo(k)Fluoranthene	<12	<12
Benzo(a)fluorene	<12	<12
Benzo(b)fluorene	<12	<12
Benzo(g,h,i)Perylene	<12	<12
Benzo(a)Pyrene	<12	<12
Benzo(e)Pyrene	<12	<12
Biphenyl	<12	<12
2-Chloronaphthalene	<12	<12
Chrysene/Triphenylene	<12	<12
Coronene	<60	<60
Dibenzo(a,c/a,h)Anthracene	<12	<12
Dibenzo(a,e)pyrene	<60	<60
9,10-dimethylanthracene	<12	<12
7,12-Dimethylbenzo(a)anthracene	<12	<12
Fluoranthene	<12	<12
Fluorene	<12	<12
Indeno(1,2,3-cd)Pyrene	<12	<12
2-methylanthracene	<12	198
3-Methylcholanthrene	<60	<60
1-Methylnaphthalene	12.5	<12
2-Methylnaphthalene	19.7	<12
1-Methylphenanthrene	212	229
9-Methylphenanthrene	<12	79.0
Naphthalene	197	169
Perylene	<12	<12
Phenanthrene	<12	<12
Picene	<60	<60
Pyrene	<12	<12
Tetralin	183	261
m-terphenyl	<12	<12
o-Terphenyl	<12	<12
p-terphenyl	<12	<12
Total	<1200	<1512

"<" indicates that the amount detected is less than the detection limit. 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 $\mu g/m^3$	Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Acetaldehyde Emission Rate mg/s
1	1.26	0.0311	24.1	40.5	32.3	34.2	0.66
2	1.19	0.0310	23.0	38.4	30.7	33.0	0.64
3	2.30	0.0308	44.7	74.6	59.6	64.1	1.24
Average			30.6	51.2	40.9	43.8	0.85
Blank	<0.1						

Formaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Formaldehyde Concentration Actual $\mu g/m^3$	Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Formaldehyde Emission Rate mg/s
1	1.17	0.0311	22.3	37.6	30.0	31.7	0.61
2	0.56	0.0310	10.8	18.1	14.4	15.5	0.30
3	0.60	0.0308	11.7	19.5	15.6	16.7	0.32
Average			14.9	25.0	20.0	21.3	0.41
Blank	0.96						

Acrolein

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acrolein Concentration Actual $\mu g/m^3$	Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Acrolein Emission Rate mg/s
1	<0.1	0.0311	<1.91	<3.21	<2.56	<2.71	<0.052
2	<0.1	0.0310	<1.93	<3.22	<2.58	<2.77	<0.054
3	<0.1	0.0308	<1.94	<3.24	<2.59	<2.79	<0.054
Average			<1.93	<3.23	<2.58	<2.76	<0.053
Blank	<0.1						

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

Sampling was conducted at a single point. Volumetric flowrates from 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 Emission Data
Test No. 2

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.15	4.31	7.25	5.79	6.12	0.12
Benzene	0.072	2.06	3.46	2.76	2.92	0.056
Bromodichloromethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Bromoform	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Bromomethane	0.31	8.91	15.0	12.0	12.6	0.24
1,3-Butadiene	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
2-Butanone	0.40	11.5	19.4	15.5	16.4	0.32
Carbon Tetrachloride	0.015	0.43	0.72	0.58	0.61	0.012
Chloroform	0.041	1.17	1.97	1.57	1.66	0.032
Cumene (Isopropylbenzene)	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Dibromochloromethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Dichlorodifluoromethane	0.046	1.31	2.21	1.76	1.86	0.036
1,2-Dichloroethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
trans,1,2-Dichloroethene	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
1,1-Dichloroethene	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
1,2-Dichloropropane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Ethylbenzene	0.030	0.86	1.44	1.15	1.22	0.023
Ethylene Dibromide	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Mesitylene (1,3,5-Trimethylbenzene)	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Methylene Chloride	15.4	440	740	591	625	12.1
Styrene	0.020	0.57	0.96	0.77	0.81	0.016
Tetrachloroethene	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Toluene	4.66	133	224	179	189	3.64
1,1,1-Trichloroethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Trichlorotrifluoroethane	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Trichlorofluoromethane	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
M&P-Xylene	0.12	3.40	5.71	4.56	4.82	0.093
O-Xylene	0.043	1.23	2.06	1.65	1.74	0.034
Vinyl Chloride	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Total	<21.6	<616	<1035	<827	<874	<16.9

Dry Gas Volume Sampled (Rm^3*) :	0.0208
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	16.3
Dry Adjusted Flowrate (Rm^3/s**) :	20.4
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

TABLE 83
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 3

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	1.18	33.9	56.9	45.5	48.1	0.93
Benzene	0.25	7.05	11.8	9.47	10.0	0.19
Bromodichloromethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Bromoform	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Bromomethane	3.10	88.9	149	119	126	2.43
1,3-Butadiene	<0.02	<0.57	<0.96	<0.77	<0.81	<0.0157
2-Butanone	0.58	16.6	28.0	22.4	23.6	0.46
Carbon Tetrachloride	0.031	0.89	1.49	1.19	1.26	0.024
Chloroform	0.045	1.29	2.17	1.73	1.83	0.035
Cumene (Isopropylbenzene)	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Dibromochloromethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Dichlorodifluoromethane	0.22	6.36	10.7	8.54	9.03	0.17
1,2-Dichloroethane	0.027	0.77	1.30	1.04	1.10	0.021
trans,1,2-Dichloroethene	0.014	0.40	0.67	0.54	0.57	0.011
1,1-Dichloroethene	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
1,2-Dichloropropane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Ethylbenzene	0.11	3.27	5.49	4.39	4.64	0.089
Ethylene Dibromide	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Mesitylene (1,3,5-Trimethylbenzene)	0.045	1.29	2.17	1.73	1.83	0.035
Methylene Chloride	5.05	145	243	194	206	3.97
Styrene	0.064	1.83	3.08	2.46	2.60	0.050
Tetrachloroethene	0.013	0.37	0.63	0.50	0.53	0.010
Toluene	2.17	62.1	104	83.5	88.2	1.70
1,1,1-Trichloroethane	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.29	<0.48	<0.38	<0.41	<0.0078
Trichlorotrifluoroethane	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Trichlorofluoromethane	0.059	1.69	2.84	2.27	2.40	0.046
M&P-Xylene	0.50	14.3	24.0	19.2	20.3	0.39
O-Xylene	0.15	4.21	7.08	5.66	5.98	0.12
Vinyl Chloride	0.024	0.69	1.16	0.92	0.98	0.019
Total	<13.8	<395	<664	<531	<561	<10.8

Dry Gas Volume Sampled (Rm^3*) :	0.0208
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	16.3
Dry Adjusted Flowrate (Rm^3/s**) :	20.4
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.
There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

TABLE 84
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 4

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	µg	µg/m^3	µg/Rm^3*	µg/Rm^3**	µg/Rm^3*	mg/s
Acetone	0.13	3.76	6.31	5.04	5.33	0.10
Benzene	0.076	2.18	3.66	2.93	3.09	0.060
Bromodichloromethane	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
Bromoform	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
Bromomethane	0.27	7.74	13.0	10.4	11.0	0.21
1,3-Butadiene	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
2-Butanone	0.48	13.8	23.2	18.5	19.6	0.38
Carbon Tetrachloride	0.018	0.52	0.87	0.69	0.73	0.014
Chloroform	0.045	1.29	2.17	1.73	1.83	0.035
Cumene (Isopropylbenzene)	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Dibromochloromethane	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
Dichlorodifluoromethane	0.025	0.72	1.20	0.96	1.02	0.020
1,2-Dichloroethane	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
trans,1,2-Dichloroethene	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
1,1-Dichloroethene	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
1,2-Dichloropropane	0.028	0.80	1.35	1.08	1.14	0.022
Ethylbenzene	0.039	1.12	1.88	1.50	1.59	0.031
Ethylene Dibromide	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Mesitylene (1,3,5-Trimethylbenzene)	0.024	0.69	1.16	0.92	0.98	0.019
Methylene Chloride	13.1	376	632	505	534	10.3
Styrene	0.024	0.69	1.16	0.92	0.98	0.019
Tetrachloroethene	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
Toluene	6.27	180	302	242	255	4.93
1,1,1-Trichloroethane	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.29	<0.48	<0.39	<0.41	<0.0079
Trichlorotrifluoroethane	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Trichlorofluoromethane	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
M&P-Xylene	0.15	4.30	7.23	5.78	6.11	0.12
O-Xylene	0.054	1.55	2.60	2.08	2.20	0.042
Vinyl Chloride	<0.02	<0.57	<0.96	<0.77	<0.81	<0.016
Total	<21.0	<601	<1010	<807	<853	<16.5

Dry Gas Volume Sampled (Rm^3*) :	0.0207
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	16.3
Dry Adjusted Flowrate (Rm^3/s**) :	20.4
Wet Reference Flowrate (Rm^3/s*) :	19.3

* 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. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

TABLE 85
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Actual Concentrations

Compound	Actual Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/m^3	µg/m^3	µg/m^3	µg/m^3	%
Acetone	4.31	33.9	3.76	14.0	123
Benzene	2.06	7.05	2.18	3.76	75.7
Bromodichloromethane	<0.29	<0.29	<0.29	<0.29	0.2
Bromoform	<0.29	<0.29	<0.29	<0.29	0.2
Bromomethane	8.91	88.9	7.74	35.2	132
1,3-Butadiene	<0.57	<0.57	<0.57	<0.57	0.2
2-Butanone	11.5	16.6	13.8	14.0	18.3
Carbon Tetrachloride	0.43	0.89	0.52	0.61	40.0
Chloroform	1.17	1.29	1.29	1.25	5.5
Cumene (Isopropylbenzene)	<0.57	<0.57	<0.57	<0.57	0.2
Dibromochloromethane	<0.29	<0.29	<0.29	<0.29	0.2
Dichlorodifluoromethane	1.31	6.36	0.72	2.80	111
1,2-Dichloroethane	<0.29	0.77	<0.29	<0.45	62.7
trans,1,2-Dichloroethene	<0.29	0.40	<0.29	<0.32	20.4
1,1-Dichloroethene	<0.29	<0.29	<0.29	<0.29	0.2
1,2-Dichloropropane	<0.29	<0.29	0.80	<0.46	65.1
Ethylbenzene	0.86	3.27	1.12	1.75	75.7
Ethylene Dibromide	<0.57	<0.57	<0.57	<0.57	0.2
Mesitylene (1,3,5-Trimethylbenzene)	<0.57	1.29	0.69	<0.85	45.3
Methylene Chloride	440	145	376	320	48.5
Styrene	0.57	1.83	0.69	1.03	67.7
Tetrachloroethene	<0.29	0.37	<0.29	<0.31	15.8
Toluene	133	62.1	180	125	47.4
1,1,1-Trichloroethane	<0.29	<0.29	<0.29	<0.29	0.2
Trichloroethene/1,1,2-Trichloroethene	<0.29	<0.29	<0.29	<0.29	0.2
Trichlorotrifluoroethane	<0.57	<0.57	<0.57	<0.57	0.2
Trichlorofluoromethane	<0.57	1.69	<0.57	<0.94	68.3
M&P-Xylene	3.40	14.3	4.30	7.33	82.5
O-Xylene	1.23	4.21	1.55	2.33	70.3
Vinyl Chloride	<0.57	0.69	<0.57	<0.61	10.9
Total	<616	<395	<601	<537	23.0

TABLE 86
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Dry Reference Concentrations

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	7.25	56.9	6.31	23.5	123
Benzene	3.46	11.8	3.66	6.32	75.7
Bromodichloromethane	<0.48	<0.48	<0.48	<0.48	0.2
Bromoform	<0.48	<0.48	<0.48	<0.48	0.2
Bromomethane	15.0	149	13.0	59.1	132
1,3-Butadiene	<0.96	<0.96	<0.96	<0.96	0.2
2-Butanone	19.4	28.0	23.2	23.5	18.3
Carbon Tetrachloride	0.72	1.49	0.87	1.03	40.0
Chloroform	1.97	2.17	2.17	2.10	5.5
Cumene (Isopropylbenzene)	<0.96	<0.96	<0.96	<0.96	0.2
Dibromochloromethane	<0.48	<0.48	<0.48	<0.48	0.2
Dichlorodifluoromethane	2.21	10.7	1.20	4.70	111
1,2-Dichloroethane	<0.48	1.30	<0.48	<0.75	62.7
trans,1,2-Dichloroethene	<0.48	0.67	<0.48	<0.55	20.4
1,1-Dichloroethene	<0.48	<0.48	<0.48	<0.48	0.2
1,2-Dichloropropane	<0.48	<0.48	1.35	<0.77	65
Ethylbenzene	1.44	5.49	1.88	2.94	75.7
Ethylene Dibromide	<0.96	<0.96	<0.96	<0.96	0.2
Mesitylene (1,3,5-Trimethylbenzene)	<0.96	2.17	1.16	<1.43	45.3
Methylene Chloride	740	243	632	538	48.5
Styrene	0.96	3.08	1.16	1.73	67.7
Tetrachloroethene	<0.48	0.63	<0.48	<0.53	15.8
Toluene	224	104	302	210	47.4
1,1,1-Trichloroethane	<0.48	<0.48	<0.48	<0.48	0.2
Trichloroethene/1,1,2-Trichloroethene	<0.48	<0.48	<0.48	<0.48	0.2
Trichlorotrifluoroethane	<0.96	<0.96	<0.96	<0.96	0.2
Trichlorofluoromethane	<0.96	2.84	<0.96	<1.59	68.3
M&P-Xylene	5.71	24.0	7.23	12.3	82.5
O-Xylene	2.06	7.08	2.60	3.92	70.3
Vinyl Chloride	<0.96	1.16	<0.96	<1.03	10.9
Total	<1035	<664	<1010	<903	23.0

* At 25°C and 1 atmosphere

TABLE 87
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	5.79	45.5	5.04	18.8	123
Benzene	2.76	9.47	2.93	5.05	75.7
Bromodichloromethane	<0.38	<0.38	<0.39	<0.38	0.2
Bromoform	<0.38	<0.38	<0.39	<0.38	0.2
Bromomethane	12.0	119	10.4	47.2	132
1,3-Butadiene	<0.77	<0.77	<0.77	<0.77	0.2
2-Butanone	15.5	22.4	18.5	18.8	18.3
Carbon Tetrachloride	0.58	1.19	0.69	0.82	40.0
Chloroform	1.57	1.73	1.73	1.68	5.5
Cumene (Isopropylbenzene)	<0.77	<0.77	<0.77	<0.77	0.2
Dibromochloromethane	<0.38	<0.38	<0.39	<0.38	0.2
Dichlorodifluoromethane	1.76	8.54	0.96	3.76	111
1,2-Dichloroethane	<0.38	1.04	<0.39	<0.60	62.7
trans,1,2-Dichloroethene	<0.38	0.54	<0.39	<0.44	20.4
1,1-Dichloroethene	<0.38	<0.38	<0.39	<0.38	0.2
1,2-Dichloropropane	<0.38	<0.38	1.08	<0.62	65.1
Ethylbenzene	1.15	4.39	1.50	2.35	75.7
Ethylene Dibromide	<0.77	<0.77	<0.77	<0.77	0.2
Mesitylene (1,3,5-Trimethylbenzene)	<0.77	1.73	0.92	<1.14	45.3
Methylene Chloride	591	194	505	430	48.5
Styrene	0.77	2.46	0.92	1.38	67.7
Tetrachloroethene	<0.38	0.50	<0.39	<0.42	15.8
Toluene	179	83.5	242	168	47.4
1,1,1-Trichloroethane	<0.38	<0.38	<0.39	<0.38	0.2
Trichloroethene/1,1,2-Trichloroethene	<0.38	<0.38	<0.39	<0.38	0.2
Trichlorotrifluoroethane	<0.77	<0.77	<0.77	<0.77	0.2
Trichlorofluoromethane	<0.77	2.27	<0.77	<1.27	68.3
M&P-Xylene	4.56	19.2	5.78	9.85	82.5
O-Xylene	1.65	5.66	2.08	3.13	70.3
Vinyl Chloride	<0.77	0.92	<0.77	<0.82	10.9
Total	<827	<531	<807	<722	23.0

* 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 Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 2	Test No. 3	Test No. 4	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	6.12	48.1	5.33	19.8	123
Benzene	2.92	10.0	3.09	5.34	75.7
Bromodichloromethane	<0.41	<0.41	<0.41	<0.41	0.2
Bromoform	<0.41	<0.41	<0.41	<0.41	0.2
Bromomethane	12.6	126	11.0	49.9	132
1,3-Butadiene	<0.81	<0.81	<0.81	<0.81	0.2
2-Butanone	16.4	23.6	19.6	19.9	18.3
Carbon Tetrachloride	0.61	1.26	0.73	0.87	40.0
Chloroform	1.66	1.83	1.83	1.77	5.5
Cumene (Isopropylbenzene)	<0.81	<0.81	<0.81	<0.81	0.2
Dibromochloromethane	<0.41	<0.41	<0.41	<0.41	0.2
Dichlorodifluoromethane	1.86	9.03	1.02	3.97	111
1,2-Dichloroethane	<0.41	1.10	<0.41	<0.64	62.7
trans,1,2-Dichloroethene	<0.41	0.57	<0.41	<0.46	20.4
1,1-Dichloroethene	<0.41	<0.41	<0.41	<0.41	0.2
1,2-Dichloropropane	<0.41	<0.41	1.14	<0.65	65.1
Ethylbenzene	1.22	4.64	1.59	2.48	75.7
Ethylene Dibromide	<0.81	<0.81	<0.81	<0.81	0.2
Mesitylene (1,3,5-Trimethylbenzene)	<0.81	1.83	0.98	<1.21	45.3
Methylene Chloride	625	206	534	455	48.5
Styrene	0.81	2.60	0.98	1.46	67.7
Tetrachloroethene	<0.41	0.53	<0.41	<0.45	15.8
Toluene	189	88.2	255	177	47.4
1,1,1-Trichloroethane	<0.41	<0.41	<0.41	<0.41	0.2
Trichloroethene/1,1,2-Trichloroethene	<0.41	<0.41	<0.41	<0.41	0.2
Trichlorotrifluoroethane	<0.81	<0.81	<0.81	<0.81	0.2
Trichlorofluoromethane	<0.81	2.40	<0.81	<1.34	68.3
M&P-Xylene	4.82	20.3	6.11	10.4	82.5
O-Xylene	1.74	5.98	2.20	3.31	70.3
Vinyl Chloride	<0.81	0.98	<0.81	<0.87	10.9
Total	<874	<561	<853	<763	23.0

* At 25°C and 1 atmosphere

TABLE 89
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Volatile Organic Emission Rates

Compound	Emission Rate				Coefficient of Variation
	Test No. 2 mg/s	Test No. 3 mg/s	Test No. 4 mg/s	Average mg/s	%
Acetone	0.12	0.93	0.10	0.38	123
Benzene	0.056	0.19	0.060	0.10	75.7
Bromodichloromethane	<0.0078	<0.0078	<0.0079	<0.0078	0.2
Bromoform	<0.0078	<0.0078	<0.0079	<0.0078	0.2
Bromomethane	0.24	2.43	0.21	0.96	132
1,3-Butadiene	<0.016	<0.0157	<0.016	<0.016	0.2
2-Butanone	0.32	0.46	0.38	0.38	18.3
Carbon Tetrachloride	0.012	0.024	0.014	0.017	40.0
Chloroform	0.032	0.035	0.035	0.034	5.5
Cumene (Isopropylbenzene)	<0.016	<0.016	<0.016	<0.016	0.2
Dibromochloromethane	<0.0078	<0.0078	<0.0079	<0.0078	0.2
Dichlorodifluoromethane	0.036	0.17	0.020	0.077	111
1,2-Dichloroethane	<0.0078	0.021	<0.0079	<0.012	62.7
trans,1,2-Dichloroethene	<0.0078	0.011	<0.0079	<0.0089	20.4
1,1-Dichloroethene	<0.0078	<0.0078	<0.0079	<0.0078	0.2
1,2-Dichloropropane	<0.0078	<0.0078	0.022	<0.013	65.1
Ethylbenzene	0.023	0.089	0.031	0.048	75.7
Ethylene Dibromide	<0.016	<0.016	<0.016	<0.016	0.2
Mesitylene (1,3,5-Trimethylbenzene)	<0.016	0.035	0.019	<0.023	45.3
Methylene Chloride	12.1	3.97	10.3	8.78	48.5
Styrene	0.016	0.050	0.019	0.028	67.7
Tetrachloroethene	<0.0078	0.010	<0.0079	<0.0086	15.8
Toluene	3.64	1.70	4.93	3.42	47.4
1,1,1-Trichloroethane	<0.0078	<0.0078	<0.0079	<0.0078	0.2
Trichloroethene/1,1,2-Trichloroethene	<0.0078	<0.0078	<0.0079	<0.0078	0.2
Trichlorotrifluoroethane	<0.016	<0.016	<0.016	<0.016	0.2
Trichlorofluoromethane	<0.016	0.046	<0.016	<0.026	68.3
M&P-Xylene	0.093	0.39	0.12	0.20	82.5
O-Xylene	0.034	0.12	0.042	0.064	70.3
Vinyl Chloride	<0.016	0.019	<0.016	<0.017	10.9
Total	<16.9	<10.8	<16.5	<14.7	23.0

TABLE 90
Covanta - Durham York Energy Centre
Boiler No. 2 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	14.0	23.5	18.8	19.8	0.38
Benzene	3.76	6.32	5.05	5.34	0.10
Bromodichloromethane	<0.29	<0.48	<0.38	<0.41	<0.0078
Bromoform	<0.29	<0.48	<0.38	<0.41	<0.0078
Bromomethane	35.2	59.1	47.2	49.9	0.96
1,3-Butadiene	<0.57	<0.96	<0.77	<0.81	<0.016
2-Butanone	14.0	23.5	18.8	19.9	0.38
Carbon Tetrachloride	0.61	1.03	0.82	0.87	0.017
Chloroform	1.25	2.10	1.68	1.77	0.034
Cumene (Isopropylbenzene)	<0.57	<0.96	<0.77	<0.81	<0.016
Dibromochloromethane	<0.29	<0.48	<0.38	<0.41	<0.0078
Dichlorodifluoromethane	2.80	4.70	3.76	3.97	0.077
1,2-Dichloroethane	<0.45	<0.75	<0.60	<0.64	<0.012
trans,1,2-Dichloroethene	<0.32	<0.55	<0.44	<0.46	<0.0089
1,1-Dichloroethene	<0.29	<0.48	<0.38	<0.41	<0.0078
1,2-Dichloropropane	<0.46	<0.77	<0.62	<0.65	<0.013
Ethylbenzene	1.75	2.94	2.35	2.48	0.048
Ethylene Dibromide	<0.57	<0.96	<0.77	<0.81	<0.016
Mesitylene (1,3,5-Trimethylbenzene)	<0.85	<1.43	<1.14	<1.21	<0.023
Methylene Chloride	320	538	430	455	8.78
Styrene	1.03	1.73	1.38	1.46	0.028
Tetrachloroethene	<0.31	<0.53	<0.42	<0.45	<0.0086
Toluene	125	210	168	177	3.42
1,1,1-Trichloroethane	<0.29	<0.48	<0.38	<0.41	<0.0078
Trichloroethene/1,1,2-Trichloroethene	<0.29	<0.48	<0.38	<0.41	<0.0078
Trichlorotrifluoroethane	<0.57	<0.96	<0.77	<0.81	<0.016
Trichlorofluoromethane	<0.94	<1.59	<1.27	<1.34	<0.026
M&P-Xylene	7.33	12.3	9.85	10.4	0.20
O-Xylene	2.33	3.92	3.13	3.31	0.064
Vinyl Chloride	<0.61	<1.03	<0.82	<0.87	<0.017
Total	<537	<903	<722	<763	<14.7

* At 25°C and 1 atmosphere

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

TABLE 91
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Blank Volatile Organic Analyses

Compound	Field Blank 1 Tube 10A/10B	Field Blank 2 Tube 9A/9B	Trip Blank Tube 16A/16B	Method Blank
	µg	µg	µg	µg
Acetone	0.85	0.50	0.52	<0.1
Benzene	0.11	0.10	0.11	<0.05
Bromodichloromethane	<0.01	<0.01	<0.01	<0.01
Bromoform	<0.01	<0.01	<0.01	<0.01
Bromomethane	0.43	0.17	<0.09	<0.09
1,3-Butadiene	<0.02	<0.02	<0.02	<0.02
2-Butanone	1.11	0.87	0.64	<0.01
Carbon Tetrachloride	0.017	0.013	0.015	<0.01
Chloroform	0.01	<0.01	<0.01	<0.01
Cumene (Isopropylbenzene)	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	<0.01	<0.01	<0.01	<0.01
Dichlorodifluoromethane	0.32	0.12	0.029	<0.02
1,2-Dichloroethane	<0.01	<0.01	<0.01	<0.01
trans,1,2-Dichloroethene	0.010	<0.01	<0.01	<0.01
1,1-Dichloroethene	<0.01	<0.01	<0.01	<0.01
1,2-Dichloropropane	0.030	0.033	0.038	<0.01
Ethylbenzene	0.046	0.042	0.050	<0.01
Ethylene Dibromide	<0.02	<0.02	<0.02	<0.02
Mesitylene (1,3,5-Trimethylbenzene)	0.025	0.023	0.028	<0.02
Methylene Chloride	24.4	16.9	13.3	<0.1
Styrene	0.033	0.033	0.042	<0.02
Tetrachloroethene	<0.01	<0.01	<0.01	<0.01
Toluene	6.93	6.78	7.74	<0.05
1,1,1-Trichloroethane	<0.01	<0.01	<0.01	<0.01
Trichloroethene/1,1,2-Trichloroethene	<0.01	<0.01	<0.01	<0.02
Trichlorotrifluoroethane	<0.02	<0.02	<0.02	<0.02
Trichlorofluoromethane	0.27	<0.02	<0.02	<0.02
M&P-Xylene	0.19	0.16	0.20	<0.03
O-Xylene	0.062	0.053	0.068	<0.01
Vinyl Chloride	<0.02	<0.02	<0.02	<0.02
Total	<35.0	<26.0	<23.1	<0.76

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.
There is probable laboratory contamination in the sample tubes, field blank tubes and the trip blank. The test data has not been corrected for the high levels of many of the target compounds found in the blank tubes.

APPENDIX 3

Notice of Testing
and ECA No. 7306-8FDKNX
(107 pages)

If you require this information in an accessible format, please contact The Regional Municipality of Durham at 1-800-372-1102 ext. 3560.

Sent via email (celeste.dugas@ontario.ca and julie.schroeder@ontario.ca)

April 8, 2022

Celeste Dugas, Manager,
York Durham District Office
Ministry of the Environment, Conservation and Parks
230 Westney Road South, Floor 5
Ajax, Ontario L1S 7J5

and

Dr. Julie Schroeder, Director
Technical Assessment and Standards Development Branch
Ministry of the Environment, Conservation and Parks
40 St. Clair Avenue West, Floor 7 - Foster Building
Toronto, Ontario M4V 1M2

Dear Ms. Dugas and Ms. Schroeder:

RE: Durham York Energy Centre
Voluntary Spring 2022 Source Test
Environmental Compliance Approval #7306-8FDKNX

The Regional Municipalities of Durham and York (Regions) are planning to complete a voluntary Source Test at the Durham York Energy Centre (DYEC) commencing on May 16, 2022. The purpose of this Source Test is to measure DYEC emissions under a directive from the Regional Municipality of Durham's Council. Conduct of this Source Test is not a requirement of the Environmental Assessment (EA) approval or the Environmental Compliance Approval (ECA) for the facility.

ORTECH Consulting Inc. (ORTECH) is the contractor selected to conduct the Source Test. ORTECH will be following the September 2020 Pre-Test Plan for Source Testing (Pre-Test Plan #22050).

The analytical laboratory will be ALS Environmental in Burlington, Ontario. This laboratory is certified to conduct the analysis for all test parameters.

Please accept this courtesy notification of the planned voluntary Source Test. If you have any questions regarding this notification and the impending conduct of the DYEC Source Testing Program, please do not hesitate to contact the undersigned.

Sincerely,

Gioseph Anello, M.Eng., P.Eng., PMP
Director, Waste Management Services

The Regional Municipality of Durham
905-668-7711 extension 3445
Gioseph.Anello@durham.ca

Laura McDowell, P.Eng.
Director, Environmental Promotion and Protection
The Regional Municipality of York
905-830-4444 extension 75077
Laura.McDowell@york.ca

c. B. Fullerton, Source Assessment Specialist (Acting), Technology Standards Section, MECP
P. Dunn, Senior Environmental Officer, York Durham District Office, MECP
B. Parayankuzhiyil, Facility Manager, Covanta
R. Kohler, Environmental Engineer, Covanta
L. Kwan, Environmental Specialist, Covanta
A. Evans, Project Manager, Waste Planning and Technical Services, Durham Region
M. Farid, Contract Management Engineer, Environmental Promotion and Protection, York Region

Ontario

Ministry of the Environment
Ministère de l'Environnement

CERTIFICATE OF APPROVAL

MULTI-MEDIA
Number 7306-8FDKNX
Issue Date: June 28, 2011

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3

and

The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1

and

Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
United States of America
07960

Site Location: Durham York Energy Centre
72 Osbourne Road
Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham

You have applied in accordance with Sections 9 and 27 of the Environmental Protection Act and Section 53 of the Ontario Water Resources Act for approval of:

A thermal treatment facility to be used for the receipt and manual and/or mechanical sorting of solid non-hazardous post-diversion municipal waste (Waste), temporary storage and thermal treatment of the Waste, abatement of the emissions from the processes and activities undertaken at the Site, handling, screening, sorting and/or conditioning of the residual wastes and management of the wastewater and the non-contact stormwater generated at the Site. The Facility's maximum Waste thermal treatment rate is 140,000 tonnes per year of Waste, the nominal electricity generation rate is 20 Megawatts and the nominal steam generation rate 72,000 kilograms per hour of steam.

The facility consists of the following major processes and support units:

(1) two (2) identical combustion trains, each having a nominal capacity of 218 tonnes of Waste per day venting into the atmosphere via a common exhaust stack, having an exit diameter of 1.71 metres, extending 87.6 metres above grade.

Each combustion train is an independent process train and it consists of the following main components:

(a) a stoker grate steam Boiler, having a design heat input of 118 Gigajoules per hour, equipped with a natural gas fired auxiliary Low NOx burner, having a nominal heat input of 59.5 Gigajoules per hour; and

(b) the following air pollution control equipment:

(i) a Selective Non Catalytic Reduction System (SNCR System) with ammonia injection for NOx control;
(ii) an activated carbon injection system, to reduce mercury and dioxins in flue gas;
(iii) a dry recirculation lime injection scrubber to control acid gases;
(iv) a pulse jet type baghouse to control particulate emissions;

(2) one (1) steam turbine generator set having a rated capacity of 20 Megawatts;

(3) waste and reagent storage as described in Condition 2.:

(4) fly ash conditioning system including two (2) surge bins, two (2) pugmills and seven (7) curing/storage bunkers;

(5) bottom ash sorting system including conveyors, screens, a rotary drum magnet and an eddy separator;

(6) one (1) emergency diesel generator, rated at 250 Kilowatts;

(7) natural gas-fired combustion equipment for comfort heating;

(8) a wastewater management system for collection, recirculation and reuse of the process water; and

(9) a stormwater management facility for collection, transmission and discharge of non-contact runoff at the Site, as described in the attached Schedule "G",

Note: Use of the site for any other type of waste is not approved under this Certificate, and requires obtaining a separate approval amending this Certificate.

For the purpose of this Provisional Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"***Acoustic Assessment Report***" means the report, prepared in accordance with *Publication NPC-233* by Paul Niejadlik / Golder Associates Ltd. and dated March 2011 submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility;

"**Acoustic Assessment Summary Table**" means a table summarizing the results of the Acoustic Assessment Report;

"**Acoustic Audit**" means an investigative procedure consisting of measurements of all noise emissions due to the operation of the Facility, assessed in comparison to the Performance Limits for the Facility regarding noise emissions, completed in accordance with the procedures set in the Ministry's *Publication NPC-103* and reported in accordance with the Ministry's *Publication NPC-233;*

"**Acoustic Audit Report**" means a report presenting the results of an Acoustic Audit, prepared in accordance with the Ministry's *Publication NPC-233;*

"**Acoustical Consultant**" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;

"**Air Standards Manager**" means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this Certificate;

"**APC Building**" means the building at the Site where the APC Equipment and the reagent indoor storage tanks are located;

"**APC Equipment**" means all the air pollution control equipment at the Facility, including the SNCR System, the activated carbon injection system, the dry recirculation lime injection scrubber and the pulse jet type baghouse to control emissions from the combustion chamber of the Boilers, the dust collectors to control emissions from the Residue Building and the dust collectors to control emissions from the reagent storage silos;

"**Boiler Building**" means the building at the Site where the Boilers, turbine generator and the air cooled condenser(s) are located;

"**Boilers**" means the two (2) steam boilers firing the approved Waste described in this Certificate;

"**Bulky Unprocessable Items**" means the incoming Waste received at the Site that cannot be processed in the Equipment;

"**CEM Systems**" means the continuous monitoring and recording systems used to measure and record the temperature and the emissions from the Boilers as specified in the attached Schedule "F";

"**Certificate**" means this entire provisional Certificate of Approval, issued in accordance with Sections 39 and 9 of the *EPA* and Section 53 of the *OWRA,* and includes any schedules attached to it, the application and the supporting documentation listed in the attached Schedule "A;

"***40 CFR 60***" means title 40, part 60 under the Code of Federal Regulations (Air Programs, U.S. Environmental Protection Agency), revised as of July 1, 1990, published by the Office of the Federal Register, National Archives and Records, Administration in the United States of America;

"**Complaint**" means a complaint received either by the Owner or the District Manager that has been confirmed by staff of the Ministry and the cause of which is attributed to the Owner's activities at the Facility;

"**Commencement Date of Operation**" means the date when the approved Waste is first received at the Site;

"**Compound of Concern**" means a contaminant that, based on generally available information, may be emitted to the atmosphere in a quantity from any source at the Facility that is significant either in comparison to the relevant Ministry Point of Impingement Limit or if a Ministry Point of Impingement Limit is not available for the compound then, based on generally available toxicological information, the compound has the potential to cause an adverse effect as defined by the *EPA* at a Point of Impingement;

"**Controlled Shutdown**" means an immediate cut-off of all waste into the Boilers, while maintaining the operation of the combustion chamber and the APC Equipment within the Performance Requirements;

"**Description Section**" means the section on page one of the Certificate describing the Owner's operations and the Equipment located at the Facility and specifying the Facility Production Limit for the Facility;

"**Dioxins and Furans**" means polychlorinated dibenzo-dioxins and polychlorinated dibenzofurans;

"**Director**" means any person appointed in writing by the Minister of the Environment pursuant to section 5 of the *EPA* and pursuant to section 5 of the *OWRA* as a Director for the purposes of Part V of the *EPA,* section 9 of the *EPA* and section 53 of the *OWRA;*

"**District Manager**" means the District Manager of the York Durham District Office of the Ministry;

"**Emergency Shutdown**" means an immediate cut-off of all waste feed into the Boilers, followed by an accelerated extinction of all combustion in the Boilers, while maintaining the combustion temperature within the Performance Requirements, except when unreasonable;

"**Emission Summary Table**" means the table prepared in accordance with *O. Reg. 419/05* and the Procedure Document listing the appropriate Point of Impingement concentrations of each Compound of Concern from the Facility and providing comparison to the corresponding Ministry Point of Impingement Limit;

"***EAA***" means the Environmental Assessment Act, R.S.O. 1990, c. E.18, as amended;

"**EA Approval**" means the Notice of Approval to Proceed with the Undertaking signed by the Minister of the Environment on November 3, 2010, EA File No. 04-EA-02-08;

"***EPA***" means the Environmental Protection Act, R.S.O. 1990, c. E.19, as amended;

"**Equipment**" means equipment or processes associated with the thermal treatment of the approved Waste described in this Certificate and in the Supporting Documentation referred to herein and any other equipment or processes handling wastes and reagents;

"**ESDM Report**" means the Emission Summary and Dispersion Modelling Report prepared in accordance with the Procedure Document by Golder Associates and dated March 2011 submitted in support of the application, and includes any amendments to the ESDM Report listed in the attached Schedule "A" and all subsequent up-dated ESDM Reports as applicable;

"**Facility**" means the entire operation associated with thermal treatment of Waste located on the property where the Equipment is located;

"**Facility Production Limit**" means the production limit placed on the main product(s) or raw materials used by the Facility that represents the design capacity of the Facility and assists in the definition of the operations approved by the Director;

"**Grizzly Building**" means the building at the Site where the bottom ash is screened and where the oversized constituents of the bottom ash (grizzly overs) are temporarily stored prior to transport for subsequent storage in the Residue Building;

"**Independent Acoustical Consultant**" means an Acoustical Consultant who is not representing the Owner and was not involved in preparing the Acoustic Assessment Report or the design/implementation of Noise Control Measures for the Facility and/or Equipment. The Independent Acoustical Consultant shall not be retained by the Acoustical Consultant involved in the noise impact assessment or the design/implementation of Noise Control Measures for the Facility and/or Equipment;

"**I-TEF**" means International Toxic Equivalency Factor derived for each dioxin and furan congener by comparing its toxicity to the toxicity of 2,3,7,8 tetrachloro dibenzo-p-dioxin, as recommended by the North Atlantic Treaty Organization Committee on Challenges to Modern Society (NATO CCMS) in 1989 and adopted by Canada in 1990;

"**I-TEQ**" means International Toxic Equivalent of dioxins and furans calculated using the I-TEFs, as recommended by the NATO CCMS in 1989 and adopted by Canada in 1990;

"**Manager**" means the Manager, Technology Standards Section, Standards Development Branch, who has been appointed under Section 5 of the *EPA* for the purposes of Section 11(1)2 of the *O. Reg. 419/05,* or any other person who represents and carries out the duties of the Manager,

Technology Standards Section, Standards Development Branch, as those duties relate to the conditions of this Certificate;

"**Ministry**" means the ministry of the government of Ontario responsible for the *EPA* and the *OWRA* and includes all officials, employees or other persons acting on its behalf or the Ontario Ministry of the Environment;

"**Municipality**" means the Municipality of Clarington;

"***NMA***" means the *Nutrient Management Act*, 2002, S.O. 2002, c. 4, as amended;

"**Noise Control Measures**" means measures to reduce the noise emission from the Facility and/or Equipment including, but not limited to silencers, acoustic louvers, enclosures, absorptive treatment, plenums and barriers;

"**LDR**" means the Lands Disposal Restrictions referred to in sections 74 through 85 of the *O. Reg. 347,* which prohibit the disposal of hazardous wastes on land until they have been treated to meet the treatment standards under the *O. Reg. 347;*

"**Leachate Toxicity Criteria**" means the concentrations of any of the contaminants listed in Schedule 4 at a concentration equal to or in excess of the concentration specified for that contaminant in Schedule 4 using the Toxicity Characteristic Leaching Procedure, defined in the *O. Reg. 347*;

"***O. Reg. 419/05***" means the *Ontario Regulation 419/05,* Air Pollution – Local Air Quality enacted under the *EPA,* as amended;

*"**O. Reg. 347**"* means the *Ontario Regulation 347,* R.R.O 1990 (General –Waste Management) enacted under the *EPA,* as amended;

"***OWRA***" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;

"**Owner**" means any person that is responsible for the establishment and operation of the Site being approved by this Certificate, and it includes The Regional Municipality of Durham, The Regional Municipality of York, and Covanta Durham York Renewable Energy Limited Partnership (operator), their successors and assignees;

"***PA***" means the *Pesticides Act*, R.S.O. 1990, c.P. 11, as amended;

"**Performance Requirements**" means the performance requirements and emission limits specified in the section of this Certificate entitled "Performance Requirements";

"**Point of Impingement**" means any point outside the Facility in the natural environment and as defined by s.2 of the *O. Reg. 419/05;*

"**Point of Reception**" means the Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232*, as applicable;

"**Pre-test Information**" means the information outlined in Section 1.1 of the Source Testing Code;

"**Procedure Document**" means the Ministry's document entitled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005, as amended;

"**Professional Engineer**" means a Professional Engineer as defined within the *Professional Engineers Act*, R.S.O. 1990, c. P.28, as amended;

"**Provincial Officer**" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of the *PA* or Section 4 of the *NMA* or Section 8 of the *SDWA;*

"***Publication NPC-103***" means the Ministry's Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, dated August 1978, published by the Ministry, as amended;

"***Publication NPC-205***" means the Ministry's Publication NPC-205, entitled "Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", dated October, 1995, as amended;

"***Publication NPC-207***" means the Ministry's draft technical publication entitled "Impulse Vibration in Residential Buildings", dated November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, dated August 1978, published by the Ministry, as amended;

"***Publication NPC-232***" means the Ministry's Publication NPC-232, entitled "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", dated October, 1995, as amended;

"***Publication NPC-233***" means the Ministry's Publication NPC-233, entitled "Information to be Submitted for Approval of Stationary Sources of Sound", dated October, 1995, as amended;

"**Rejected Waste**" means either municipal waste which cannot be processed at the Facility or waste which the Site is not approved to accept. Rejected Waste includes but is not limited to the Bulky Unprocessable Items and the Unacceptable Waste;

"**Regional Director**" means the Regional Director of the Central Region of the Ministry;

"**Regions**" means The Regional Municipality of Durham and The Regional Municipality of York;

*"**Report EPS 1/PG/7**"* means the Environment Canada Report EPS 1/PG/7, entitled "Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Generation", dated September, 1993, as amended;

"**Residual Waste**" means waste resulting from the Waste processing activities at the Site. Residual Waste is limited to the recovered ferrous metals, the recovered non-ferrous metals, the bottom ash (consisting of the ash fines and the grizzly overs) and the fly ash (untreated and following conditioning);

"**Residue Building**" means the building at the Site where the bottom ash and the fly ash are processed, temporarily stored and loaded in transport vehicles for off-site disposal;

"**Schedules**" means the following schedules "A", "B", "C", "D", "F" and "G", attached to the Certificate and forming part of the Certificate;

"***SDWA***" means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, as amended;

"**Sensitive Receptor**" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:

(a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.);

(b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.);

(c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.); and

(d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings);

"**Site**" means the property where the Owner has located and operates the Facility and the Works and located at 72 Osbourne Road, 27, Concession Broken Front, Part 1 in the Municipality of Clarington, Regional Municipality of Durham;

"**Source Testing**" means monitoring, sampling and testing to measure emissions resulting from operating the Facility under conditions which yield the worst case emissions within the approved operating range of the Facility;

"***Source Testing Code***" means the Ministry's document entitled "Source Testing Code, Version 2, Report No. ARB-66-80", dated November 1980, as amended;

"**Stack**" means the stack that discharges emissions from the Boilers after those emissions have been controlled by the associated APC Equipment;

"**Substantial Completion**" has the same meaning as “substantial performance” in the *Construction Lien Act* R.S.O. 1990, c.C-30, as amended;

"**Supporting Documentation**" means the documents listed in the attached Schedule "A" of this Certificate which forms part of this Certificate;

"**Test Contaminants**" means the contaminants set out in the attached Schedule "D";

"**Tipping Building**" means the building at the Site where the incoming Waste is received, sorted and temporarily stored;

"**Total Power Failure**" means the loss of the external power supply and concurrent loss of all in-plant power generation;

"**Trained Personnel**" means one or more Site personnel trained in accordance with the requirements of Condition 9.;

"**Waste**" means municipal solid waste as defined in the *O. Reg. 347* and limited to the approved waste set out in Condition No. 2.(2);

"**Waste Processing Rate** means the mass of Waste fed into one of the Boilers;

"**Works**" means the sewage works described in the Owner's application, this Certificate and in the Supporting Documentation referred to herein, to the extent approved by this Certificate;

"**Unacceptable Waste**" means the incoming Waste received at the Site that does not meet the incoming Waste quality criteria set out in this Certificate, is of hazardous nature and requires caution when handling; and

"**Undiluted Gases**" means the flue gas stream which contains oxygen, carbon monoxide, total hydrocarbons and all contaminants in the same concentrations as they exist in the flue gas stream emerging from an individual piece of equipment, such as the combustion chamber of one Boiler or one baghouse, and into which gas stream no ambient air and/or no other gas stream originating from another piece of equipment, except for dilution air introduced within the CEM Systems, has been introduced.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

GENERAL PROVISIONS

1. GENERAL

Compliance

(1) The Owner shall ensure compliance with all the conditions of this Certificate and shall ensure that any person authorized to carry out work on or operate any aspect of the Site, including the Works, is notified of this Certificate and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Certificate.

Build in Accordance

(3) (a) Except as otherwise provided by this Certificate, the Site shall be designed, developed, built, operated, monitored, inspected and maintained in accordance with the following applications:

(i) Applications for a Certificate of Approval (Air) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of

Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the Supporting Documentation listed in the attached Schedule "A".

(ii) Applications for a Provisional Certificate of Approval (Waste Disposal Site) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the Supporting Documentation listed in the attached Schedule "A".

(iii) Applications for a Certificate of Approval of Municipal and Private Sewage Works dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the Supporting Documentation listed in the attached Schedule "A".

(b) (i) Any design optimization or modification that is inconsistent with the conceptual design set out in the Supporting Documentation in Schedule "A" shall be clearly identified, along with an explanation of the reasons for the change and submitted to the Director for approval.

(ii) If a change to the conceptual design is submitted to the Director for approval, no construction of the Site shall commence prior to the Director approving, in writing, the final conceptual design of the Site.

As-built Drawings

(4) (a) Within ninety (90) days of the completion of the initial successful Source Testing program, a set of as-built drawings showing the Facility and the Works and bearing the stamp of a Professional Engineer, shall be prepared and retained at the Site.

(b) These drawings shall be kept up-to-date through revisions undertaken from time to time and a copy shall be retained at the location of the Site or at the operational office of the Owner for the operational life of the Site.

(c) Notwithstanding provisions of Condition 1.(4)(b), an amendment to this Certificate shall be sought for changes to the as-built drawings, requiring approval.

(d) The as-built drawings shall be made available to Ministry staff upon request.

Interpretation

(5) Where there is a conflict between a provision of any document, including the application referred to in this Certificate and the conditions of this Certificate, the conditions in this Certificate shall take precedence.

(6) Where there is a conflict between the applications and a provision in any documents listed in Schedule "A", the applications shall take precedence, unless it is clear that the purpose of the document was to amend the applications and that the Ministry approved the amendment.

(7) Where there is a conflict between any two documents listed in Schedule "A", other than the applications, the document bearing the most recent date shall take precedence.

(8) The requirements of this Certificate are severable. If any requirement of this Certificate, or the application of any requirement of this Certificate to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected thereby.

Other Legal Obligations

(9) The issuance of, and compliance with the conditions of this Certificate does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or

(b) limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner to furnish any further information related to compliance with this Certificate.

Adverse Effects

(10) The Site shall be constructed, operated and maintained in a manner which ensures the health and safety of all persons and prevents adverse effects on the natural environment or on any persons.

(11) The Owner shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the approved operations at the Site, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

(12) Despite the Owner or any other person fulfilling any obligations imposed by this Certificate, the person remains responsible for any contravention of any other condition of this Certificate or any applicable statute, regulation, or other legal requirement resulting from any act or emission that caused the adverse effect to the natural environment or impairment of water quality.

(13) If at any time odours, pests, litter, dust, noise or other such negative effects are generated at this Site and cause an adverse effect, the Owner shall take immediate appropriate remedial action that may be necessary to alleviate the adverse effect, including suspension of all waste management activities if necessary.

Change of Ownership

(14) The Owner shall notify the Director in writing, and forward a copy of the notification to the District Manager, within thirty (30) days of the occurrence of any changes:

(a) the ownership of the Site;
(b) the operator of the Site;
(c) the address of the Owner;
(d) the partners, where the Owner is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act,* R.S.O. 1990, c. B.17, as amended, shall be included in the notification;
(e) the name of the corporation where the Owner is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the *Corporations Information Act*, R.S.O. 1990, c. C.39, as amended, shall be included in the notification.

(15) No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance. In the event of any change in ownership of the Site, other than change to a successor municipality, the Owner shall notify the successor of and provide the successor with a copy of this Certificate, and the Owner shall provide a copy of the notification to the District Manager and the Director.

Inspections by the Ministry

(16) No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the *OWRA,* the *EPA,* the *PA,* the *SDWA* or the *NMA* of any place to which this Certificate relates, and without limiting the foregoing:

(a) to enter upon the premises where the approved processing is undertaken, or the location where the records required by the conditions of this Certificate are kept;
(b) to have access to, inspect, and copy any records required to be kept by the conditions of this Certificate;
(c) to inspect the Site, related equipment and appurtenances;
(d) to inspect the practices, procedures, or operations required by the conditions of this Certificate;
(e) to conduct interviews with staff, contractors, agents and assignees of the Owner; and
(f) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Certificate or the *EPA,* the *OWRA,* the *PA,* the *SDWA* or the *NMA.*

Information

(17) Any information requested by the Ministry, concerning the operation of the Site and its operation under this Certificate, including but not limited to any records required to be kept by this Certificate, manuals, plans, records, data, procedures and supporting documentation shall be provided to the Ministry, in a timely manner, upon request**.**

(18) The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Certificate or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:

(a) an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Certificate or any statute, regulation or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

(19) The Owner shall ensure that a copy of this Certificate, in its entirety and including all its Notices of Amendment and the Supporting Documentation listed in Schedule "A" are retained at the Site at all times.

2. SERVICE AREA, APPROVED WASTE TYPES, RATES and STORAGE

(1) The service area for the Site is the area within the jurisdictional boundaries of The Regional Municipality of Durham and The Regional Municipality of York.

(2) The operation of this Site is limited to:

(a) receipt, temporary storage, transfer and processing, including thermal treatment, of solid non-hazardous waste remaining after Waste Diversion required by the EA Approval, limited to Waste from the following sources:

(i) domestic waste and Industrial Commercial and Institutional waste from the Regions' curbside collection and/or from the Regions' waste management facilities; and

(ii) waste generated on-Site through activities not relating to the handling and processing of Waste (ie. office, lunch room, etc.);

(b) collection and management of the stormwater run-off generated at the Site.

(3) The following Unacceptable Waste is prohibited from being accepted at the Site:

(a) hazardous waste, as defined in the *O. Reg. 347;*
(b) wastes which have been source-separated for the purposes of diversion;

(c) international waste generated outside of Canada, but collected within the jurisdictional boundaries of The Regional Municipality of Durham and The Regional Municipality of York.

(4) Waste Receipt Rate:

(a) The maximum daily amount of Waste that is approved to be accepted at the Site shall not exceed 1,520 tonnes per day.

(5) Storage Restrictions:

Solids:

(a) A maximum of 7,350 cubic metres shall be stored inside the Waste pit within the Tipping Building as shown in the Supporting Documentation.

(b) Rejected Waste, limited to the Bulky Unprocessable Items removed from the incoming Waste in the Tipping Building shall be stored:

(i) in two (2) roll-off bins having a maximum total storage capacity of 30 cubic metres, located within the confines of the Tipping Building; and/or

(ii) in the appropriate dedicated bunkers, located within the confines of the Residue Building and described in Conditions 2.(5)(c), 2.(5)(d) and 2.(5)(d), below.

(c) A maximum of approximately 77 tonnes or 106 cubic metres of the Residual Waste, limited to the recovered ferrous metals, shall be stored in one (1) dedicated bunker, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of seven (7) days.

(d) A maximum of approximately 120 tonnes or 100 cubic metres of the Residual Waste, limited to the recovered non-ferrous metals, shall be stored in one (1) dedicated bunker, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of seven (7) days.

(e) A maximum of 630 tonnes of the Residual Waste, limited to bottom ash shall be stored in two (2) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of seven (7) days.

(f) A maximum of 700 tonnes of the Residual Waste, limited to the fly ash shall be stored in seven (7) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is limited to a maximum of thirty six (36) days.

(g) A maximum of 85 cubic metres of activated carbon for the carbon injection system shall be stored in one (1) outdoor tank, located adjacent to the APC Building.

(h) A maximum of 150 cubic metres of lime for the dry scrubber shall be stored in one (1) or more indoor tank(s), located within the confines of the APC Building.

(i) If required, recirculated residue shall be stored in one (1) or more indoor tank(s), located within the confines of the APC Building.

(j) A maximum of 35 tonnes or 25 cubic metres of cement for fly ash conditioning shall be stored in one (1) outdoor silo, located adjacent to the Residue Building.

(k) A maximum of 25 tonnes or 45 cubic metres of pozzolan for fly ash conditioning shall be stored in one (1) outdoor silo, located adjacent to the Residue Building.

Liquids:

(l) (i) A maximum of 36 cubic metres or 40 tonnes of aqueous ammonia for the SNCR System shall be stored in one (1) outdoor tank, located adjacent to the APC Building.

(ii) The Owner shall ensure that the aqueous ammonia storage tank is equipped with a liquid level monitoring device designed to provide a visual and an auditory alarm when the high level setpoint is reached.

(iii) The aqueous ammonia storage tank spill containment area and the loading area shall be designed in accordance with the requirements in the Ministry's document entitled *"Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities"* dated May 2007, as amended.

(6) No outdoor storage of waste, including storage in vehicles, is approved under this Certificate.

(7) The Owner shall ensure that storage of all wastes is undertaken in a manner that does not cause an adverse effect or a hazard to the environment or any person.

(8) (a) Waste received at the Site shall be processed within four (4) days from its receipt at the Site.

(b) Emergency Waste storage duration extension:

(i) The Owner may store the incoming Waste inside the tipping pit within the confines of the Tipping Building for up-to seven (7) days from its receipt at the Site, on an emergency basis only.

(ii) Within twenty four (24) hours from the start of the emergency storage of the incoming Waste, the Owner shall notify, in writing, the District Manager that the incoming Waste is being stored longer then four (4) days.

(iii) Should there be public complaints about the extended incoming Waste storage, the Owner, in consultation with the District Manager, shall determine the cause of the complaints, propose appropriate abatement measures, including but not be limited to the removal and off-site disposal of the Waste contained in the tipping pit, and implement the said measures upon receiving written concurrence from the District Manager within the time frame acceptable to the District Manager.

(9) In the event that Waste cannot be processed at the Site and the Site is at its approved storage capacity, the Owner shall cease accepting additional Waste. Receipt of additional Waste may be resumed once such receipt complies with the waste storage limitations approved in this Certificate.

3. **SIGNS and SITE SECURITY**

(1) Prior to receipt of Waste at the Site, the Owner shall ensure that a sign is posted at the entrance to the Site. The sign shall be visible from the main road leading to the Site. The following information shall be included on the sign:

(a) name of the Owner;
(b) this Certificate number;
(c) hours during which the Site is open;
(d) waste types that are approved to be accepted at the Site;
(e) Owner's telephone number to which complaints may be directed;
(f) Owner's twenty-four hour emergency telephone number (if different from above);
(g) a warning against unauthorized access; and
(h) a warning against dumping at the Site.

(2) The Owner shall ensure that appropriate and visible signs are posted at the Site clearly identifying the wastes and the process reagents and stating warnings about the nature and any possible hazards of the wastes and the reagents.

(3) The Owner shall ensure that appropriate and visible signs are posted at the Site to prohibit smoking, open flames or sources of ignition from being allowed near any flammable materials storage areas.

(4) The Owner shall install and maintain appropriate and visible signs at the Site to direct vehicles to the Waste receiving and Residual Waste removal areas and to the reagent unloading areas.

(5) The Owner shall post appropriate and visible signs along the traffic route providing clear directions to the Site.

(6) The Owner shall ensure that the Site is fenced in and that all entrances are secured by lockable gates to restrict access only to authorized personnel when the Site is not open.

(7) The Owner shall ensure that access to the Site, with the exception of the area designated as a Public Information Centre, is regulated and that no unauthorized persons are permitted at the Site without the Trained Personnel escort.

(8) The Owner shall ensure that the Site is operated in a safe and secure manner, and that Waste, the Residual Waste and the Unacceptable Waste are properly handled, packaged or contained and stored so as not to pose any threat to the general public and the Site personnel.

4. SITE OPERATIONS

(1) Operating hours:

(a) The Site is approved to operate twenty-four (24) hours per day three hundred and sixty-five (365) days per year.

(b) Notwithstanding Condition 4.(1)(a), Waste shall only be received at the Site and the Residual Waste shall only be transferred from the Site between 7:00 a.m. and 7:00 p.m. Monday to Saturday. No receipt of the Waste or transfer of the Residual Waste shall be undertaken on statutory holidays.

(c) Emergency Receipt of Waste:

(i) The Owner may receive Waste at the Site outside of the operating hours specified in Condition 4.(1)(b), above, on an emergency basis only.

(ii) Within twenty four (24) hours from the receipt of Waste outside of the approved receiving hours, the Owner shall notify, in writing, the District Manager that Waste was received outside of the approved receiving hours.

(iii) Should there be complaints about Waste shipments outside of the approved hours, the Owner, in consultation with the District Manager, shall determine the cause of the complaint, propose appropriate abatement measures and implement the said measures upon receiving written concurrence from the District Manager within the time frame acceptable to the District Manager.

(2) Incoming Waste receipt:

(a) At the weigh scale, the Trained Personnel shall:

(i) inspect the required documentation prior to acceptance of the incoming Waste at the Site; and

(ii) inspect the incoming Waste with radiation detection equipment.

(b) In the Tipping Building, the Trained Personnel shall:

(i) visually inspect all incoming Waste being unloaded into the Waste pit; and

(ii) once per hour, or as accepted by the District Manager, unload the incoming Waste on the tipping floor for a manual visual inspection and sorting of the incoming Waste.

(c) The Owner shall only accept the incoming Waste that is delivered in vehicles that have been approved by the Ministry.

(d) The Owner shall ensure that all unloading of incoming Waste at the Site takes place entirely within the confines of the Tipping Building.

(3) **Unacceptable Waste handling:**

(a) In the event that waste that is not approved under this Certificate is inadvertently accepted at the Site, the Owner shall ensure that the Unacceptable Waste:

(i) is stored in a way that ensures that no adverse effects result from its storage;
(ii) is segregated from all other waste;
(iii) is handled and removed from the Site in accordance with the *O. Reg. 347* and the *EPA*; and
(iv) is removed from the Site within (4) days of its receipt or as acceptable to the District Manager.

(b) The Owner shall ensure that all loading of the Unacceptable Waste into transport vehicles is carried out entirely within the confines of the Tipping Building.

(4) **Waste Sorting:**

(a) The Trained Personnel shall remove the Bulky Unprocessable Items and Unacceptable Waste from the incoming Waste prior to charging of the Waste to the Boilers.

(b) All sorting of the incoming Waste at the Site shall be undertaken indoors, within the confines of the Tipping Building and/or the Refuse Building.

(5) **Residual Waste Handling and Disposal:**

(a) (i) Except for transportation of the Residual Waste between the Grizzly Building and the Residue Building, the Owner shall ensure that all

handling of the bottom ash and its segregated constituents, and of the fly ash, is undertaken within the confines of enclosed conveyors and enclosed buildings.

(ii) The Owner shall ensure that all loading of the Residual Waste into vehicles for its transport from the Site is carried out entirely within the confines of the Residue Building.

(b) (i) Different constituents of the Residual Waste shall not be comingled prior to the required compliance testing, unless all Residual Waste is to be disposed of at a Waste Disposal Site that is approved to accept hazardous waste.

(ii) The Owner shall ensure that the equipment used in handling of the hazardous wastes or that came in direct contact with the hazardous wastes is not used to handle other wastes.

(iii) On an emergency basis, the Owner may use equipment used to handle the hazardous wastes to handle other wastes provided that prior to such use the equipment has been thoroughly cleaned first.

(c) (i) Only haulers approved by the Ministry shall be used to transport the Residual Waste from the Site.

(ii) The Residual Waste shall be transported from the Site in appropriately covered vehicles that will not allow fugitive dust emissions to be emitted into the natural environment during the said transport.

d) Residual Waste generated at the Site shall be disposed of shall only be disposed of at an approved waste disposal site in accordance with the requirements in the *EPA* and the *O. Reg. 347* or at a location with the appropriate jurisdictional approval or a license, if required.

(e) Should the Residual Waste limited to the conditioned fly ash and/or the bottom ash be deemed a hazardous waste, the ash shall be disposed of at an approved waste disposal site in accordance with the Land Disposal Restrictions requirements in the *EPA* and the *O. Reg.* 347 or at a location with the appropriate jurisdictional approval or a license, if required.

(6) **Wastewater Management**

(a) The Owner shall ensure that all wastewater generated at the Site is contained within enclosed buildings, tanks, pipes and conveyors at the Site and the approved outdoor Wastewater Settling Basin.

(b) The Owner shall ensure that all wastewater generated at the Site is collected in leak-proof and sufficiently designed wastewater storage facilities:

(i) Wastewater Holding Tank, to collect the continuous reject water flow from the Boiler make-up water treatment system and the Boiler blowdown, having an approximate holding capacity of 100 cubic metres, located within the confines of the Boiler Building and venting to the atmosphere; and

(ii) Wastewater Settling Basin, to collect the wastewater from the floor drains in the buildings at the Site, except for the Tipping Building and the Residue Building, the ash discharger overflow and drain water, the Boiler and turbine-generator washdown water and the APC Equipment area washdown water, having an approximate holding capacity of 38 cubic metres, located outdoors, open to the atmosphere and equipped with a filter basket and an oil skimmer board.

(c) The wastewater pumps shall be located in the area designed in accordance with the Supporting Documentation to ensure that any potential leaks or drips are contained and directed to the Wastewater Settling Basin.

(d) (i) The wastewater level in the Wastewater Holding Tank shall be monitored and controlled to ensure that the wastewater inflow to the Tank does not cause the Tank overflow.

(ii) The wastewater level in the Wastewater Settling Basin shall be monitored and controlled to ensure that the atmospheric precipitation does not cause an overflow from the Basin.

(e) The Owner shall regularly empty, and clean as necessary, all sumps, wastewater storage/holding areas and equipment that are used to contain, collect and handling the wastewater generated at the Site.

(f) Should the Owner find it necessary to remove the wastewater from the Site, the wastewater shall only be disposed of at a Ministry-approved site in accordance with the site's certificate of approval or be discharged to the sanitary sewer in accordance with the agreement with the municipality accepting the discharge.

(g) The floors of the Tipping Building and the Residue Building shall be sufficiently sloped to facilitate the flow of the wastewater generated from the floor cleaning activities and from the truck washdown towards the designated wastewater collection area.

(h) The Owner shall ensure that the Wastewater Settling Basin is regularly cleaned out and that it does not become a source of odour emissions.

(7) All activities approved under this Certificate shall only be carried out by appropriately Trained Personnel.

5. EQUIPMENT and SITE INSPECTIONS and MAINTENANCE

Operation and Maintenance

(1) Prior to the receipt of the Waste at the Site, the Owner shall prepare and update as necessary, an Operation and Maintenance Manual for all the Equipment, the APC Equipment, the CEM Systems, the Works and any other equipment associated with managing of the Waste and with the control of environmental impacts from the Facility. The Manual shall be prepared in accordance with the written manufacturer's and/or supplier's specifications and good engineering practice.

As a minimum, the Operation and Maintenance Manual shall specify:

(a) operation procedures of the Equipment, the APC Equipment, the CEM Systems, the Works, and any other equipment associated with managing of the Waste and with the control of environmental impacts from the Facility, in accordance with manufacturers' recommendations and good engineering practices to achieve compliance with this Certificate, the *EPA,* the *OWRA* and their Regulations;
(b) calibration procedures for the CEM Systems as required by this Certificate;
(c) procedures for start-up and shutdown, including Controlled Shutdown and Emergency Shutdown;
(d) quality assurance procedures for the operation and calibration of the CEM Systems in accordance with *40 CFR 60*, Appendix F or *Report EPS 1/PG/7,* as appropriate;
(e) Waste receiving and screening procedures;
(f) Waste, Rejected Waste and Residual Waste handling procedures;
(g) testing and monitoring procedures as required by this Certificate;
(h) maintenance and preventative maintenance procedures as required by this Certificate;
(i) Facility inspection, including frequency of inspections, procedures;
(j) procedure for handling complaints as required by this Certificate.
(k) contingency measures to resolve upset conditions and/or minimize the environmental impacts from the Facility;
(l) emergency response procedures, including procedures for dealing with power failure, fire, explosion, spills and any other potential emergencies;
(m) procedures for record keeping activities as required by this Certificate;
(n) description of the responsibilities of the Site personnel and the personnel training protocols; and
(o) a list of personnel positions responsible for operation and maintenance, including supervisory personnel and personnel responsible for handling of the emergency situations, recording and reporting pursuant to the requirements of this Certificate, along with the training and experience required for the positions and a description of the responsibilities.

(2) A copy of this Operations and Maintenance Manual shall be kept at the Site, be accessible to the Site personnel at all times and be updated, as required. The Operations and Maintenance Manual shall be available for inspection by a Provincial Officer upon request.

(3) The Owner shall implement the operation, maintenance, preventative maintenance and calibration procedures set out in the Operations and Maintenance Manual required by this Certificate.

Critical Spare Parts

(4) (a) The Owner shall prepare a list of critical spare parts, update this list annually or more frequently, if necessary, to ensure that this list is maintained up-to-date and shall be available for inspection by a Provincial Officer upon request.

(b) The Owner shall ensure that the critical spare parts are available at the Site at all times or are immediately available from an off-Site supplier.

Inspections

(5) Prior to receipt of the Waste at the Site, the Owner shall prepare a comprehensive written inspection program which includes inspections of all aspects of the Site's operations including, but not limited to the following:

(a) buildings and the indoor waste storage facilities and presence of dust and odour and leaks in or near any openings, such as doorways, window, vent, louver or any other opening;
(b) outdoor Residual Waste transport equipment, and the presence of dust and leaks at or near transfer points or the equipment seams;
(c) the Equipment, the APC Equipment, the CEM Systems, the Works and any other equipment associated with managing of the Waste and with the control of environmental impacts from the Facility;
(d) spill containment areas, loading areas and the conditions around the Wastewater Settling Basin;
(e) security fencing, gates, barriers and signs;
(f) off-site nuisance impacts such as odour, dust, litter, etc.
(g) presence of stormwater pooling at the Site; and
(h) condition of the on-Site roads for presence of leaks and drips from the waste delivery trucks or excessive dust emissions.

(6) The inspections, except for the inspection of the Works, are to be undertaken daily by the Trained Personnel in accordance with the inspection program to ensure that the Facility is maintained in good working order at all times and that no off-Site impacts are occurring. Any deficiencies detected during these regular inspections must be promptly corrected.

Inspections and Maintenance of the Works

(7) The Owner shall inspect the Works at least once a year and, if necessary, clean and maintain the Works to prevent the excessive build-up of sediments and/or vegetation.

6. PERFORMANCE REQUIREMENTS

(1) The Owner shall, ensure that the Facility/Equipment is designed and operated in such a manner as to ensure that the following Performance Requirements are met:

(a) the maximum 10-minute average concentration of odour at the most impacted Sensitive Receptor, resulting from the operation of the Facility/Equipment, calculated in accordance with the procedures outlined in the attached Schedule "B", shall not exceed 1 odour unit;

(b) the noise emissions from the Facility shall comply with the limits set out in Ministry *Publication NPC-205;*

(c) the vibration emissions from the Facility shall comply with the limits set out in Ministry *Publication NPC-207.*

(2) The Owner shall ensure that the Boilers and the associated APC Equipment and the CEM Systems are designed and operated in such a manner as to ensure that the following Performance Requirements are met:

(a) (i) The temperature in the combustion zone of each Boiler shall reach a minimum of 1000 degrees Celsius (^{o}C) for one second, prior to introduction of the Waste into the combustion chamber of the Boiler during the start-up, and thereafter maintained during the entire thermal treatment cycle and subsequent shutdown until all Waste combustion is completed.

(ii) Compliance with the minimum temperature requirement shall be demonstrated by direct measurement at the location where the combustion gases have achieved the residence time of one second at a minimum temperature of 1000^{o}C (the Target Location) or by correlation of the required temperature of 1000^{o}C for one second to the temperature measured downstream of the Target Location as proven by a method acceptable to the Director.

(b) The concentration of residual oxygen in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler, as measured and recorded by the CEM System, shall not be less than 6 percent by volume on a dry basis.

(c) (i) The operational target for the concentration of carbon monoxide in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler is 40 milligrams per dry cubic metre, as a 4-hour rolling average, normalized to 11 percent oxygen at a reference temperature of 25^{o}C and a reference pressure of 101.3 kilopascals, as measured and recorded by the CEM System, for the period from and including initial commissioning of the facility to twelve months following the completion of the first Source Testing program.

(ii) The 4-hour average concentration of carbon monoxide in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler, as measured and recorded by the CEM System, shall not be more than 40 milligrams per dry cubic metre, normalized to 11 percent oxygen at a reference temperature of 25^{o}C and a reference pressure of 101.3 kilopascals, after the first twelve months following the completion of the first Source Testing program.

(d) The emissions from the Boilers after those emissions have been controlled by the associated APC Equipment for discharge into the atmosphere via the Stack shall comply with the emission concentration limits listed in the attached Schedule "C", as measured by a CEM System or by Source Testing as applicable.

(e) The Boilers shall include combustion air control systems, which are capable of automatically adjusting the distribution and the quantity of combustion air, in such a manner that changes in the Waste Processing Rate and/or Waste composition or irregularities in the loading and/or combustion shall not adversely affect the performance of the Boilers.

(f) The Boilers shall provide and maintain a high degree of gas turbulence and mixing in the combustion chamber.

(g) The Boilers shall achieve the temperature, oxygen availability and turbulence requirements over the complete range of operating parameters, including feed rate, feed characteristics, combustion air, flue gas flow rate and heat losses.

(h) The inlet temperature into each baghouse of the APC Equipment of the Boilers shall not be less than 120^{o}C and not more than 185^{o}C.

(3) The Owner shall install and maintain visual and audible alarm systems to alert the Facility/Equipment operators of any potential deviation from the above Performance Requirements for parameters that are continuously monitored by applicable CEM Systems and shall forthwith take all reasonable actions to bring the Equipment/Facility into compliance with all Performance Conditions.

(4) In the event that the CEM Systems indicate that emissions from the Boilers and the Stack exceed any Performance Requirements in the attached Schedule "C" for a continuous three (3) hour period, the Owner shall forthwith cut-off all Waste feed into the affected Boiler and initiate an Emergency Shutdown, while maintaining a temperature of 1000^{o}C, as practicable, in the combustion zone of the Boiler.

Residual Waste Compliance Criteria

(5) (a) The Residual Waste generated at the Site and destined for a non-hazardous waste disposal site in Ontario shall not meet any of the criteria from the definition of "hazardous waste" set out in the *O. Reg. 347.*

(b) The Residual Waste that meets any of the criteria from the definition of "hazardous waste" set out in the *O. Reg.* 347 shall be handled and disposed of in accordance with the LDR requirements set out in the *EPA* and the *O. Reg. 347*.

(6) The Residual Waste, limited to the bottom ash, destined for a non-hazardous waste disposal site shall meet the definition of "incinerator ash" set out in the *O. Reg. 347*.

7. **TESTING, MONITORING** and **AUDITING**

Source Testing

(1) The Owner shall perform annual Source Testing in accordance with the procedures and schedule outlined in the attached Schedule "E", to determine the rate of emission of the Test Contaminants from the Stack. The first Source Testing program shall be conducted not later than six (6) months after the Commencement Date of Operation of the Facility/Equipment and subsequent Source Testing program shall be conducted once (1) every calendar year thereafter.

Continuous Monitoring

(2) The Owner shall select, test and install appropriate CEM Systems and continuous recording devices in accordance with the requirements outlined in the attached Schedule "F" to conduct and maintain a program to continuously monitor, as a minimum, the following parameters prior to commencement of operation of the Boilers:

(a) the temperature at one (1) second downstream of the combustion zone of each Boiler where most of the combustion has been completed and the combustion temperature is fully developed;

(b) the inlet temperature of the gases into each baghouse of the APC Equipment of each Boiler;

(c) the concentration of carbon monoxide, oxygen and organic matter (as methane) in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler;

(d) the opacity and moisture content of the flue gas and the concentration of oxygen, nitrogen oxides, sulphur dioxide, hydrogen chloride, hydrogen fluoride and ammonia in the Undiluted Gases leaving the baghouse of the APC Equipment of each Boiler.

Long-Term Sampling for Dioxins and Furans

(3) (a) The Owner shall develop, install, maintain and update as necessary a long-term sampling system, with a minimum monthly sampling frequency, to measure the concentration of Dioxins and Furans in the Undiluted Gases leaving the APC Equipment associated with each Boiler. The performance of

this sampling system will be evaluated during the annual Source Testing programs in accordance with the principles outlined by 40 CFR 60, Appendix B, Specification 4.

(b) The Owner shall evaluate the performance of the long-term sampling system in determining Dioxins and Furans emission trends and/or fluctuations as well as demonstrating the ongoing performance of the APC Equipment associated with the Boilers.

Ambient Air Monitoring

(4) (a) The Regions shall develop and implement the Ambient Air Monitoring and Reporting Plan, in accordance with the requirements set out in the EA Approval and as determined to be acceptable by the Regional Director.

(b) The Regions shall report the results of the Ambient Air Monitoring program to the Regional Director in accordance with the Ambient Air Monitoring and Reporting Plan and in accordance with the requirements of Condition 14.

(c) The Regions shall post the Ambient Air Monitoring and Reporting Plan and the results of the Ambient Air Monitoring program on the Owner's web site for the Facility in accordance with the requirements of the EA Approval and Condition 15.

Noise Monitoring - Acoustic Audit

(5) The Owner:

(a) shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Acoustic Audit measurements shall be carried out in accordance with the procedures in *Publication NPC-103* and in accordance to the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director;

(b) shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of *Publication NPC-233* and the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director, to the District Manager and the Director, not later than three (3) months after the commencement of operation of the Facility.

(6) The Director:

(a) may not accept the results of the Acoustic Audit if the requirements of *Publication NPC-233* or the approved Noise Monitoring and Reporting Plan were not followed;

(b) may require the Owner to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

Residual Waste Testing

(7) (a) A minimum of six (6) months prior to the Commencement Date of Operation, the Owner shall submit to the Director for approval, a Testing Protocol for testing of the bottom ash for compliance with the criteria set out in the "incinerator ash" definition from the *O. Reg.* 347 and for testing of the Residual Waste for compliance with the criteria set out in this Certificate.

(b) As a minimum, the Testing Protocol shall comply with the Ministry's regulatory requirements for sampling and testing of waste, including the requirements set out in the Ministry's document entitled "Principles of Sampling and Analysis of Waste for TCLP under Ontario Regulation 347", dated February 2002, as amended.

(c) The Testing Protocol shall include the rationale for the proposed methods and the following:

(i) a sampling protocol, including the proposed number of samples to be taken and their locations, to ensure that representative sample(s) are being tested for compliance with this Certificate;

(ii) sample(s) handling and preserving procedures;

(iii) analytical protocol for the applicable contaminants to ensure that appropriate analytical method(s) are being used for compliance testing required by this Certificate; and

(iv) a testing protocol for the bottom ash during the Site commissioning period.

(d) The Owner shall implement the Testing Protocol on the Commencement Date of Operation.

(8) For handling of the bottom ash as a solid non-hazardous waste, the Owner shall follow the following schedule for compliance testing:

(a) for the Site commissioning period, the bottom ash shall be tested in accordance with the Testing Protocol approved by the Director;

(b) for the period following the Site commissioning period, the bottom ash shall be tested for the content of the combustible materials on an annual basis, until the compliance testing results indicate that the bottom ash meets the “incinerator ash” definition from the *O. Reg. 347* for three (3) consecutive years, following which a triennial compliance testing event may be carried out;

(c) should any annual or triennial compliance testing event indicate that the bottom ash does not meet the "incinerator ash" definition, prior to each of the next three (3) shipments from the Site, compliance testing of each of the three (3) shipments shall be carried out. Once three (3) consecutive tests re‑establish compliance with the "incinerator ash" definition from the *O. Reg. 347* and that the bottom ash does not exceed the Leachate Toxicity Criteria, the compliance testing schedule set out in Condition 7.(8)(b) may be resumed; and

(d) should the results of any compliance testing of the bottom ash indicate that the concentrations of the leachate toxic contaminants in the bottom ash equal to or exceed the Leachate Toxicity Criteria, the bottom ash shall be handled as a hazardous waste. Once three (3) consecutive tests re‑establish that the bottom ash does not exceed the Leachate Toxicity Criteria, the bottom ash compliance testing schedule set out in Condition 7.(8)(b) may be resumed.

(9) (a) For handling of the bottom ash as a hazardous waste and for handling of the fly ash, prior to final disposal at a hazardous waste landfill site in Ontario, the Owner shall undertake any sampling and testing that would be required to comply with the LDR requirements set out in the *EPA* and the *O. Reg. 347*.

(b) The Owner shall follow the following schedule for compliance testing:

(i) prior to each of the first three (3) shipments of the ash from the Site, the ash shall be tested so that for the compliance with the LDR requirements can be demonstrated;

(ii) following the three (3) initial compliance testing events, the ash shall be tested on an annual basis, until the compliance testing results indicate that the ash meets the LDR requirements during the three (3) consecutive years, following which a triennial compliance testing may be carried out; and

(iii) should any annual or triennial compliance testing event indicate that the ash does not meet the LDR requirements, prior to next three (3) shipments from the Site, compliance testing of each of the three (3) shipments shall be carried out. Once three (3) consecutive tests re‑establish compliance with the LDR requirements, the compliance testing schedule set out in Condition 7.(9)(b)(ii) may be resumed.

Soil Testing:

(10) (a) Within one hundred and twenty (120) days from the date of this Certificate, the Regions shall undertake the soil testing in accordance with the Soil Testing Plan required by this Certificate.

(b) The soil testing shall be repeated every three (3) years or as agreed upon in writing by the Regional Director.

Disposal of Residual Waste

(11) The Owners shall ensure that no portion of the Residual Waste undergoing compliance testing is transferred from the Site until the results of the compliance testing required by this Certificate demonstrate compliance with the relevant Ministry's requirements.

(12) Bottom ash that is not a hazardous waste, as defined in the *O. Reg. 347,* may be disposed of at an approved non-hazardous waste landfill site or at a site approved to accept such waste by an appropriate government agency of equivalent jurisdiction.

(13) Residual Waste shall be treated to comply with the LDR requirements set out in the *EPA* and the *O. Reg. 347* prior to disposal of at an approved hazardous waste landfill site or at a site approved to accept such waste by an appropriate government agency of equivalent jurisdiction.

Groundwater and Surface Water Monitoring

(14) (a) The Regions shall develop and implement the Groundwater and Surface Water Monitoring Plan, in accordance with the requirements set out in the EA Approval and as determined to be acceptable to the Regional Director.

(b) The Regions shall report the results of the Groundwater and Surface Water Monitoring program to the Regional Director and to the Director in accordance with the schedule set out in the EA Approval and in accordance with the requirements of Condition 14.

(c) The Regions shall post the Groundwater and Surface Water Monitoring Plan and the results of the Groundwater and Surface Water Monitoring program on the Owner's web site for the Facility in accordance with the requirements of the EA Approval and Condition 15.

8. NUISANCE IMPACT CONTROL and HOUSEKEEPING

Odour Management

(1) (a) The Owner shall maintain a negative air pressure atmosphere in the Tipping Building at all times to contain any potential odours within the confines of the Tipping Building.

(b) (i) Once per year, or as required by the District Manager, the Owner shall undertake a test to measure the worse case scenario negative air pressure atmosphere throughout the Tipping Building, while the activities approved in this Certificate are carried out in the Tipping Building.

(ii) Notwithstanding the requirements set out in Condition 8.(1)(b)(i), the Owner shall install sufficient instrumentation to measure the air flow into the Boilers and demonstrate that adequate air flow is maintained

to maintain a negative air pressure atmosphere throughout the Tipping Building.

(c) In the event that adequate negative air pressure cannot be maintained, the Owner shall implement any necessary additional odour containment and control measures, including, but not necessarily limited to, those in the required Contingency and Emergency Response Plan.

(2) The Owner shall ensure that the entrance and exit doors into the Tipping Building, the Residue Building and the Grizzly Building are kept closed at all times except to permit the entry or exit of the respective waste transport vehicles and waste handling equipment into and out of these Buildings.

(3) The Owner shall ensure that, at all times, the air from the Tipping Building, the Residue Building, the Grizzly Building and from the Equipment is exhausted through an appropriate and fully functional APC Equipment approved by this Certificate.

(4) The Owner shall undertake appropriate housekeeping activities, including regular cleaning of the tipping floor to control potential sources of fugitive odour emissions.

(5) The Owner shall ensure that no Waste handling equipment or empty storage containers are stored outside, unless they have been washed to prevent fugitive odour emissions.

(6) The Owner shall regularly clean all equipment and storage areas that are used to handle, process and store waste at the Site, including the surfaces of the outdoor spill containment areas, as required.

(7) (i) Prior to the receipt of Waste at the Site, the Owner shall provide documentation which outlines the testing carried out by a licensed structural engineer to confirm the effectiveness of the containment in the buildings, conveyors and tanks and silos at the Site.

(ii) The testing shall be carried out and repeated as directed by the District Manager in accordance with the test protocol prepared in consultation with and approved by the District Manager.

(iii) These tests shall be repeated as directed or agreed by the District Manager.

(8) The Owner shall prepare and implement an Odour Management and Mitigation Plan in accordance with the requirements set out in the EA Approval and as determined to be acceptable to the Regional Director.

(9) (a) In addition to the requirements set out in the EA Approval, the Odour Management and Mitigation Plan shall include the following:

(i) identification of all potential sources of odourous emissions;

(ii) description of the preventative and control measures to minimize odourous emissions from the identified sources;
(iii) procedures for the implementation of the Odour Management and Mitigation Plan;
(iv) inspection and maintenance procedures to ensure effective implementation of the Odour Management and Mitigation Plan; and
(v) procedures for verification and recording the progress of the implementation of the Odour Management and Mitigation Plan.

(b) The Owner shall continue to submit an updated Odour Management and Mitigation Plan until such time as the Regional Director notifies the Owner in writing that further submissions are no longer required.

Vehicles and Traffic

(10) (a) The Owner shall ensure that all vehicles transporting waste to and from the Site are not leaking or dripping waste when arriving at or leaving the Site.

(b) Should the Owner become aware that the truck(s) delivering waste to the Site have leaked wastewater on the municipal roadways, the Owner shall immediately report the violation to the owner of the vehicle(s) and to the District Manager.

(c) The Owner shall ensure that the exterior of all vehicles delivering Waste to the Site or hauling waste from the Site is washed prior to the trucks' departure from the Site, if necessary.

(d) Any necessary truck washing shall occur only in the designated wash down area of the Tipping Building or the Residue Building.

(11) The Owner shall ensure that there is no queuing or parking of vehicles that are waiting to enter the Site on any roadway that is not a distinct part of the Site.

Litter

(12) The Owner shall:

(a) take all practical steps to prevent the escape of litter from the Site;
(b) pick up litter around the Site on a daily basis, or more frequently if necessary; and
(c) if necessary, erect litter fences around the areas causing a litter problem.

Dust

(13) The Owner shall ensure that all on-site roads and operations/yard areas are regularly swept/washed to prevent dust impacts off-Site.

Vermin and Vectors

(14) The Owner shall:

(a) implement necessary housekeeping procedures to eliminate sources and potential sources of attraction for vermin and vectors; and

(b) hire a qualified, licensed pest control professional to design and implement a pest control plan for the Site. The pest control plan shall remain in place, and be updated from time to time as necessary, until the Site has been closed and this Certificate has been revoked.

Visual Screening

(15) The Owner shall provide visual screening for the Site in accordance with the documentation included in the attached Schedule "A".

9. **STAFF TRAINING**

(1) (a) The Owner shall ensure that all operators of the Site are trained with respect to the following, as per the specific job requirements of each individual operator:

(i) terms and conditions of this Certificate and the requirements of the EA Approval;
(ii) operation and management of the Site, or area(s) within the Site, as per the specific job requirements of each individual operator, and which may include procedures for receiving, screening and identifying Waste, refusal, handling, processing and temporarily storing wastes, operation of the Equipment, the APC Equipment, the CEM System and the Works;
(iii) testing, monitoring and operating requirements;
(iv) maintenance and inspection procedures;
(v) recording procedures;
(vi) nuisance impact control and housekeeping procedures;
(vii) procedures for recording and responding to public complaints;
(viii) an outline of the responsibilities of Site personnel including roles and responsibilities during emergency situations;
(ix) the Contingency and Emergency Response Plan including exit locations and evacuation routing, and location of relevant equipment available for emergency situations;
(x) environmental, and occupational health and safety concerns pertaining to the wastes to be handled;
(xi) emergency first-aid information; and
(xii) relevant waste management legislation and regulations, including the *EPA,* the *OWRA,* the *O. Reg. 347,* the *O. Reg. 419/05* and the Ministry guidelines affecting thermal treatment facilities.

(2) The Owner shall ensure that all personnel are trained in the requirements of this Certificate relevant to the employee's position:

(a) upon commencing employment at the Site in a particular position;
(b) whenever items listed in Condition 9.(1) are changed or updated; and
(c) during the planned refresher training.

10. **COMPLAINTS / ODOUR-CONTAMINANT EMISSIONS RESPONSE PROCEDURE**

(1) The Owner or a designated representative of the Owner shall be available to receive public complaints caused by the operations at the Site twenty-four (24) hours per day, seven (7) days per week.

(2) If at any time, the Owner or the Ministry receives a complaint or the Owner or the Provincial Officer detects an emission of odour or any contaminant, (Emission Event), from the Site, in addition to the requirements set out in the EA approval, the Owner shall record all relevant information in the computerized tracking system and shall respond to the complaint/Emission Event according to the following procedure:

Step 1: Record of Complaint/Emission Event

(a) (i) The Owner shall record each complaint/Emission Event and each record shall include the following:

(A) name, address and the telephone number of the complainant, if known;
(B) time and date of the complaint/Emission Event;
(C) details of the complaint; and

(ii) After the complaint/Emission Event has been recorded in the tracking system, the Owner shall immediately report to the District Manager by phone or e-mail during office hours and to the Ministry's Spills Actions Centre at 1-800-268-6060 after office hours on the receipt of the complaint or occurrence of the Emission Event.

Step 2: Investigation and Handling of Complaint/Emission Event

(b) The Owner shall immediately initiate investigation of the complaint/Emission Event. As a minimum, the investigation shall include the following:

(i) determination of the activities being undertaken at the Site at the time of the complaint/Emission Event;
(ii) meteorological conditions including, but not limited to the ambient temperature, approximate wind speed and its direction.
(iii) determination if the complaint is attributed to activities being undertaken at the Site and if so, the possible cause(s) of the complaint/Emission Event; and

(iv) determination of the remedial action(s) to address the cause(s) of the Complaint/Emission Event, and the schedule for the implementation of the necessary remedial action(s).

(c) The Owner shall respond to the complainant, if known, and the response shall include the results of the investigation of the Complaint, the action(s) taken or planned to be taken to address the cause(s) of the Complaint, and if any follow-up response(s) will be provided.

(d) Upon completed investigation of the Complaint/Emission event, the Owner shall, within three (3) business days, submit a report to the District Manager on the Complaint, on the action(s) taken or planned to be taken to address the cause(s) of the Complaint and on all proposed action(s) to prevent recurrence of the Complaint/Emission Event in the future.

(3) If, in the opinion of the District Manager, failure of the APC Equipment and/or any other process or equipment upset or malfunction results in off-site Complaint/Emission Event, confirmed by the Owner or a Provincial Officer of the Ministry, the Owner shall, immediately upon notification from the District Manager, implement any necessary additional control measures, including, but not necessarily limited to, those in the Contingency and Emergency Response Plan required by this Certificate.

(4) If the District Manager deems the additional control measures taken as per condition 10.(3) to be unsuitable, insufficient or ineffective, the District Manager may direct the Owner, in writing, to take further measures to address the noted failure, upset or malfunction including pursuant to section 39 of the *EPA* requiring a reduction in the receipt of Waste, cessation of the receipt of Waste, removal and off-site disposal of Waste from the Tipping Building as well as making repairs or modifications to equipment or processes.

11. CONTINGENCY and EMERGENCY RESPONSE PLAN

(1) (a) The Owner shall develop and implement a Contingency and Emergency Response Plan in accordance with the requirements set out in the EA Approval.

(b) Notwithstanding the requirements set out in the EA Approval, the Contingency and Emergency Response Plan shall be prepared in consultation with the District Manager or designate, the local Municipality and the Fire Department.

(2) In addition to the requirements set out in the EA Approval, the Contingency and Emergency Response Plan, as a minimum, shall include the following:

(a) the Site plan clearly showing the equipment layout and all storage areas for wastes and reagents;

(b) a list of Site personnel responsible for the implementation of the contingency measures and various emergency response tasks and their training requirements;
(c) a list of equipment and materials required for the implementation of the contingency measures and the emergency situation response;
(d) maintenance and testing program for equipment required for the implementation of the contingency measures and the emergency situation response;
(e) procedures to be undertaken as part of the implementation of the contingency measures and the emergency situation response;
(f) names and telephone numbers of waste management companies available for emergency response;
(g) notification protocol, with names and telephone numbers of persons to be contacted, including the Owner, the Site personnel, the Ministry of the Environment Spills Action Centre and the York Durham District, the local Fire and Police Departments, the local Municipality, the local Medical Officer of Health, and the Ministry of Labour;
(h) procedures and actions to be taken should the incoming Waste not meet the applicable quality criteria specified in this Certificate;
(i) procedures and actions to be taken should the outgoing Residual Waste fail to meet the criteria specified in this Certificate;
(j) procedures and actions to be taken should the current disposal options for the outgoing Residual Waste become unavailable;
(k) design of the contingency measure, procedures and actions should the emissions from the Site, including the fugitive odour/dust emissions, cause occurrences of public Complaints;
(l) procedures and actions to be taken should the Owner be unable to maintain the negative pressure in the Tipping Building;
(m) procedures and actions to be taken should the occurrence of Complaints require the Owner to suspend the waste processing activities at the Site; and
(n) identification and risk assessment of all reasonably foreseeable incidents that may result in a discharge into the natural environment of any contaminant in an amount, concentration or level in excess of that prescribed by the Regulations and/or imposed by this Certificate, including but not limited to:
    (i) a breakdown of the Facility/Equipment or part of the Facility/Equipment, including the APC Equipment and the CEM Systems associated with the Boilers;
    (ii) CEM Systems indicate that the Boilers and associated APC Equipment have been out of compliance with the Performance Requirements;
    (iii) any change in process parameters which may result in non compliance with the Performance Requirements;
    (iv) power failure resulting in the use of the Emergency Diesel Generator or Total Power Failure; and
    (v) description of the preventative and control measures to minimize the occurrence or impacts of the above incidents; and
    (vi) procedures for corrective measures and timelines to take to address the above incidents in a timely manner to effectively prevent or minimize the discharge of any contaminant into the natural environment and continue to maintain compliance with the *EPA* , the Regulations and

this Certificate, including procedures for Waste Processing Rate reduction, waste feed cut-off, Controlled Shutdown or Emergency Shutdown of the Boilers as applicable.

(3) The Owner shall submit the finalized Contingency and Emergency Response Plan to the Director a minimum of one hundred and twenty (120) days prior to the Commencement Date of Operation, for approval.

(4) An up-to-date version of the Contingency and Emergency Response Plan shall be kept at the Site at all times, in a central location available to all staff, and it shall be available for inspection by a Provincial Officer upon request.

(5) The Owner shall ensure that the names and telephone numbers of the persons to be contacted in the event of an emergency situation are kept up-to-date, and that these numbers are prominently displayed at the Site and at all times available to all staff and emergency response personnel.

(6) The Contingency and Emergency Response Plan shall be reviewed on a regular basis and updated, as necessary. The revised version of the Contingency and Emergency Response Plan shall be submitted to the local Municipality and the Fire Department for comments and to the District Manager for comments and concurrence.

(7) The Owner shall implement the recommendations of the updated Contingency and Emergency Response Plan, immediately upon receipt of the written concurrence from the District Manager.

12. **EMERGENCY SITUATION RESPONSE and REPORTING**

(1) The Owner shall immediately take all measures necessary to contain and clean up any spill or leak which may result from the operation at this Site and manage any emergency situation in accordance with the Contingency and Emergency Response Plan.

(2) The Owner shall ensure that the equipment and materials listed in the Contingency and Emergency Response Plan are immediately available at the Site, are in a good state of repair, and fully operational at all times.

(3) The Owner shall ensure that all Site personnel responsible for the emergency situation response are fully trained in the use of the equipment and related materials, and in the procedures to be employed in the event of an emergency.

(4) All Spills as defined in the *EPA* shall be immediately reported to the **Ministry's Spills Action Centre at 1-800-268-6060** and shall be recorded in the log book as to the nature of the emergency situation, and the action taken for clean-up, correction and prevention of future occurrences.

13. **SUBMISSIONS to the REGIONAL DIRECTOR or DISTRICT MANAGER**

(1) The Owner shall notify the District Manager in writing, at least six (60) days prior to the scheduled date for the first receipt of Waste at the Site, as to whether or not the construction of the Facility has been carried out in accordance with this Certificate to a point of Substantial Completion.

(2) (a) The Owner shall forthwith notify the District Manager and the Spills Action Centre by telephone, when any of the following incidents occur that may result in a discharge into the natural environment of any contaminant in an amount, concentration or level in excess of that prescribed by the Regulations and/or imposed by this Certificate:

(i) CEM Systems indicate that the Boilers and associated APC Equipment have been out of compliance with the Performance Requirements triggering a Waste Processing Rate Reduction, Waste Feed cut-off, Controlled Shutdown or Emergency Shutdown as specified in the Emergency Response and Contingency Plan;
(ii) failure of the APC Equipment associated with the Boilers; and
(iii) power failure resulting in the use of the emergency diesel generator or Total Power Failure;

(b) In addition to fulfilling the notification requirements from the *EPA,* the Owner shall prepare and submit a written report to the District Manager with respect to any of the above said occurrences, within five (5) calendar days of the occurrence, in the following format:

(i) date of the occurrence;
(ii) general description of the occurrence;
(iii) duration of the occurrence;
(iv) effect of the occurrence on the emissions from the Facility;
(v) measures taken to alleviate the effect of the occurrence on the emissions from the Facility; and
(vi) measures taken to prevent the occurrence of the same or similar occurrence in the future.

(3) Should a Spill, as defined in the *EPA*, occur at the Site, in addition to fulfilling the requirements from the *EPA* and applicable regulations, the Owner shall submit to the District Manager a written report within three (3) calendar days outlining the nature of the Spill, remedial measure taken and the measures taken to prevent future occurrences at the Site.

(4) (a) Within ninety (90) days from the date of this Certificate, the Regions shall prepare and submit to the District Manager for concurrence, a Soil Testing Plan to monitor the impact of the Site operations at the locations where the ambient air monitoring is proposed by the Owner in accordance with the requirements set out in the EA Approval.

(b) (i) This Plan shall ensure that representative samples of the soil to be tested are collected in sufficient numbers and that the samples are properly preserved and tested so that reliable data on the soil characteristics is collected.

(ii) As a minimum, the Plan shall include testing for cadmium, lead, chromium, nickel, cobalt, copper, molybdenum, selenium, zinc and mercury, Dioxins and Furans.

(iii) This Plan shall comply with the Ministry's regulatory requirements for sampling and testing of soil and it shall include the rationale for the proposed methods.

(iv) This Plan be kept at the Site at all times and be available for inspection by a Provincial Officer upon request.

14. RECORDS KEEPING

(1) Any information requested by the Ministry concerning the Facility and its operation under this Certificate, including, but not limited to, any records required to be kept by this Certificate, shall be provided to the Ministry, upon request**,** in a timely manner.

(2) The Owner shall retain, for a minimum of seven (7) years from the date of their creation, except as noted below, all reports, records and information described in this Certificate.

Daily Activities

(3) The Owner shall maintain an on-Site written or digital record of activities undertaken at the Site. All measurements shall be recorded in consistent metric units of measurement. As a minimum, the record shall include the following:

(a) date of record and the name and signature of the person completing the report;
(b) quantity and source of the incoming Waste received at the Site;
(c) records of the estimated quantity of Waste thermally treated in the Boilers;
(d) quantity of the Unacceptable Waste received at the Site by the end of the approved Waste receipt period and the type(s) of the Unacceptable Waste received;
(e) quantity and type of the Residual Waste shipped from the Site, including any required outgoing Residual Waste characterization results;
(f) destination and/or receiving site(s) for the Residual Waste shipped from the Site;
(g) quantity and type of any Rejected Waste accepted at the Site;
(h) destination and/or receiving site(s) for the Rejected Waste shipped from the Site;
(i) housekeeping activities, including litter collection and washing/cleaning activities, etc.
(j) amount of electricity produced;

(k) amount of excess electricity exported to the electrical grid.

Monitoring and Testing Records

(4) The Owner shall maintain an on-Site written or digital record of activities undertaken at the Site. All measurements shall be recorded in consistent metric units of measurement. As a minimum, the record shall include the following:

(a) day and time of the activity;
(b) all original records produced by the recording devices associated with the CEM Systems;
(c) a summary of daily records of readings of the CEM Systems, including:
  (i) the daily minimum and maximum 4-hour average readings for carbon monoxide;
  (ii) the daily minimum and maximum one hour average readings for oxygen;
  (iii) the daily minimum and maximum 10-minute average readings for organic matter;
  (iv) the daily minimum and maximum 24-hour average readings for sulphur dioxide;
  (v) the daily minimum and maximum 24-hour average readings for nitrogen oxides;
  (vi) the daily minimum and maximum 24-hour average readings for hydrogen chloride;
  (vii) the daily minimum and maximum 6-minute average and 2-hour average opacity readings; and
  (viii) the daily minimum and maximum one-hour average readings for temperature measurements.
(d) records of all excursions from the applicable Performance Requirements as measured by the CEM Systems, duration of the excursions, reasons for the excursions and corrective measures taken to eliminate the excursions;
(e) all records produced during any Acoustic Audit;
(f) all records produced during any Source Testing;
(g) all records produced by the long term sampling program for Dioxins and Furans required by this Certificate;
(h) all records produced during the Residual Waste compliance testing;
(i) all records produced during the Soil Testing;
(j) all records produced during the Groundwater and Surface Water Monitoring required by this Certificate;
(k) all records produced during the Ambient Air Monitoring required by this Certificate;
(l) all records associated with radiation monitoring of the incoming Waste, including but not limited to:
  (i) transaction number;
  (ii) hauler;
  (iii) vehicle ID;
  (iv) alarm level;
  (v) maximum CPS;
  (vi) uSv/hr;

(vii) comment;
(viii) background CPS;
(ix) driver time in and out; and
(x) name of the Trainer Personnel that carried out the monitoring.

(m) results of the containment testing carried out in the buildings, conveyors, tanks and silos, as required;

(n) results the negative pressure in the Tipping Building carried out, as required.

Inspections/Maintenance/Repairs

(5) The Owner shall maintain an on-Site written or digital record of inspections and maintenance as required by this Certificate. As a minimum, the record shall include the following:

(a) the name and signature of the Trained Personnel that conducted the inspection;
(b) the date and time of the inspection;
(c) the list of any deficiencies discovered, including the need for a maintenance or repair activity;
(d) the recommendations for remedial action;
(e) the date, time and description of actions (repair or maintenance) undertaken;
(f) the name and signature of the Trained Personnel who undertook the remedial action; and
(g) an estimate of the quantity of any materials removed during cleaning of the Works.

Emergency Situations

(6) The Owner shall maintain an on-Site written or digital record of the emergency situations. As a minimum, the record shall include the following:

(a) the type of an emergency situation;
(b) description of how the emergency situation was handled;
(c) the type and amount of material spilled, if applicable;
(d) a description of how the material was cleaned up and stored, if generated; and
(e) the location and time of final disposal, if applicable; and
(f) description of the preventative and control measures undertaken to minimize the potential for re-occurrence of the emergency situation in the future.

Complaints Response Records

(7) The Owner shall establish and maintain a written or digital record of complaints received and the responses made as required by this Certificate.

Training

(8) The Owner shall maintain an on-Site written or digital record of training as required by this Certificate. As a minimum, the record shall include the following:

(a) date of training;
(b) name and signature of person who has been trained; and
(c) description of the training provided.

Reports

(9) The Owner shall keep at the Site the following reports required by this Certificate:

(a) the ESDM Report
(b) the Acoustic Assessment Report;
(c) the Annual Report; and
(d) the Third Party Audit.

15. **REPORTING**

Annual Report

(1) By March 31st following the end of each operating year, the Owner shall prepare and submit to the District Manager and to the Advisory Committee, an Annual Report summarizing the operation of the Site covering the previous calendar year. This Annual Report shall include, as a minimum, the following information:

(a) a summary of the quality and the quantity of the Wastes accepted at the Site, including the maximum amount of the Waste received annually and daily and the sources of the Waste;

(b) a summary of the quality and the quantity of the Residual Waste shipped from the Site, including the analytical data required to characterize the Residual Waste, the off-Site destinations for the Residual Waste and its subsequent use, if known;

(c) estimated material balance for each month documenting the maximum amount of wastes stored at the Site;

(d) annual water usage;

(e) annual amount of the electricity produced and the annual amount of the electricity exported to the electrical grid;

(f) summaries and conclusions from the records required by Conditions 14.(3) through 14.(8) of this Certificate;

(g) the Emission Summary Table and the Acoustic Assessment Summary Table for the Facility as of December 31 from the previous calendar year;

(h) a summary of dates, duration and reasons for any environmental and operational problems, Boilers downtime, APC Equipment and CEM System malfunctions that may have negatively impacted the quality of the environment or any incidents triggered by the Emergency Response and

Contingency Plan and corrective measures taken to eliminate the environmental impacts of the incidents;

(i) a summary of the dates, duration and reasons for all excursions from the applicable Performance Requirements as measured by the CEM Systems or as reported by the annual Source Testing, reasons for the excursions and corrective measures taken to eliminate the excursions;

(j) results of the evaluation of the performance of the long-term sampling system in determining the Dioxins and Furans emission trends and/or fluctuations for the year reported on as well as demonstrating the ongoing performance of the APC Equipment associated with the Boilers;

(k) dates of all environmental complaints relating to the Site together with cause of the Complaints and actions taken to prevent future Complaints and/or events that could lead to future Complaints;

(l) any environmental and operational problems that could have negatively impacted the environment, discovered as a result of daily inspections or otherwise and any mitigative actions taken;

(m) a summary of any emergency situations that have occurred at the Site and how they were handled;

(n) the results and an interpretive analysis of the results of the groundwater and surface water, including an assessment of the need to amend the monitoring programs;

(o) summaries of the Advisory Committee meetings, including the issues raised by the public and their current status;

(p) any recommendations to improve the environmental and process performance of the Site in the future;

(q) statement of compliance with this Certificate, including compliance with the *O. Reg. 419/05* and all air emission limits based on the results of source testing, continuous monitoring and engineering calculations, as may be appropriate; and

(r) interpretation of the results and comparison to the results from previous Annual Reports to demonstrate the Facility's impact on the environment.

Third Party Audit

(2) (a) The Regions shall ensure that an independent technical review of the operations at the Site is undertaken in accordance with the requirements of the EA Approval.

(b) In addition to the Third Party Audit requirements set out in the EA approval, the Third Party Audit shall include the following:

(i) a review of the data from the monitoring and testing required by this Certificate;
(ii) a review of all complaints received about the operation of the Facility;
(iii) any recommendations for improving the operation of the Facility received from the Advisory Committee; and
(iv) a recommendation of any improvements that could be made to ensure that the operation of the Facility is optimized and is protective of the health and safety of people and the environment.

(3) The Regions shall submit a Written Audit Report on the results of the independent technical review to the Regional Director in accordance with the Audit Plan and retain a copy at the Site.

Soil Testing Report

(4) Within one (1) month of completion of each Soil Testing event, the Regions shall submit to the District Manager a Soil Testing Report, which includes the details on the sampling/testing procedures, the results of the testing and a comparison with the results obtained during the previous Soil Testing.

16. PUBLIC ACCESS TO DOCUMENTATION

(1) The Owner shall, at all times, maintain documentation that describes the current operations of the Facility. The Owner shall post the documentation at the website for the undertaking and during regular business hours, the Owner shall make the following documents available for inspection at the Site by any interested member of the public, upon submission to the Ministry for review:

(a) a current ESDM Report that demonstrates compliance with the Performance Limits for the Facility regarding all Compounds of Concern;

(b) a current Acoustic Assessment Report that demonstrates compliance with the Performance Limits for the Facility regarding noise emissions;

(c) the most recent Annual Report;

(d) the most current Third Party Audit Report;

(e) Odour Management and Mitigation Plan, prepared in accordance with the requirements of the EA Approval;

(f) Noise Monitoring and Reporting Plan, prepared in accordance with the requirements of the EA Approval; and

(g) Groundwater and Surface Water Monitoring and Reporting Plan, prepared in accordance with the requirements of the EA Approval.

(2) The Owner shall ensure that necessary hardware and software are provided at a location available to the public, to provide on-line real-time reporting of the operating parameter data for the Facility, including acceptable operating limits, stack emissions, and all other parameters for which continuous monitoring is required and that continuous records of the same be kept and made available to the public.

17. ADVISORY COMMITTEE

(1) The Regions shall establish an Advisory Committee in accordance with the requirements set out in the EA Approval.

18. CLOSURE of the SITE

(1) A minimum of nine (9) months prior to closure of the Site, the Owner shall submit, for approval by the Director, a written Closure Plan for the Site. This Plan shall include, as a minimum, a description of the work that will be done to facilitate closure of the Site and a schedule for completion of that work.

(2) Within ten (10) days after closure of the Site, the Owner shall notify the Director and the District Manager, in writing, that the Site is closed and that the approved Closure Plan has been implemented.

SCHEDULE "A"

Supporting Documentation

(1) Applications for a Certificate of Approval (Air) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the following supporting documentation:

(a) Emission Summary and Dispersion Modelling Report, dated March 2011, prepared by Golder Associates;

(b) Acoustic Assessment Report prepared by Golder Associates Ltd., dated March 2011 and signed by Paul Niejadlik.

(2) Applications for a Provisional Certificate of Approval (Waste Disposal Site) dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of York and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the following supporting documentation:

(a) Attachment #1 containing the "Design and Operations Report", dated March 2011, prepared by Golder Associates Ltd.;

(b) Attachment #3 containing the "Public Consultation Report", dated March 2011, prepared by Golder Associates Ltd.;

(c) Attachment #4 containing the Host Community Agreement

(d) Attachment #5 containing the proof of legal name for Covanta Durham York Renewable Energy Limited Partnership; and

(e) A letter May 24, 2011 from Anthony Ciccone, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, providing additional technical information on the proposal and attaching a report entitled "Amendment #1 Durham York Energy Centre Design and Operations Report", dated May 2011;

(3) Applications for a Certificate of Approval of Municipal and Private Sewage Works dated March 2, 2011, each signed by Cliff Curtis, Commissioner of Works, The Regional Municipality of Durham, by Erin Mahoney, Commissioner of Environmental Services, The Regional Municipality of Durham and by Matthew R. Mulcahy, Senior Vice President, Business Development, Covanta Durham York Renewable Energy Limited Partnership, and the following supporting documentation:

(a) "Surface Water and Groundwater Technical Study Report" dated July 2009, prepared by Jacques Whitford, Markham, Ontario (CD Report).

(b) "Stormwater Design Model Output" prepared by Sigma Energy, dated March 2001 (CD Report).

(c) Clearance letter from Central Lake Ontario Conservation date February 22, 2011.

(d) A letter dated March 23, 2011, from Brian Bahor, Covanta Energy Corporation, to Stefanos Habtom, Ontario Ministry of the Environment, providing additional technical design information on the proposed stormwater management ponds.

SCHEDULE "B"

Procedure to calculate and record the 10-minute average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor

(a) Calculate and record one-hour average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor, employing CALPUFF atmospheric dispersion model or the dispersion model acceptable to the Director that employs at least five (5) years of hourly local meteorological data and that can provide results reported as individual one-hour average odour concentrations.

(b) Convert and record each of the one-hour average concentrations predicted over the five (5) years of hourly local meteorological data at the Point of Impingement and at the most impacted Sensitive Receptor to 10-minute average concentrations using the One-hour Average to 10-Minute Average Conversion described below; and

(c) Record and present the 10-Minute Average concentrations predicted to occur over a five (5) year period at the Point of Impingement and at the most impacted Sensitive Receptor in a histogram. The histogram shall identify all predicted 10-minute average odour concentration occurrences in terms of frequency, identifying the number of occurrences over the entire range of predicted odour concentration in increments of not more than 1/10 of one odour unit. The maximum 10-minute average concentration of odour at the Sensitive Receptor will be considered to be the maximum odour concentration at the most impacted Sensitive Receptor that occurs and is represented in the histogram, disregarding outlying data points on the histogram as agreed to by the Director.

One-hour Average To 10-minute Average Conversion

1. Use the following formula to convert and record one-hour average concentrations predicted by the CALPUFF atmospheric dispersion model or by the dispersion model acceptable to the Director to 10-minute average concentrations:

X10min = X60min*1.65

where X10min = 10-minute average concentration
X60min = one-hour average concentration

SCHEDULE "C"

PERFORMANCE REQUIREMENTS
In-Stack Emission Limits

Parameter	In-Stack Emission Limit	Verification of Compliance
Total Suspended Particulate Matter (filterable particulate measured in accordance with the Ontario Source Testing Code)	9 mg/Rm3	Results from compliance Source Testing
cadmium	7 µg/Rm3	Results from compliance Source Testing
lead	50 µg/Rm3	Results from compliance Source Testing
mercury	15 µg/Rm3	Results from compliance Source Testing
dioxins and furans	60 pg/Rm3	Results from compliance Source Testing; results expressed as I-TEQ
hydrochloric acid (HCl)	9 mg/Rm3	Calculated as the rolling arithmetic average of 24 hours of data measured by a CEM System that provides data at least once every 15 minutes
sulphur dioxide (SO2)	35 mg/Rm3	Calculated as the rolling arithmetic average of 24 hours of data measured by a CEM System that provides data at least once every 15 minutes
nitrogen oxides (NOx)	121 mg/ Rm3	Calculated as the rolling arithmetic average of 24 hours of data measured by a CEM System that provides data at least once every 15 minutes
organic matter (undiluted, expressed as equivalent methane)	50 ppmdv (33 mg/ Rm3)	Results from compliance source testing
carbon monoxide	35 ppmdv (40 mg/Rm3)	Calculated as the rolling arithmetic average of four (4) hours of data measured by a CEM System that provides data at least once every fifteen minutes, in accordance with condition 6 (2) (c)
opacity	10 percent	Calculated as the rolling arithmetic average of six (6) minutes of data measured by a CEM System that provides data at least once every minute
	5 percent	Calculated as the rolling arithmetic average of two (2) hours of data measured by a CEM System that provides data at least once every

		fifteen minutes

mg/Rm3- milligrams per reference cubic metre;

pg/Rm3 - picograms per reference cubic metre

ppmdv parts per million by dry volume,

µg/Rm3 - micrograms per reference cubic metre

R- reference conditions - 25 degrees Celsius, 101.3 kilopascals, dry basis, 11% oxygen

SCHEDULE "D"

TEST CONTAMINANTS

Hydrogen Chloride
Hydrogen Fluoride
Oxides of Nitrogen expressed as Nitrogen Dioxide
Sulphur Dioxide
Total Hydrocarbons, expressed as methane on wet basis
Carbon Dioxide
Total Suspended Particulate Matter (< 44 microns)
Total PM-10 including condensables
Total PM-2.5 including condensables

Metals

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Mercury
Molybdenum
Nickel
Selenium
Silver
Thallium
Vanadium
Zinc

Schedule "D" - Cont'd

Chlorobenzenes	Chlorophenols
Monochlorobenzene (MCB) 1,2-Dichlorobenzene (1,2-DCB) 1,3-Dichlorobenzene (1,3-DCB) 1,4-Dichlorobenzene (1,4-DCB) 1,2,3-Trichlorobenzene (1,2,3-TCB) 1,2,4-Trichlorobenzene (1,2,4-TCB) 1,3,5-Trichlorobenzene (1,3,5-TCB) 1,2,3,4-Tetrachlorobenzene (1,2,3,4-TeCB) 1,2,3,5-Tetrachlorobenzene (1,2,3,5-TeCB) 1,2,4,5-Tetrachlorobenzene (1,2,4,5-TeCB) Pentachlorobenzene (PeCB) Hexachlorobenzene (HxCB)	2-monochlorophenol (2-MCP) 3-monochlorophenol (3-MCP) 4-monochlorophenol (4-MCP) 2,3-dichlorophenol (2,3-DCP) 2,4-dichlorophenol (2,4-DCP) 2,5-dichlorophenol (2,5-DCP) 2,6-dichlorophenol (2,6-DCP) 3,4-dichlorophenol (3,4-DCP) 3,5-dichlorophenol (3,5-DCP) 2,3,4-trichlorophenol (2,3,4-T3CP) 2,3,5-trichlorophenol (2,3,5-T3CP) 2,3,6-trichlorophenol (2,3,6-T3CP) 2,4,5-trichlorophenol (2,4,5-T3CP) 2,4,6-trichlorophenol (2,4,6-T3CP) 3,4,5-trichlorophenol (3,4,5-T3CP) 2,3,4,5-tetrachlorophenol (2,3,4,5-T4CP) 2,3,4,6-tetrachlorophenol (2,3,4,6-T4CP) 2,3,5,6-tetrachlorophenol (2,3,5,6-T4CP) Pentachlorophenol (PeCP)

Schedule "D" - Cont'd

Co-Planar PCBs (Dioxin-like PCBs)	Volatile Organic Matter
PCB-077 (3,3',4,4'-TCB)	Acetaldehyde
PCB-081 (3,4,4',5-TCB)	Acetone
PCB-105 (2,3,3',4,4'-PeCB)	Acrolein
PCB-114 (2,3,4,4',5-PeCB)	Benzene
PCB-118 (2,3',4,4',5-PeCB)	Bromodichloromethane
PCB-123 (2',3,4,4',5-PeCB)	Bromoform
PCB-126 (3,3',4,4',5-PeCB)	Bromomethane
PCB-156 (2,3,3',4,4',5-HxCB)	Butadiene, 1,3 -
PCB-157 (2,3,3',4,4',5'-HxCB)	Butanone, 2 -
PCB-167 (2,3',4,4',5,5'-HxCB)	Carbon Tetrachloride
PCB-169 (3,3',4,4',5,5'-HxCB)	Chloroform
PCB-189 (2,3,3',4,4',5,5'-HpCB)	Cumene
	Dibromochloromethane
	Dichlorodifluoromethane
	Dichloroethane, 1,2 -
	Dichloroethene, Trans - 1,2
	Dichloroethene, 1,1 -
	Dichloropropane, 1,2 -
	Ethylbenzene
	Ethylene Dibromide
	Formaldehyde
	Mesitylene
	Methylene Chloride
	Styrene
	Tetrachloroethene
	Toluene
	Trichloroethane, 1,1,1 -
	Trichloroethene
	Trichloroethylene, 1,1,2 -
	Trichlorotrifluoroethane
	Trichlorofluoromethane
	Xylenes, M-, P- and O-
	Vinyl Chloride

Schedule "D" - Cont'd

Polycyclic Organic Matter	Dioxin/Furan Isomers
Acenaphthylene	
Acenaphthene	2,3,7,8-Tetrachlorodibenzo-p-dioxin
Anthracene	1,2,3,7,8-Pentachlorodibenzo-p-dioxin
Benzo(a)anthracene	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin
Benzo(b)fluoranthene	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin
Benzo(k)fluoranthene	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin
Benzo(a)fluorene	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin
Benzo(b)fluorene	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin
Benzo(ghi)perylene	
Benzo(a)pyrene	2,3,7,8-Tetrachlorodibenzofuran
Benzo(e)pyrene	2,3,4,7,8-Pentachlorodibenzofuran
Biphenyl	1,2,3,7,8-Pentachlorodibenzofuran
2-Chloronaphthalene	1,2,3,4,7,8-Hexachlorodibenzofuran
Chrysene	1,2,3,6,7,8-Hexachlorodibenzofuran
Coronene	1,2,3,7,8,9-Hexachlorodibenzofuran
Dibenzo(a,c)anthracene	2,3,4,6,7,8-Hexachlorodibenzofuran
Dibenzo(a,h)anthracene	1,2,3,4,6,7,8-Heptachlorodibenzofuran
Dibenzo(a,e)pyrene	1,2,3,4,7,8,9-Heptachlorodibenzofuran
9,10-Dimethylanthracene	1,2,3,4,6,7,8,9-Octachlorodibenzofuran
7,12-Dimethylbenzo(a)anthracene	
Fluoranthene	
Fluorene	
Indeno(1,2,3-cd)pyrene	
2-Methylanthracene	
3-Methylcholanthrene	
1-Methylnaphthalene	
2-Methylnaphthalene	
1-Methylphenanthrene	
9-Methylphenanthrene	
Naphthalene	
Perylene	
Phenanthrene	
Picene	
Pyrene	
Tetralin	
M-terphenyl	
O-terphenyl	
P-terphenyl	
Triphenylene	

SCHEDULE "E"

SOURCE TESTING PROCEDURES

1. The Owner shall submit, to the Manager a test protocol including the Pre-Test Information required by the Source Testing Code, at least two (2) months prior to the scheduled Source Testing date.

2. (1) For the purpose of the Source Testing program, the Owner is temporarily permitted to operate the Boilers at a residual oxygen concentration below the performance limit outlined in Condition 6.(2)(b) during the period of the Source Testing. The Owner shall ensure that the concentration of residual oxygen in the Undiluted Gases leaving the combustion zone of the Boilers, as measured and recorded by the CEM System, shall not be less than 5 percent by volume on a dry basis, during this Source Testing program.

   (2) If the Source Testing results demonstrate that compliance with the Performance Requirements can be maintained at a residual oxygen concentration below the performance limit outlined in Condition 6.(2)(b), the Owner may apply to the Director for approval to alter the required residual oxygen concentration.

3. The Owner shall finalize the test protocol in consultation with the Manager.

4. The Owner shall not commence the Source Testing until the Manager has accepted the test protocol.

5. The Owner shall complete the first Source Testing not later than six (6) months after Commencement of Operation of the Facility/Equipment.

6. The Owner shall conduct subsequent Source Testing at least once (1) every calendar year thereafter.

7. The Owner shall notify the District Manager and the Manager in writing of the location, date and time of any impending Source Testing required by this Certificate, at least fifteen (15) days prior to the Source Testing.

8. The Owner shall submit a report on the Source Testing programs to the District Manager and the Manager not later than three (3) months after completing each Source Testing program. The report shall be in the format described in the Source Testing Code, and shall also include, but not be limited to:

   (1) an executive summary;
   (2) records of operating conditions; including process description, records of waste composition and feed rate during the Source Testing;
   (3) all records produced by the CEM Equipment;
   (4) procedures followed during the Source Testing and any deviation from the proposed test protocol and the reasons therefore;
   (5) the results of the analyses of the stack emissions;

(6) a summary table that compares the Source Testing results, the monitoring data and the records of operating conditions during the Source Testing to the requirements imposed by the *EPA*, the Regulation and/or the Performance Requirements;
(7) the results of dispersion calculations in accordance with the *O. Reg. 419/05*, indicating the maximum concentration of the Test Contaminants, at the Point of Impingement.
(8) an updated site wide emission source inventory to assess the aggregate point of impingement concentrations of the Test Contaminants.

9. The Owner shall ensure that the Source Testing Report is made available and easily accessible for review by the public at the Facility, immediately after the document is submitted to the Ministry.

10. The Director may not accept the results of the Source Testing if:
(1) the Source Testing Code or the requirements of the Manager were not followed; or
(2) the Owner did not notify the District Manager and the Manager of the Source Testing; or
(3) the Owner failed to provide a complete report on the Source Testing.

11. If the Director does not accept the results of the Source Testing, the Director may require re-testing.

SCHEDULE "F"

PARAMETER:
Temperature

LOCATION:
The sample point for the Continuous Temperature Monitor shall be located at a point where the temperature in the combustion zone of the Boilers has reached at least 1000^{o}C for a period of not less than one second. Compliance shall be proven by direct measurement or/and a correlation between the measured temperature and the intended target proven by a method acceptable to the Director.

PERFORMANCE:
The Continuous Temperature Monitor shall meet the following minimum performance specifications for the following parameters.

	PARAMETERS	SPECIFICATION
1)	Type:	"K", "J" or other type or alternative measurement device with equivalent measurement accuracy and suitable to the temperature range being measured
2)	Accuracy:	± 1.5 percent of the minimum gas temperature

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor without a significant loss of accuracy and with a time resolution of 1 minutes or better. Temperature readings for record keeping and reporting purposes shall be kept as one-hour average values.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.

PARAMETER:
Carbon Monoxide

INSTALLATION:
The Continuous Carbon Monoxide Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of carbon monoxide in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler, and shall meet the following installation specifications.

PARAMETERS	SPECIFICATION
1) Range (parts per million, ppm):	0 to ≥100 ppm
2) Calibration Gas Ports:	close to the sample point

PERFORMANCE:
The Continuous Carbon Monoxide Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	SPECIFICATION
1) Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2) Relative Accuracy:	≤10 percent of the mean value of the reference method test data or ± 5 ppm whichever is greater
3) Calibration Error:	≤ 2.5 percent of actual concentration
4) System Bias:	≤ 4 percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	≤ 5 percent of span value
7) Span Calibration Drift (24-hour):	≤5 percent of span value
8) Response Time (90 percent response to a step change):	≤180 seconds
9) Operational Test Period:	≥168 hours without corrective maintenance

CALIBRATION:
Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter.

PARAMETER:
Oxygen

INSTALLATION:
The Continuous Oxygen Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of oxygen in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler and in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

PARAMETERS	SPECIFICATION
1) Range (percentage):	0 - 20 or 0 - 25
2) Calibration Gas Ports:	close to the sample point

PERFORMANCE:
The Continuous Oxygen Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	SPECIFICATION
1) Span Value (percentage):	2 times the average normal concentration of the source
2) Relative Accuracy:	≤10 percent of the mean value of the reference method test data
3) Calibration Error:	0.25 percent O_2
4) System Bias:	≤ 4 percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	≤ 0.5 percent O_2
7) Span Calibration Drift (24-hour):	≤ 0.5 percent O_2
8) Response Time (90 percent response to a step change):	≤ 90 seconds
9) Operational Test Period:	≥ 168 hours without corrective maintenance

CALIBRATION:
Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better. Oxygen concentration readings for record keeping and reporting purposes shall be kept as one-hour average values.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

PARAMETER:
Hydrogen Chloride

INSTALLATION:
The Continuous Hydrogen Chloride Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of hydrogen chloride in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

PARAMETERS	SPECIFICATION
1) Range (parts per million, ppm):	0 to ≥100 ppm
2) Calibration Gas Ports:	close to the sample point

PERFORMANCE:
The Continuous Hydrogen Chloride Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	SPECIFICATION
1) Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2) Relative Accuracy:	≤ 20 percent of the mean value of the reference method test data or ± 5 ppm whichever is greater
3) Calibration Error:	≤ 2 percent of actual concentration
4) System Bias:	≤ 4 percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	≤ 5 percent of span value
7) Span Calibration Drift (24-hour):	≤ 5 percent of span value
8) Response Time (90 percent response to a step change):	≤ 240 seconds
9) Operational Test Period:	≥168 hours without corrective maintenance

CALIBRATION:
The monitor shall be calibrated daily at the sample point, to ensure that it meets the drift limits specified above, during the periods of the operation of the . The results of all calibrations shall be recorded at the time of calibration.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 5 minutes or better.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

PARAMETER:
Nitrogen Oxides

INSTALLATION:
The Continuous Nitrogen Oxide Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of nitrogen oxides in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

PARAMETERS	SPECIFICATION
1) Analyzer Operating Range (parts per million, ppm):	0 to ≥200 ppm
2) Calibration Gas Ports:	close to the sample point

PERFORMANCE:
The Continuous Nitrogen Oxides Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	SPECIFICATION
1) Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2) Relative Accuracy:	≤ 10 percent of the mean value of the reference method test data
3) Calibration Error:	≤ 2 percent of actual concentration
4) System Bias:	≤4 percent of the mean value of the reference method test data
5) Procedure for Zero and Span Calibration Check:	all system components checked
6) Zero Calibration Drift (24-hour):	≤ 2.5 percent of span value
7) Span Calibration Drift (24-hour):	≤ 2.5 percent of span value
8) Response Time (90 percent response to a step change):	≤ 240 seconds
9) Operational Test Period:	≥ 168 hours without corrective maintenance

CALIBRATION:
Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

PARAMETER:
Sulphur Dioxide

INSTALLATION:
The Continuous Sulphur Dioxide Monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of sulphur dioxide in the Undiluted Gases leaving the APC Equipment associated with each Boiler, and shall meet the following installation specifications.

PARAMETERS	**SPECIFICATION**
1. Range (parts per million, ppm):	0 to ≥100 ppm
2. Calibration Gas Ports:	close to the sample point

PERFORMANCE:
The Continuous Sulphur Dioxide Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	**SPECIFICATION**
1. Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2. Relative Accuracy:	≤ 10 percent of the mean value of the reference method test data
3. Calibration Error:	≤ 2 percent of actual concentration
4. System Bias:	≤ 4 percent of the mean value of the reference method test data
5. Procedure for Zero and Span Calibration Check:	all system components checked
6. Zero Calibration Drift (24-hour):	≤ 2.5 percent of span value
7. Span Calibration Drift (24-hour):	≤ 2.5 percent of span value
8. Response Time (90 percent response to a step change):	≤ 200 seconds
9. Operational Test Period:	≥168 hours without corrective maintenance

CALIBRATION:
Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter.

PARAMETER:
Total Hydrocarbons

INSTALLATION:
The Total Hydrocarbons Monitor shall be installed at an accessible location where the measurements are representative of the concentrations of Organic Matter (as methane) in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler and shall meet the following installation specifications.

	PARAMETERS	**SPECIFICATION**
1.	Detector Type:	Flame Ionization
2.	Oven Temperature:	160°C minimum
3.	Flame Temperature:	1800 °C minimum at the corona of the hydrogen flame
4.	Range (parts per million, ppm):	0 to ≥200 ppm
5.	Calibration Gas:	propane in air or nitrogen
6.	Calibration Gas Ports:	close to the sample point

PERFORMANCE:
The Continuous Total Hydrocarbons Monitor shall meet the following minimum performance specifications for the following parameters.

	PARAMETERS	**SPECIFICATION**
1.	Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2.	Relative Accuracy:	≤ 10 percent of the mean value of the reference method test data or ± 5 ppm whichever is greater
3.	System Bias:	≤ 4 percent of the mean value of the reference method test data
4.	Noise:	≤ 1 percent of span value on most sensitive range
5.	Repeatability:	≤ 1 percent of span value
6.	Linearity (response with propane in air):	≤ 3 percent of span value over all ranges
7.	Calibration Error:	≤ 2 percent of actual concentration
8.	Procedure for Zero and Span Calibration Check:	all system components checked on all ranges
9.	Zero Calibration Drift (24-hours):	≤ 2.5 percent of span value on all ranges
10.	Span Calibration Drift (24-hours):	≤ 2.5 percent of span value
11.	Response Time (90 percent response to a step change):	≤ 60 seconds
12.	Operational Test Period:	≥ 168 hours without corrective maintenance

CALIBRATION:
Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better. Measurements of concentrations of organic matter (as methane) shall be kept as 10 minute average values for record keeping and reporting purposes.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter.

PARAMETER: Opacity

INSTALLATION: The Continuous Opacity Monitor shall be installed at an accessible location where the measurements are representative of the actual opacity of the Undiluted Gases leaving the APC Equipment associated with each Boiler and shall meet the following design and installation specifications.

PARAMETERS		**SPECIFICATION**
1)	Wavelength at Peak Spectral Response (nanometres, nm):	500 - 600
2)	Wavelength at Mean Spectral Response (nm):	500 - 600
3)	Detector Angle of View:	≤ 5 degrees
4)	Angle of Projection:	≤ 5 degrees
5)	Range (percent of opacity):	0 -100

PERFORMANCE:
The Continuous Opacity Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS		**SPECIFICATION**
1)	Span Value (percent opacity):	2 times the average normal opacity of the source
2)	Calibration Error:	≤3 percent opacity
3)	Attenuator Calibration:	≤2 percent opacity
4)	Response Time (95 percent response to a step change):	≤ 10 seconds
5)	Schedule for Zero and Calibration Checks:	daily minimum
6)	Procedure for Zero and Calibration Checks:	all system components checked
7)	Zero Calibration Drift (24-hours):	≤ 2 percent opacity
8)	Span Calibration Drift (24-hours):	≤ 2 percent opacity
9)	Conditioning Test Period:	≥ 168 hours without corrective maintenance
10)	Operational Test Period:	≥ 168 hours without corrective maintenance

CALIBRATION:
The monitor shall be calibrated, to ensure that it meets the drift limits specified above, during the periods of the operation of the Equipment. The results of all calibrations shall be recorded at the time of calibration.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 30 seconds or better.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter.

PARAMETER:
Moisture, Hydrogen Fluoride and Ammonia

Selection and Installation

The Owner shall select and install a CEM System, to measure moisture content of the stack gases, the concentration of hydrogen fluoride and ammonia in the Undiluted Gases leaving the APC Equipment associated with each Boiler, as follows:

a) Design and Performance Specifications shall be in accordance with 40 CFR 60, Appendix B, Specification 4.

b) The Owner shall select the probe locations in compliance with 40 CFR 60, Appendix B, Specification 2.

Test Procedures

The Owner shall verify compliance with the Design and Performance Specifications in accordance with 40 CFR 60, Appendix B, Specification 4, with the reference method for the relative accuracy test being Method 4. of the Source Testing Code.

In furtherance of, but without limiting the generality of the foregoing, the mean difference between the calibration gas value and the analyzer response value at each of the four test concentrations shall be less than 5 percent of the measurement range.

SCHEDULE "G"

A stormwater management facility to service a 10.0 ha drainage area of the Durham York Energy Centre located on the west side of Osbourne Road and north of the CN Rail, Lot 27, Concession Broken Front, Part, Municipality of Clarington, Regional Municipality of Durham, designed to provide quality and quantity control of stormwater run-off by attenuating runoff from storm events up to 1:100 years return frequency to or below the pre-development levels, consisting of:

East Stormwater Management Pond (East SWM Pond)

A stormwater management facility to service a 5.7 ha drainage area comprising of the eastern part of the Durham York Energy Centre consisting of the following:

- one (1) approximately 128 m long drainage ditch collecting stormwater runoff from the north eastern part of the site, having an average horizontal slope of 1.56%, depth of 0.5 m, bottom width of 1.0 m, and side slopes of 2.5H:1V, discharging to storm sewers described below;

- one (1) approximately 199 m long drainage ditch collecting stormwater runoff from the eastern part of the site, having an average horizontal slope of 2.77%, depth of 0.5 m, bottom width of 1.0 m, and side slopes of 2.5H:1V, discharging to storm sewers described below;

- approximately fourteen (14) catch basins/maintenance holes and a total of 466.8 m long 450 mm diameter and 34.6 m of 600 mm diameter corrugated PE stormwater sewers conveying stormwater runoff collected from the north and north eastern part of the site, discharging to a forebay of a wet extended detention stormwater management pond described below;

- one (1) forebay with approximate bottom dimensions of 11.0 m wide and 34.8 m long and depth of 1.0 m, equipped with 600 mm diameter corrugated HDPE inlet pipe, a rip-rap covered inlet structure, and a forebay berm with top elevation of 95.0 m masl, discharging to a wet extended detention pond described below;

- one (1) wet extended detention stormwater management pond located at the south east part of the site, with approximate bottom dimensions of 21.0 m wide and 71.4 m long and a maximum depth of 2.7 m at 96.70 m masl elevation, having side slopes of 3H:1V and 5H:1V near the outlet structure, providing a permanent pool storage capacity of 1,008 m^3 at elevation 95.0 m masl, an active storage capacity of 3,099 m^3 at 96.70 m masl elevation, and total storage capacity of 4,107 m^3, equipped with an outlet structure consisting of a 150 mm diameter reverse slope inlet pipe with a gate valve and a 450 mm diameter perforated pipe riser fitted with 75 mm diameter orifice plate, a 75 mm diameter maintenance discharge pipe with a gate valve, and an emergency overflow structure at elevation 97.0 m masl, discharging through a 450 mm diameter outlet pipe to existing swale along the northern side of the CN Rail line to Tooley Creek and eventually to Lake Ontario;

West Stormwater Management Pond (West SWM Pond)

A stormwater management facility to service a 4.3 ha drainage area comprising of the western part of the Durham York Energy Centre consisting of the following:

- one (1) approximately 296 m long drainage ditch collecting stormwater runoff from the north western part of the site, having an average horizontal slope of 1.0%, depth of 0.5 m, bottom width of 1.0 m, and side slopes of 2.5H:1V, discharging to storm sewers described below;

- approximately five (5) catch basins/maintenance holes and a total of 272.2 m long 450 mm diameter corrugated PE stormwater sewers conveying stormwater runoff collected from the western part of the site, discharging to a forebay of a wet extended detention stormwater management pond described below;

- one (1) forebay with approximate bottom dimensions of 13.0 m wide and 26.0 m long and depth of 1.0 m, equipped with 450 mm diameter corrugated HDPE inlet pipe, a rip-rap covered inlet structure, and a forebay berm with top elevation of 95.0 m masl, discharging to a wet extended detention pond described below;

- one (1) wet extended detention stormwater management pond located at the south western part of the site, with approximate bottom dimensions of 13.0 m wide and 58.0 m long and a maximum depth of 2.5 m at 96.5 m masl elevation, having side slopes of 3H:1V and 5H:1V near the outlet structure, providing a permanent storage capacity of 623 m^3 at elevation 95.0 m masl, an active storage capacity of 2,054 m^3 at 96.50 m masl elevation, and total storage capacity of 2,677 m^3, equipped with an outlet structure consisting of a 150 mm diameter reverse slope inlet pipe with a gate valve and a 450 mm diameter perforated pipe riser fitted with 75 mm diameter orifice plate, a 75 mm diameter maintenance discharge pipe with a gate valve, and an emergency overflow structure at elevation 96.80 m masl, discharging through a 450 mm diameter outlet pipe to existing swale along the northern side of the CN Rail line to Tooley Creek and eventually to Lake Ontario;

including all associated controls and appurtenances.

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

Conditions 1.(1), (2), (5), (6), (7), (8), (9), (10), (11), (12), (13), (17), (18) and (19) are included to clarify the legal rights and responsibilities of the Owner.

Conditions Nos.1.(3) and (4) are included to ensure that the Site is operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

Condition No. 1.(14) is included to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

Condition No.1.(15) is included to restrict potential transfer or encumbrance of the Site without the notification to the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Certificate.

Condition No. 1.(16) is included to ensure that the appropriate Ministry staff has ready access to the operations of the Site which are approved under this Certificate. The Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the *EPA*, the *OWRA*, the *PA*, the *NMA* and the *SDWA*.

SERVICE AREA, APPROVED WASTE TYPES, RATES and STORAGE

Condition No. 2. is included to specify the approved waste receipt rates, the approved waste types and the service area from which waste may be accepted at the Site based on the Owner's application and supporting documentation. Condition No. 2. is also included to specify the maximum amount of waste that is approved to be stored at the Site.

SIGNS and SITE SECURITY

Condition No. 3. is included to ensure that the Site's users, operators and the public are fully aware of important information and restrictions related to the operation of the Site. Condition No. 3. is also included to ensure that the Site is sufficiently secured, supervised and operated by properly trained personnel and to ensure controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site personnel is on duty.

SITE OPERATIONS

Condition No. 4. is included to outline the operational requirements for the Facility to ensure that the said operation does not result in an adverse effect or a hazard to the natural environment or any person.

EQUIPMENT and SITE INSPECTIONS and MAINTENANCE

Condition No. 5. is included to require the Site to be maintained and inspected thoroughly on a regular basis to ensure that the operations at the Site are undertaken in a manner which does not result in an adverse effect or a hazard to the health and safety of the environment or any person.

PERFORMANCE REQUIREMENTS

Condition No. 6 is included to set out the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.

TESTING, **MONITORING** and **AUDITING**

Condition No. 7. is to require the Owner to gather accurate information on the operation of the Facility so that the environmental impact and subsequent compliance with the *EPA*, the *OWRA*, their Regulations and this Certificate can be verified.

NUISANCE IMPACT CONTROL and HOUSEKEEPING

Condition No. 8. is included to ensure that the Site is operated and maintained in an environmentally acceptable manner which does not result in a negative impact on the natural environment or any person. Condition No. 8 is also included to specify odour control measures to minimize a potential for odour emissions from the Site.

STAFF TRAINING

Condition No. 9. is included to ensure that staff are properly trained in the operation of the equipment and instrumentation used at the Site, in the emergency response procedures and on the requirements and restrictions related to the Site operations under this Certificate.

COMPLAINTS RECORDING PROCEDURE

Condition No.10. is included to require the Owner to respond to any environmental complaints resulting from the Facility appropriately and in a timely manner and that appropriate actions are taken to prevent any further incidents that may cause complaints in the future.

CONTINGENCY and EMERGENCY RESPONSE PLAN and EMERGENCY SITUATIONS RESPONSE AND REPORTING

Conditions Nos.11. and 12. are included to ensure that the Owner is prepared and properly equipped to take immediate action in the event of an emergency situation.

SUBMISSIONS to the REGIONAL DIRECTOR or DISTRICT MANAGER

Condition No. 13. is included to set out the requirements for the submissions to the District Manager and the Regional Director regarding the operation of the Facility and the activities required by this Certificate.

RECORDS KEEPING

Condition No.14. is included to ensure that detailed records of Site activities, inspections, monitoring and upsets are recorded and maintained for inspection and information purposes.

REPORTING

Condition No.15. is to ensure that regular review of site, operations and monitoring is carried out and findings documented by a third party for determining whether or not the Site is being operated in compliance with this Certificate of Approval, the EPA and its regulations and whether or not any changes should be considered.

PUBLIC ACCESS to DOCUMENTATION

Condition No.16. is included to ensure that the public has access to information on the operation of the Site in order to participate in the activities of the Advisory Committee in a meaningful and effective way.

ADVISORY COMMITTEE

Condition No.17. is included to require the Owner to establish a forum for the exchange of information and public dialogue on activities carried out at the Site and to ensure that the local residents are properly informed of the activities at the Site and that their concerns can be heard and acted upon , as necessary. Open communication with the public and local authorities is important in helping to maintain high standards for the operation of the Site and protection of the natural environment. Condition 16. is also included to ensure that the requirements of the EA Approval are fulfilled.

CLOSURE of the SITE

Condition No.18. is included to ensure that the final closure of the Site is completed in accordance with Ministry's standards.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, and in accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written Notice served upon me, the Environmental Review Tribunal, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act and Section 101 of the

Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 9 and 39, *Environmental Protection Act*
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted site is approved under Section 9 and Section 27 of the Environmental Protection Act and Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 28th day of June, 2011

Signature
Ian Parrott, P .Eng.
Director
Section 9, *EPA*
Section 39, *EPA*
Section 53, *OWRA*

MW,QN,SH/

c: District Manager, MOE York-Durham
Regional Director, MOE Central Region

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 1
Issue Date: August 12, 2014

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3

and

The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1

and

Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
United States of America
07960

Site Location: Durham York Energy Centre
72 Osbourne Rd Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment, , as follows:

1. The following definition has been added:

"Contingency and Emergency Response Plan" also means the document entitled "Spill Contingency and Emergency Response Plan";

2. The following Conditions are amended to read as follows:

2.(5)(b)(iii) The Owner may use equipment used to handle the hazardous wastes to handle other wastes provided that prior to such use the equipment has been thoroughly cleaned first.

4.(5)(e) A maximum of 630 tonnes of the Residual Waste, limited to the bottom ash shall be stored in two (2) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation. The storage duration is as follows:

(i) The storage duration is limited to a maximum of seven (7) days.

(ii) Should longer storage duration be required to accommodate the duration of the required compliance testing, a minimum of forty eight (48) hours before the storage extension is commenced, the Owner shall notify the District Manager of the required extension. The notification shall include the duration of the extension and the reasons.

3. The following Conditions are added:

7.(7) (e) The Owner shall carry out the required bottom and fly ash compliance testing in accordance with the document entitled "Ash Sampling and Testing Protocol", listed in the attached Schedule.

11.8 Containment evaluations performed under the Spill Contingency and Emergency Response Plan shall be conducted by the Owner in accordance to procedures agreed by the District Manager pursuant to Conditions 8.(7)(i),(ii) and (iii).

4. The following documents have been added to Schedule "A":

4. October 31, 2013 letter from Mirka Januszkiewicz, the Regional Municipality of Durham to Ian Parrott, Ministry of the Environment and Climate Change, requesting approval of the Ash Sampling and Testing Protocol and the document entitled "Durham York Energy Centre, Ash Sampling and Testing Protocol", prepared by by Golder Associates and dated June 2014.

5. Document entitled "Durham York Energy Centre, Spill Contingency & Emergency Response Plan" prepared by Covanta Durham York Renewable Energy Limited Partnership and dated January 13, 2014, excluding section entitled "Containment Evaluation".

6. Document entitled "Durham York Energy Centre, Protocol for the Measurement of Combustion Temperature and the Development of Time and Temperature Correlations", prepared by Covanta Durham York Renewable Energy Limited Partnership and dated June 2014.

7. Document entitled "Durham York Energy Centre, Noise Monitoring and Reporting Plan", prepared by Golder Associates and dated September 2011.

The reasons for this amendment to the Approval are as follows:

to approve the "Ash Sampling and Testing Protocol" as required Condition 7.(7)(a), the "Durham York Energy Centre, Spill Contingency & Emergency Response Plan", as required Condition 11.(3), "Durham York Energy Centre, Noise Monitoring and Reporting Plan" as required Condition 7.(5)(a) and "Durham York Energy Centre, Protocol for the Measurement of Combustion Temperature and the Development of Time and Temperature Correlations" as proposed by the applicant.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served

upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 12th day of August, 2014

Ian Parrott, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

MW/
c: District Manager, MOE York-Durham
n/a, The Regional Municipality of Durham

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 2
Issue Date: October 24, 2014

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3

and
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1

and

TransRiver Canada Incorporated, as general partner for and on behalf of Covanta Durham York Renewable Energy Limited Partnership
445 South St
Morristown, New Jersey
USA 07960

Site Location: Durham York Energy Centre
1835 Energy Drive
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment , as follows:

1. The address of the Site has been changed to read as follows:

Durham York Energy Centre
1835 Energy Drive
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

2. The following definitions have been added:

" **Operator** " means any person other than the Regions' employees, authorized by the Regions as having the charge, management or control of any aspect of the Site and includes TransRiver Canada Incorporated, as general partner for and on behalf of Covanta Durham York Renewable Energy Limited Partnership, the partnership under the laws of Nova Scotia more particularly described in the October 6, 2014 letter from Joanna Rosengarten to the Ministry of Environment and Climate Change, and includes its successors and assignees, their successors and assignees;

" **Regions** " means any person that is responsible for the establishment or operation of the Site being approved by this Approval, and it includes The Regional Municipality of Durham and The Regional Municipality of York, their successors and assignees;

2. The following definition has been amended to read as follows:

" **Site** " means the property referred to as Durham York Energy Centre where the Owner has located and operates the Facility and the Works and located at 1835 Energy Drive in the Municipality of Clarington, Regional Municipality of Durham;

" **Owner** " within the context of this Approval, means the Regions and the Operator;

3. The following Conditions have been amended to read as follows:

"General: Change of Ownership" Conditions 1.(14) and 1.(15):

(14) The Regions shall notify the Director in writing, and forward a copy of the notification to the District Manager, within thirty (30) days of the occurrence of any changes:

(a) the ownership of the Site;
(b) the operator of the Site;
(c) the address of the Regions;
(d) the partners, where the Regions are or at any time become a partnership and a copy of the most recent declaration filed under the *Business Names Act ,* R.S.O. 1990, c. B.17, as amended, shall be included in the notification;
(e) the name of the corporation where the Regions are or at any time become a corporation, other than a municipal corporation, and a copy of the most current information filed under the *Corporations Information Act ,* R.S.O. 1990, c. C.39, as amended, shall be included in the notification.

(15) No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance. In the event of any change in ownership of the Site, other than change to a successor municipality, the Regions shall notify the successor of and provide the successor with a copy of this Approval, and the Regions shall provide a copy of the notification to the District Manager and the Director.

"Service Area, Approved Waste Types, Rates And Storage: Storage Restrictions" Condition 2.(5)(e):

2.(5)(e) (i) A maximum of 630 tonnes of the Residual Waste, limited to the bottom ash shall be stored in two (2) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation.

(ii) The storage duration of bottom ash in the bunkers is limited to a maximum of seven (7) days.

(iii) Should additional storage location(s) and a longer storage duration be required during testing, a minimum of forty eight (48) hours before the storage parameters are changed from those approved in Condition 2.(5)(e)(i) and (ii), the Owner shall notify the District Manager, in writing, of the proposed changes and provide the reasons for the changes.

"Site Operations: Residual Waste Handling and Disposal" Condition 4.(5)(b)(iii):

4.(5)(b)(iii) The Owner may use the equipment that comes in contact with the hazardous wastes to handle other wastes provided that prior to such use, the equipment has been cleaned, as confirmed by visual inspections, to ensure the removal of any hazardous waste residues and to prevent cross contamination.

"Closure of the Site" Conditions 18.(1) and 18.(2):

(1) A minimum of nine (9) months prior to closure of the Site, the Regions shall submit, for approval by the Director, a written Closure Plan for the Site. This Plan shall include, as a minimum, a description of the work that will be done to facilitate closure of the Site and a schedule for completion of that work.

(2) Within ten (10) days after closure of the Site, the Regions shall notify the Director and the District Manager, in writing, that the Site is closed and that the approved Closure Plan has been implemented.

4. "Covanta Durham York Renewable Energy Limited Partnership" is replaced with "TransRiver Canada Incorporated, as general partner for and on behalf of Covanta Durham York Renewable Energy Limited Partnership, the partnership under the laws of Nova Scotia more particularly described in the October 6, 2014 letter from Joanna Rosengarten to the Ministry of Environment and Climate Change and includes its successors and assignees", in the Environmental Compliance Approval dated June 28, 2011 and in the Notice of Amendment dated August 12, 2014.

5. The following documents are added to Schedule "A":

8. Application for Environmental Compliance Approval Application dated May 23, 2014, signed by Matthew R. Mulcahy, Covanta Durham York Renewable Energy Limited Partnership, Application for Environmental Compliance Approval Application dated May 23, 2014, signed by Cliff Curtis, The Regional Municipality of Durham and Application for Environmental Compliance Approval Application dated May 23, 2014, signed by Laura McDowell, The Regional Municipality of York, including the following attached supporting documentation:

(a) revised Section 8.0 "Ash Handling and Associated System" and revised Section 10.0 "Potable Process and Wastewater" dated May 2014, of the document entitled "Design and Operations Report", dated March 2011, prepared by Golder Associates Ltd.

(b) Drawing No. M-2530, entitled "Piping & Instrumentation Diagram Bottom Ash Lime Slurry System"

(c) Drawing No. 70258-1-ME-GA-SK-001, entitled "Covanta Durham York Hydrated Lime System for Boiler Bottom Ash"

9. E-mail dated September 10, 2014 (2:26 p.m.) from Leon Brasowski, Covanta Durham York Renewable Energy Limited Partnership, to Margaret Wojcik, Ontario Ministry of the Environment and Climate Change, providing additional supporting documentation on the proposal, including an attachment entitled "M-1500^0360 Highlighted for MOE.pdf".

10. E-mail dated October 13, 2014 (3:23 p.m.) from Leon Brasowski, Covanta Durham York Renewable Energy Limited Partnership, to Ricki Allum, Ontario Ministry of the Environment and Climate Change, providing additional supporting documentation on the legal name of the applicant,

including an attachment entitled "Partnership Legal Clarification.pdf".

The reasons for this amendment to the Approval are as follows:

to approve the proposed Bottom Ash Lime Conditioning System, to correct the typographical errors in the Notice of Amendment dated August 12, 2014, to clarify the intent of the Residual Waste equipment cleaning condition and to allow different bottom ash storage conditions during testing.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*****
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 24th day of October, 2014

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

MW/
c: District Manager, MOE York-Durham
Leon Brasowski, Covanta Energy Corporation

Content Copy Of Original

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 3
Issue Date: December 23, 2015

The Regional Municipality of Durham
605 Rossland Road Level 5
Whitby, Ontario
L1N 6A3

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment , as follows:

The following Conditions are revoked:

7. TESTING, MONITORING and AUDITING

Noise Monitoring - Acoustic Audit

(5) The Owner:

(a) shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Acoustic Audit measurements shall be carried out in accordance with the procedures in *Publication NPC-103* and in accordance to the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director;

(b) shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of *Publication NPC-233* and the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director, to the District Manager and the Director, not later than three (3) months after the commencement of operation of the Facility.

(6) The Director:

(a) may not accept the results of the Acoustic Audit if the requirements of *Publication NPC-233* or the approved noise Monitoring and Reporting Plan were not followed;

(b) may require the Owner to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

All other Terms and Conditions remain the same.

The reason for this amendment to the Approval is to address the information provided in the following documents:

Acoustic Audit Report prepared by Valcoustics Canada Ltd., dated May 8, 2015 and signed by Kathryn Katsiroumpas, P.Eng.; and

Acoustic Audit Report prepared by Valcoustics Canada Ltd., dated November 23, 2015 and signed by Kathryn Katsiroumpas, P.Eng.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary* Environmental Review Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario	AND	The Director appointed for the purposes of Part II.1 of the Environmental Protection Act Ministry of the Environment and

M5G 1E5

Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 23rd day of December, 2015

Ian Greason, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

HM/
c: District Manager, MOECC York-Durham
Kathryn Katsiroumpas, Valcoustics Canada Ltd.

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 4
Issue Date: February 24, 2016

The Regional Municipality of Durham
605 Rossland Road East, Level 5
Whitby, Ontario
L1N 6A3

The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1

TransRiver Canada Incorporated operating as Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
USA 07960

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for a Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment, , as follows:

The following Conditions are revoked:

7. **TESTING** , **MONITORING** and **AUDITING**

Noise Monitoring - Acoustic Audit

(5) The Owner:

(a) shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Acoustic Audit measurements shall be carried out in accordance with the procedures in *Publication NPC-103* and in accordance to the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director;

(b) shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of *Publication NPC-233*

and the Noise Monitoring and Reporting Plan prepared in accordance with the requirements set out in the EA Approval and as approved by the Director, to the District Manager and the Director, not later than three (3) months after the commencement of operation of the Facility.

(6) The Director:

(a) may not accept the results of the Acoustic Audit if the requirements of *Publication NPC-233* or the approved Noise Monitoring and Reporting Plan were not followed;

(b) may require the Owner to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

All other Terms and Conditions remain the same.

The reason for this amendment to the Approval is to address the information provided in the following documents:

Acoustic Audit Report prepared by Valcoustics Canada Ltd., dated May 8, 2015 and signed by Kathryn Katsiroumpas, P.Eng.; and

Acoustic Audit Report prepared by Valcoustics Canada Ltd., dated November 23, 2015 and signed by Kathryn Katsiroumpas, P.Eng.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the
purposes of Part II.1 of the
Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 24th day of February, 2016

Ian Greason, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

HM/
c: District Manager, MOECC York-Durham
Kathryn Katsiroumpas, Valcoustics Canada Ltd.

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 5
Issue Date: March 14, 2016

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3

and

The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1

and

TransRiver Canada Incorporated, as general partner for and on behalf of Covanta Durham York Renewable Energy Limited Partnership
445 South St
Morristown, New Jersey
USA 07960

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment , as follows:

I. The following conditions have been amended to read as follows:

2 . SERVICE AREA, APPROVED WASTE TYPES, RATES and STORAGE

(5) Storage Restrictions:

Solids:

(c) A maximum of approximately 77 tonnes or 106 cubic metres of the Residual Waste, limited to the recovered ferrous metals, shall be stored in one (1) dedicated bunker, located within the confines of the Residue Building, described in the Supporting Documentation. (d) A maximum of approximately 120 tonnes or 100 cubic metres of the Residual Waste, limited to the recovered non-ferrous metals,

shall be stored in one (1) dedicated bunker, located within the confines of the Residue Building, described in the Supporting Documentation.

(e) A maximum of 630 tonnes of the Residual Waste, limited to bottom ash shall be stored in two (2) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation.

(f) A maximum of 700 tonnes of the Residual Waste, limited to the fly ash shall be stored in seven (7) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation.

(j) A maximum of 65 cubic metres of cement for fly ash conditioning shall be stored in one (1) outdoor silo, located adjacent to the Residue Building.

(k) A maximum of 105 cubic metres of pozzolan for fly ash conditioning shall be stored in one (1) outdoor silo, located adjacent to the Residue Building.

Liquids: (l) (i) A maximum of 57 cubic metres of aqueous ammonia for the SNCR System shall be stored in one (1) outdoor tank, located adjacent to the Residue Building.

(8) (a) Waste received at the Site shall be processed within six (6) days from its receipt at the Site.

(b) Emergency storage of Waste requirements:

(i) On an emergency basis only, the storage duration of Waste inside the tipping pit may be extended beyond the limit set out in Condition 2.(8)(a), above, subject to compliance with the following requirements:

(A) prior to the start of the emergency storage of Waste, the Owner shall notify, in writing, the District Manager that the incoming Waste will be stored longer than six (6) days from its receipt;

(B) any additional information that the District Manager may require shall be submitted within a time period acceptable to the District Manager;

(C) the proposed preventative measures for emergency storage of Waste as identified in the Operations and Maintenance Manual shall be implemented upon commencement of the emergency storage of Waste and shall remain in effect for the entire duration of the emergency storage, unless otherwise advised by the District Manager; and

(D) the Owner shall notify, in writing, the District Manager when emergency storage is no longer required.

5. EQUIPMENT and SITE INSPECTIONS and MAINTENANCE

(p) all measures deemed necessary to prevent an occurrence of an adverse effect from the emergency storage of Waste.

II. The following section of Schedule "F" has been amended to read as follows:

PARAMETER:
Total Hydrocarbons

INSTALLATION:
The Total Hydrocarbons Monitor shall be installed at an accessible location where the measurements are representative of the concentrations of Organic Matter (as methane) in the Undiluted Gases leaving the combustion zone via the economizer outlet of each Boiler or at any other location that has been determined in consultation with the Ministry to be suitable/equivalent for the determination of Total Hydrocarbons leaving the combustion zone of each Boiler and has been approved by the Director. The Total Hydrocarbons Monitor shall meet the following installation specifications:

PARAMETERS SPECIFICATION

1. Detector Type: Flame Ionization
2. Oven Temperature: 160 o C minimum
3. Flame Temperature: 1800 o C minimum at the corona of the hydrogen flame
4. Range (parts per million, ppm): 0 to ³ 200 ppm
5. Calibration Gas: propane in air or nitrogen
6. Calibration Gas Ports: close to the sample point

PERFORMANCE:
The Continuous Total Hydrocarbons Monitor shall meet the following minimum performance specifications for the following parameters.

PARAMETERS SPECIFICATION

1. Span Value (nearest ppm equivalent): 2 times the average normal concentration of the source
2. Relative Accuracy: £ 10 percent of the mean value of the reference method test data or ± 5 ppm whichever is greater
3. System Bias: £ 4 percent of the mean value of the reference method test data
4. Noise: £ 1 percent of span value on most sensitive range
5. Repeatability: £ 1 percent of span value
6. Linearity (response with propane in air): £ 3 percent of span value over all ranges
7. Calibration Error: £ 2 percent of actual concentration
8. Procedure for Zero and Span Calibration Check: all system components checked on all ranges
9. Zero Calibration Drift (24-hours): £ 2.5 percent of span value on all ranges
10. Span Calibration Drift (24-hours): £ 2.5 percent of span value
11. Response Time (90 percent response £ 60 seconds to a step change):
12. Operational Test Period: ³ 168 hours without corrective

maintenance

CALIBRATION:
Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:
The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better. Measurements of concentrations of organic matter (as methane) shall be kept as 10 minute average values for record keeping and reporting purposes.

RELIABILITY:
The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent thereafter .

III. The following Item #4 in Schedule "A" has been amended to read as follows:

4. Letter dated October 31, 2013 from Mirka Januszkiewicz, The Regional Municipality of Durham to Ian Parrott, Ministry of the Environment and Climate Change, requesting approval of the Ash Sampling and Testing Protocol and the document entitled "Durham York Energy Centre, Ash Sampling and Testing Protocol", excluding a reference to the Loss-on-Ignition test method on page 6, prepared by Golder Associates and dated June 2014.

IV. The following document has been added to Schedule "A":

5. Letter dated February 29, 2016 from Leon Brasowski, TransRiver Canada Incorporated, to Dale Gable, Ministry of the Environment and Climate Change, requesting change to the total hydrocarbon monitor location as reviewed and accepted by the Ministry`s Standards Development Branch.

The reasons for this amendment to the Approval are as follows:

1. to remove the storage duration limits on storage of recovered ferrous and non-ferrous metals since such storage does not pose an environmental risk;

2. to increase the amounts of cement, pozzolan and aqueous ammonia approved for storage at the Site since the currently approved amounts result in partial filling of the tanks, necessitating more frequent deliveries resulting in increased truck traffic and a chance of interrupting fly ash and flue gas treatment;

3. to revise the protocol for an emergency storage of the incoming Waste so that the Owner is able to deal more effectively with emergency situations occurring at the Site while providing more flexibility to the Districting Manager to oversee management of such situations;

4. to remove a reference to an incorrect bottom ash testing method erroneously included within the text of the DYEC Ash Sampling and Testing Protocol included as Item #4 in Schedule “A” in order to ensure that only the approved testing method for compliance testing is referenced in the supporting documentation.

5. to approve the revised location of the Total Hydrocarbons Monitor following the Ministry's acceptance of the results of the test program in which two (2) Total Hydrocarbons Monitor monitors were operated in the existing and the proposed locations simultaneously.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*****
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the
purposes of Part II.1 of the
Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 14th day of March, 2016

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

MW/
c: District Manager, MOECC York-Durham

n/a, TransRiver Canada Incorporated operating as Covanta Durham York Renewable Energy Limited Partnership

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 1
Issue Date: April 22, 2020

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3
and
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1
and
Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
United States of America
07960

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment, as follows:

Notwithstanding the existing conditions of this Environmental Compliance Approval, the following provisions of this Emergency Approval are in effect for the time durations set out as follows:

1. Until December 31, 2020, the Owner may temporarily increase the amount of Waste to be received and thermally treated at the Site up-to 160,000 tonnes per year.

2. From the date of this Approval to the date that corresponds to up-to ninety (90) days after the Ontario Government ends the current Declaration of Emergency to Protect the Public Health, unless an extension has been issued in writing by the District Manager, the following Conditions Nos. 3 through 10 are in effect.

3. The Owner shall provide a written notification to the District Manager when any of the following Conditions Nos. 4 through 9 are implemented.

4. All conditions that set out limitations on hours/days for shipping and receiving of materials including the Waste, the reagents and the Residual Waste are temporarily rescinded.

5. The Owner may temporarily increase the maximum tonnage amounts for the bottom and fly ash within the Residue Building up-to 80% of the total achievable storage capacity of the Residue Building.

6. The Owner may temporarily store the Residual Waste and the reagents in the outdoor locations at the Site and the storage shall be done as follows:

a. the storage shall be in covered and leak-proof trailers or bins or containers;

b. trailers or bins or containers shall be parked or located away from catchbasins, if possible; and

c. if trailers or bins or containers must be parked or be located near catchbasins, covers or booms shall be readily available to protect catchbasins in the event of a spill or leak.

7. All conditions that set out limitations on receipt and storage of reagents are temporarily rescinded.

8. The Owner may temporarily reduce the number of loads tipped on the tipping floor for a manual visual inspection and sorting of the incoming Waste from one load per hour to two loads per shift, unless instructed otherwise by the local Medical Officer of Health to cease inspections on the tipping floor.

9. Following commencement of the outdoor storage of the Residual Waste or the reagents at the Site, the Owner shall conduct daily inspections of any outdoor storage location for evidence of spills, odour, vermin/vectors, dust, litter and other nuisance impacts, and shall maintain a written or electronic log of these inspections. The log shall be kept at the Site for the duration acceptable to the District Manager and it shall contain the following information:

a. the date of the inspection;

b. the location of the inspection;

c. the name of person undertaking the inspection;

d. any impacts identified during the inspection; and

e. any remedial actions taken to address those impacts.

10. By the end of the ninety (90) day-period from the date when the Ontario Government ends the current Declaration of Emergency to Protect the Public Health,

the Owner shall provide to the District Manager a summary report of the expected timelines for the storage and the operational practices to return to normal operating levels/protocols as approved in this Approval.

The reasons for this amendment to the Approval are as follows:

to provide temporary additional thermal treatment capacity at the Site and the operational flexibility as requested in the letter dated March 20, 2020 signed and submitted by Gioseph Anello, M.Eng., P.Eng., PMP, Acting Director, Waste Management Services, The Regional Municipality of Durham and Laura McDowell, P.Eng., Director, Environmental Promotion and Protection, The Regional Municipality of York to respond to the current Declaration of Emergency to Protect the Public Health and to alleviate impacts and prevent any danger to the health and safety of the public and the environment.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or** www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 22nd day of April, 2020

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

MW/
c: District Manager, MECP York-Durham
Gioseph Anello, M.Eng., P.Eng., PMP, Acting Director, Waste Management Services, The Regional Municipality of Durham
Laura McDowell, P.Eng., Director, Environmental Promotion and Protection, The Regional Municipality of York

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 2
Issue Date: December 23, 2021

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3
and
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1
and
Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
United States of America
07960

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment, as follows:

Notwithstanding the existing conditions of this Environmental Compliance Approval, the following provisions of this Emergency Approval are in effect for the time durations set out as follows:

1. Until December 31, 2021, the Owner may temporarily increase the amount of Waste to be received and thermally treated at the Site from 140,000 tonnes per year up-to 142,000 tonnes per year.

The reasons for this amendment to the Approval are as follows:

1. to provide temporary additional thermal treatment capacity at the Site as requested in the Environmental Compliance Approval Application dated November 23, 2021 signed and submitted by Gioseph Anello, M.Eng., P.Eng., PMP, Director Waste Management Services, the Regional Municipality of Durham (Durham Region) on behalf of York

Region, Durham Region and Covanta;

2. to effectively manage the increase in the quantities of waste being disposed of within the existing curbside programs and received at transfer stations within the approved service area due to work from home arrangements and behaviour change of residents resulting from the ongoing COVID-19 pandemic; and

3. to safely manage waste generated in the approved service area to prevent,

d. danger to the health or safety of any person;

e. impairment or immediate risk of impairment of the quality of the natural environment for any use that can be made of it; or

f. injury or damage or immediate risk of injury or damage to any property or to any plant or animal life environment and present potential hazard to the health and safety of neighbouring sites, wildlife and the public and prevent any danger to the health and safety of the public and the environment.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act,* a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;

5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or** www.oltt.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 23rd day of December, 2021

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

MW/
c: District Manager, MECP York-Durham
Gioseph Anello, M.Eng., P.Eng., PMP, Director, Waste Management Services, The Regional Municipality of Durham
Laura McDowell, P.Eng., Director, Environmental Promotion and Protection, The Regional Municipality of York
Andrew Evans, The Regional Municipality of Durham

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 1
Issue Date: April 22, 2020

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3
and
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1
and
Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
United States of America
07960

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment, as follows:

Notwithstanding the existing conditions of this Environmental Compliance Approval, the following provisions of this Emergency Approval are in effect for the time durations set out as follows:

1. Until December 31, 2020, the Owner may temporarily increase the amount of Waste to be received and thermally treated at the Site up-to 160,000 tonnes per year.

2. From the date of this Approval to the date that corresponds to up-to ninety (90) days after the Ontario Government ends the current Declaration of Emergency to Protect the Public Health, unless an extension has been issued in writing by the District Manager, the following Conditions Nos. 3 through 10 are in effect.

3. The Owner shall provide a written notification to the District Manager when any of the following Conditions Nos. 4 through 9 are implemented.

4. All conditions that set out limitations on hours/days for shipping and receiving of materials including the Waste, the reagents and the Residual Waste are temporarily rescinded.

5. The Owner may temporarily increase the maximum tonnage amounts for the bottom and fly ash within the Residue Building up-to 80% of the total achievable storage capacity of the Residue Building.

6. The Owner may temporarily store the Residual Waste and the reagents in the outdoor locations at the Site and the storage shall be done as follows:

a. the storage shall be in covered and leak-proof trailers or bins or containers;

b. trailers or bins or containers shall be parked or located away from catchbasins, if possible; and

c. if trailers or bins or containers must be parked or be located near catchbasins, covers or booms shall be readily available to protect catchbasins in the event of a spill or leak.

7. All conditions that set out limitations on receipt and storage of reagents are temporarily rescinded.

8. The Owner may temporarily reduce the number of loads tipped on the tipping floor for a manual visual inspection and sorting of the incoming Waste from one load per hour to two loads per shift, unless instructed otherwise by the local Medical Officer of Health to cease inspections on the tipping floor.

9. Following commencement of the outdoor storage of the Residual Waste or the reagents at the Site, the Owner shall conduct daily inspections of any outdoor storage location for evidence of spills, odour, vermin/vectors, dust, litter and other nuisance impacts, and shall maintain a written or electronic log of these inspections. The log shall be kept at the Site for the duration acceptable to the District Manager and it shall contain the following information:

a. the date of the inspection;

b. the location of the inspection;

c. the name of person undertaking the inspection;

d. any impacts identified during the inspection; and

e. any remedial actions taken to address those impacts.

10. By the end of the ninety (90) day-period from the date when the Ontario Government ends the current Declaration of Emergency to Protect the Public Health,

the Owner shall provide to the District Manager a summary report of the expected timelines for the storage and the operational practices to return to normal operating levels/protocols as approved in this Approval.

The reasons for this amendment to the Approval are as follows:

to provide temporary additional thermal treatment capacity at the Site and the operational flexibility as requested in the letter dated March 20, 2020 signed and submitted by Gioseph Anello, M.Eng., P.Eng., PMP, Acting Director, Waste Management Services, The Regional Municipality of Durham and Laura McDowell, P.Eng., Director, Environmental Promotion and Protection, The Regional Municipality of York to respond to the current Declaration of Emergency to Protect the Public Health and to alleviate impacts and prevent any danger to the health and safety of the public and the environment.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or** www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 22nd day of April, 2020

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

MW/
c: District Manager, MECP York-Durham
Gioseph Anello, M.Eng., P.Eng., PMP, Acting Director, Waste Management Services, The Regional Municipality of Durham
Laura McDowell, P.Eng., Director, Environmental Promotion and Protection, The Regional Municipality of York

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7306-8FDKNX
Notice No. 2
Issue Date: December 23, 2021

The Regional Municipality of Durham
605 Rossland Rd E 5th Floor
Whitby, Ontario
L1N 6A3
and
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1
and
Covanta Durham York Renewable Energy Limited Partnership
445 South Street
Morristown, New Jersey
United States of America
07960

Site Location: Durham York Energy Centre
1835 Energy Dr Lot 27, Concession Broken Front, Part 1
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment, as follows:

Notwithstanding the existing conditions of this Environmental Compliance Approval, the following provisions of this Emergency Approval are in effect for the time durations set out as follows:

1. Until December 31, 2021, the Owner may temporarily increase the amount of Waste to be received and thermally treated at the Site from 140,000 tonnes per year up-to 142,000 tonnes per year.

The reasons for this amendment to the Approval are as follows:

1. to provide temporary additional thermal treatment capacity at the Site as requested in the Environmental Compliance Approval Application dated November 23, 2021 signed and submitted by Gioseph Anello, M.Eng., P.Eng., PMP, Director Waste Management Services, the Regional Municipality of Durham (Durham Region) on behalf of York

Region, Durham Region and Covanta;

2. to effectively manage the increase in the quantities of waste being disposed of within the existing curbside programs and received at transfer stations within the approved service area due to work from home arrangements and behaviour change of residents resulting from the ongoing COVID-19 pandemic; and

3. to safely manage waste generated in the approved service area to prevent,

d. danger to the health or safety of any person;

e. impairment or immediate risk of impairment of the quality of the natural environment for any use that can be made of it; or

f. injury or damage or immediate risk of injury or damage to any property or to any plant or animal life environment and present potential hazard to the health and safety of neighbouring sites, wildlife and the public and prevent any danger to the health and safety of the public and the environment.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act,* a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;

5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or** www.oltt.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 23rd day of December, 2021

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

MW/
c: District Manager, MECP York-Durham
Gioseph Anello, M.Eng., P.Eng., PMP, Director, Waste Management Services, The Regional Municipality of Durham
Laura McDowell, P.Eng., Director, Environmental Promotion and Protection, The Regional Municipality of York
Andrew Evans, The Regional Municipality of Durham

APPENDIX 4

Particulate and Metals Field Data Sheets
(30 pages)

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Particulate/Metals
Test Date	May 17, 2022
Test Location	APC Outlet No. 1
Operator	BM

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 1
Impinger Box No.:	3

Pitot Factor	0.843	
DGMCF	0.977	
Barometric Pressure	29.49	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	0.2495	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Particulate Gain

Filter	mg
Probe	mg

Moisture Gain

CWTR	441.6	g
WCBDA	21.3	g

Combustion Gas Concentration

Oxygen	8.31	%
Carbon Dioxide	10.90	%
Carbon Monoxide	13.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	15A
Trendicator	COE20094
Control Box	"
Incline Manometer	"
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Nozzle Measurements

1	0.2500
2	0.2495
3	0.2490
4	0.2495
Average:	0.2495

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 17, 2022	Plant: Covanta DYEC	Test No.: 1 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	25.33	0.83	0.76	276	266	258	60	84	68	64	2.0	4.0
	2.5	27.42	0.85	0.76	287	263	257	53	210	68	64	1.9	3.5
	5	29.29	0.88	0.77	289	265	259	51	245	68	64	2.0	3.5
2	7.5	31.21	0.86	0.76	288	266	258	50	234	66	64	2.0	3.5
	10	33.13	0.85	0.76	288	267	258	49	233	63	62	2.0	3.5
	12.5	35.03	0.84	0.75	288	267	257	48	237	68	64	2.0	3.5
3	15	36.93	0.82	0.74	288	267	258	47	236	68	64	1.9	3.5
	17.5	38.8	0.81	0.74	289	267	257	47	238	69	64	1.9	3.5
	20	40.78	0.85	0.76	288	268	260	47	238	69	65	1.9	3.5
4	22.5	42.60	0.78	0.73	289	269	259	47	238	71	65	2.0	3.5
	25	44.44	0.78	0.73	289	269	258	47	237	70	65	1.8	3.5
	27.5	46.29	0.79	0.73	289	269	259	46	236	72	65	1.8	3.5
5	30	48.11	0.74	0.71	288	267	257	47	236	71	65	1.8	3.5
	32.5	49.97	0.72	0.70	287	268	259	47	238	71	65	1.8	3.5
	35	51.79	0.71	0.70	288	268	259	47	236	72	65	1.7	3.5
6	37.5	53.48	0.65	0.67	287	267	260	47	236	71	65	1.5	3.5
	40	55.22	0.64	0.66	287	268	260	47	234	71	65	1.6	3.5
	42.5	56.98	0.64	0.66	286	267	257	47	233	73	65	1.4	3.5
7	45	58.64	0.68	0.68	284	268	258	45	235	72	65	1.7	3.5
	47.5	60.34	0.67	0.63	285	267	259	46	235	72	65	1.5	3.5
	50	62.03	0.68	0.68	285	268	258	42	234	66	62	1.5	3.5

Traverse: 1		
Start Time: 8:30	Initial Leak Check: <0.004 cfm@ 16 "Hg	
Finish Time:	Final Leak Check: cfm@ "Hg	

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 17, 2022	Plant: Covanta DYEC	Test No.: 1 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 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	63.76	.68	0.68	284	269	258	44	233	72	65	1.6	3.5
	55	65.50	0.69	0.69	293	269	259	46	235	75	67	1.6	3.5
	57.5	67.25	0.69	0.69	285	269	259	45	235	75	67	1.6	3.5
9	60	68.85	0.69	0.69	284	270	258	45	234	74	67	1.6	3.5
	62.5	70.93	0.70	0.70	293	268	259	46	236	73	66	1.8	3.5
	65	72.67	0.74	0.71	283	268	259	45	234	74	67	1.8	3.5
10	67.5	74.50	0.73	0.71	283	268	258	45	234	75	67	1.7	3.5
	70	76.31	0.74	0.72	283	268	258	46	235	76	67	1.7	3.5
	72.5	78.14	0.71	0.70	284	268	259	46	234	76	68	1.7	3.5
11	75	79.90	0.64	0.67	256	268	259	46	234	74	68	1.5	3.5
	77.5	81.67	0.62	0.67	251	268	258	46	234	75	68	1.7	3.5
	80	83.43	0.61	0.67	251	268	259	46	234	75	68	1.6	3.5
12	82.5	85.10	0.61	0.67	236	269	260	47	233	74	68	1.5	3.5
	85	86.77	0.61	0.67	237	269	259	47	233	75	68	1.5	3.5
	87.5	88.47	0.61	0.67	237	268	259	46	234	76	69	1.5	3.5
	90	90.17											

Traverse: 1		
Start Time:	Initial Leak Check: 4.002 cfm@ 15 "Hg	
Finish Time: 10:00	Final Leak Check: cfm@ "Hg	

Project No.: 22158

Operator: RM

Field Data Sheet

Date: May 17, 2022	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 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	90.62	0.84	0.76	260	267	259	53	113	75	68	2.0	4.0
	2.5	92.67	0.84	0.76	279	265	254	47	215	72	68	2.0	4.0
	5	94.56	0.84	0.76	284	267	259	45	236	74	69	1.9	4.0
2	7.5	96.46	0.87	0.78	285	267	258	45	238	72	69	1.9	4.0
	10	98.39	0.89	0.78	285	266	259	44	239	72	70	2.0	4.0
	12.5	100.47	0.88	0.78	285	265	260	45	240	73	69	2.1	4.0
3	15	102.31	0.84	0.76	285	266	258	44	241	74	68	2.0	4.0
	17.5	104.31	0.85	0.77	287	267	258	50	240	74	69	2.1	4.0
	20	106.3	0.83	0.76	287	266	260	48	242	74	69	2.1	4.0
4	22.5	108.25	0.68	0.69	288	267	261	46	242	75	69	1.9	4.0
	25	~~108.~~ 110.09	0.67	0.68	287	267	261	46	240	74	69	1.7	4.0
	27.5	111.84	0.67	0.68	287	267	259	44	238	75	68	1.5	4.0
5	30	113.50	0.64	0.67	285	267	258	44	235	74	69	1.4	4.0
	32.5	115.17	0.64	0.67	287	267	258	44	237	74	69	1.4	4.0
	35	116.84	0.64	0.67	287	267	259	45	235	74	63	1.5	4.0
6	37.5	118.51	0.63	0.66	283	265	256	42	233	73	67	1.4	3.0
	40	120.15	0.62	0.65	284	264	256	41	233	72	65	1.4	3.0
	42.5	121.82	0.63	0.66	285	267	258	43	234	73	69	1.5	3.0
7	45	123.5	0.61	0.65	287	268	259	45	236	75	70	1.5	3.0
	47.5	125.17	0.66	0.68	287	267	259	45	237	76	70	1.5	3.0
	50	126.84	0.66	0.68	287	268	260	46	237	76	70	1.5	3.0

Traverse: 2		
Start Time: 10:14	Initial Leak Check: 2.004 cfm@ 15 "Hg	
Finish Time:	Final Leak Check: cfm@ "Hg	

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 17, 2022	Plant: Covanta DYEC	Test No.: 1 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 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	128.50	0.66	0.68	286	267	258	45	238	78	68	1.6	3.0
	55	130.34	0.66	0.68	284	266	258	44	237	76	69	1.6	3.0
	57.5	132.02	0.67	0.68	285	267	258	44	236	75	69	1.5	3.0
9	60	133.68	0.68	0.69	286	267	258	46	236	76	70	1.5	3.0
	62.5	135.4	0.68	0.69	284	267	260	46	236	76	70	1.5	3.0
	65	137.13	0.69	0.69	284	268	258	46	236	76	70	1.6	3.0
10	67.5	138.85	0.65	0.67	283	267	259	45	236	76	70	1.6	3.5
	70	140.61	0.64	0.67	284	267	258	46	236	77	70	1.7	3.5
	72.5	142.39	0.64	0.67	282	267	259	46	237	76	70	1.6	3.5
11	75	144.08	0.58	0.64	267	268	258	46	235	76	70	1.5	3.5
	77.5	145.79	0.58	0.64	265	267	257	47	236	77	71	1.5	3.5
	80	147.48	0.57	0.64	264	268	258	48	235	77	70	1.5	3.5
12	82.5	149.17	0.45	0.60	189	268	259	47	234	79	70	1.5	3.5
	85	150.78	0.43	0.60	174	268	260	47	235	76	71	1.3	~~3.0~~ 3.5
	87.5	152.38	0.45	0.61	173	268	257	47	234	75	69	1.1	3.5
	90	153.71											

Traverse: 2		
Start Time: ~~11:10~~	Initial Leak Check: < 0.002 cfm@ 16 "Hg	
Finish Time: 11:44	Final Leak Check: cfm@ "Hg	

Project No.: 22158

Operator: BM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particulate/Metals
Test Date May 17, 2022	
Test Location	APC Outlet No. 1
Operator RM	

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 1
Impinger Box No.:	7

Pitot Factor	0.843	
DGMCF	0.977	
Barometric Pressure	29.54	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	0.2495	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

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

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	478.5	g
WCBDA	20.5	g

Combustion Gas Concentration

Oxygen	8.40	%
Carbon Dioxide	10.85	%
Carbon Monoxide	11.9	ppm

Measuring Device	MII Numbers
Probe / Pitot	15A
Trendicator	COF200994
Control Box	"
Incline Manometer	"
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements

1	0.2500
2	0.2495
3	0.2490
4	0.2495
Average:	0.2495

Site Diagram

Notes:

Field Data Sheet

Date: May 17, 2022	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 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	54.21	0.82	0.76	274	269	244	58	167	75	72	2.0	4.0
	2.5	56.21	0.81	0.75	285	269	243	58	194	74	72	2.0	4.0
	5	58.18	0.81	0.75	286	270	246	56	190	74	72	2.0	4.0
2	7.5	60.06	0.81	0.75	286	269	254	53	210	73	72	1.8	4.0
	10	61.92	0.85	0.77	286	270	252	51	238	74	72	1.8	4.0
	12.5	63.77	0.85	0.75	287	268	250	50	213	75	72	1.8	4.0
3	15	65.68	0.84	0.77	286	270	252	54	212	74	72	2.0	4.0
	17.5	67.60	0.84	0.78	287	269	251	51	213	76	72	2.0	4.0
	20	69.53	0.82	0.76	287	270	253	50	213	75	72	2.0	4.0
4	22.5	71.44	0.74	0.72	286	270	255	49	213	76	72	1.9	4.0
	25	73.37	0.75	0.72	288	270	255	51	213	77	72	1.9	4.0
	27.5	75.29	0.76	0.73	288	270	254	50	209	77	72	1.8	4.0
5	30	77.05	0.67	0.68	287	271	254	50	240	77	72	1.6	4.0
	32.5	78.84	0.64	0.67	288	271	255	50	242	77	72	1.7	4.0
	35	80.62	0.66	0.68	288	269	254	50	242	78	71	1.6	4.0
6	37.5	82.35	0.60	0.65	286	269	255	49	243	79	72	1.5	4.0
	40	84.07	0.61	0.65	288	270	256	49	243	78	69	1.5	4.0
	42.5	85.78	0.60	0.65	286	269	254	49	242	76	70	1.5	4.0
7	45	87.44	0.64	0.67	286	270	255	50	243	79	72	1.4	4.0
	47.5	89.11	.64	0.67	287	270	255	50	244	77	72	1.4	4.0
	50	90.81	.65	0.67	287	269	255	50	243	78	72	1.5	4.0

Traverse: \			
Start Time: 12:25	Initial Leak Check: 0.004	cfm@ 17	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 17, 2022	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 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	92.51	.68	0.69	287	271	254	49	245	79	72	1.5	4.0
	55	94.19	.68	0.69	287	271	255	50	243	81	73	1.5	4.0
	57.5	95.94	.69	0.70	287	270	255	49	245	81	73	1.6	4.0
9	60	97.68	.67	0.69	285	271	254	52	245	78	72	1.6	4.0
	62.5	99.46	.67	0.69	284	270	255	51	246	80	72	1.6	4.0
	65	101.21	.68	0.69	285	271	253	49	243	80	70	1.6	4.0
10	67.5	102.97	.69	0.70	285	271	255	51	244	80	72	1.6	4.0
	70	104.73	.69	0.70	285	270	255	49	243	79	73	1.6	4.0
	72.5	106.50	.69	0.70	283	270	256	52	243	81	73	1.6	4.0
11	75	108.3	.62	0.67	269	271	255	50	243	81	74	1.6	4.0
	77.5	110.08	.63	0.68	269	272	256	50	244	80	73	1.6	4.0
	80	111.75	.62	0.67	271	270	256	51	242	79	73	1.4	4.0
12	82.5	113.39	.46	0.60	205	273	256	51	242	83	74	1.4	4.0
	85	115.06	.48	0.63	189	272	256	51	243	80	74	1.5	4.0
	87.5	116.65	.49	0.63	188	270	256	52	242	79	74	1.3	4.0
	90	118.23											

Traverse: 1			
Start Time: 13:00	Initial Leak Check:	cfm@	"Hg
Finish Time: 13:55	Final Leak Check: 40.003	cfm@ 16	"Hg

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 17, 2022	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 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	118.7	0.86	0.84	282	266	257	52	229	77	74	2.3	5.0
	2.5	120.66	0.85	0.77	289	271	258	50	247	81	74	2.2	5.0
	5	122.71	0.86	0.78	289	270	258	51	247	79	74	2.1	5.0
2	7.5	124.72	0.85	0.77	289	271	256	50	246	81	74	2.0	5.0
	10	126.69	0.87	0.78	288	270	257	49	245	79	75	2.1	5.0
	12.5	128.67	0.88	0.79	289	270	258	50	245	85	68	2.1	5.0
3	15	130.67	0.79	0.74	289	271	259	51	245	80	73	1.9	4.5
	17.5	132.56	0.80	0.75	288	272	256	50	245	78	73	1.9	4.5
	20	134.47	0.79	0.74	288	270	256	51	245	80	74	1.9	4.5
4	22.5	136.39	0.76	0.73	287	270	257	52	245	79	74	1.8	4.5
	25	138.25	0.75	0.73	287	271	258	50	246	79	73	1.8	4.5
	27.5	140.11	0.74	0.72	287	271	257	53	245	80	75	1.7	4.5
5	30	141.93	0.71	0.71	288	271	254	47	248	80	78	1.7	4.5
	32.5	143.75	0.73	0.72	288	248	258	46	240	80	75	1.7	4.5
	35	145.56	0.71	0.71	285	260	233	47	245	84	74	1.7	4.5
6	37.5	147.38	0.64	0.68	286	271	255	47	245	83	74	1.5	4.0
	40	149.08	0.63	0.67	288	270	256	47	244	82	81	1.5	4.0
	42.5	150.79	0.63	0.67	287	272	257	48	242	80	75	1.5	4.0
7	45	152.49	0.64	0.67	286	272	258	47	242	80	74	1.5	4.0
	47.5	154.19	0.69	0.70	287	271	257	46	242	81	75	1.6	4.0
	50	155.95	0.71	0.71	286	271	256	46	243	81	75	1.7	4.0

Traverse: 2		
Start Time: 14:03	Initial Leak Check: <0.004 cfm@ 16 "Hg	
Finish Time:	Final Leak Check: cfm@ "Hg	

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 17, 2022	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 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	157.74	0.70	0.70	287	273	258	46	242	82	75	1.6	4.0
	55	159.48	0.71	0.71	287	270	257	47	242	83	75	1.7	4.0
	57.5	161.28	0.69	0.70	287	271	257	46	242	81	76	1.6	4.0
9	60	163.04	0.74	0.72	287	271	258	47	241	82	74	1.8	4.5
	62.5	164.88	0.74	0.72	286	272	258	46	242	82	75	1.8	4.5
	65	166.71	0.77	0.74	287	272	258	46	241	81	76	1.9	5.0
10	67.5	168.62	0.74	0.72	277	272	258	46	243	82	76	1.8	4.5
	70	170.47	0.73	0.73	277	272	257	46	242	83	76	1.8	4.5
	72.5	172.31	0.73	0.73	277	272	257	46	241	81	76	1.8	4.5
11	75	174.17	0.61	0.66	227	272	257	46	241	82	76	1.6	4.5
	77.5	175.93	0.63	0.70	226	272	257	46	241	82	76	1.6	4.5
	80	177.68	0.64	0.70	227	271	257	47	240	81	76	1.6	4.5
12	82.5	179.44	0.32	0.50	217	271	257	47	240	81	76	1.1	4.5
	85	180.91	0.31	0.49	216	271	256	47	235	82	76	1.0	4.5
	87.5	182.10	0.31	0.49	215	271	256	47	234	82	75	1.0	4.5
	90	193.32											

Traverse: 2			
Start Time:	Initial Leak Check: .003	cfm@ 16	"Hg
Finish Time: 15:33	Final Leak Check: .003	cfm@ 16	"Hg

Project No.: 22158

Operator: Ben

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particulate/Metals
Test Date	May 19, 2022
Test Location	APC Outlet No. 1
Operator	BM

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	Teams 2
Impinger Box No.:	7

Pitot Factor	0.843	
DGMCF	0.995	
Barometric Pressure	29.38	"Hg
Static Pressure	-11.2	"H2O
Nozzle Size	0.295	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	507.8	g
WCBDA	21.5	g

Combustion Gas Concentration

Oxygen	8.15	%
Carbon Dioxide	11.02	%
Carbon Monoxide	16.6	ppm

Measuring Device	MII Numbers
Probe / Pitot	15A
Trendicator	COE20092
Control Box	"
Incline Manometer	"
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	0.2500
2	0.2495
3	0.2490
4	0.2495
Average:	0.2495

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 19, 2022	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 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	89.77	0.74	0.72	265	246	245	58	62	62	62	1.8	4.0
	2.5	91.53	0.83	0.74	281	243	257	52	61	61	62	2.0	4.0
	5	93.43	0.82	0.73	283	244	240	51	64	61	62	1.9	4.0
2	7.5	95.30	0.82	0.73	283	~~297~~ ~~244~~	240	50	62	61	62	1.9	4.0
	10	97.17	0.84	0.74	283	244	244	50	~~217~~ 212	61	62	1.9	4.0
	12.5	99.02	0.82	0.73	283	244	243	51	216	62	62	1.8	4.0
3	15	100.81	0.83	0.73	284	245	243	52	216	62	62	1.9	4.0
	17.5	102.66	0.83	0.73	284	245	243	52	217	62	62	1.9	4.0
	20	104.5	0.83	0.73	285	246	243	53	218	62	63	1.9	4.0
4	22.5	106.34	0.76	0.70	285	247	245	53	218	62	63	1.7	4.0
	25	108.09	0.75	0.70	285	247	243	53	217	62	62	1.8	4.0
	27.5	109.90	0.78	0.71	285	247	243	52	217	62	63	1.8	4.0
5	30	111.68	0.70	0.67	285	247	243	52	217	62	64	1.5	4.0
	32.5	113.32	0.72	0.68	285	247	243	52	217	62	65	1.7	4.0
	35	115.06	0.73	0.69	284	247	244	52	216	63	64	1.7	4.0
6	37.5	116.81	0.70	0.67	284	248	244	52	218	63	65	1.6	4.0
	40	118.54	0.70	0.67	284	248	244	52	217	63	64	1.6	4.0
	42.5	120.24	0.71	0.68	285	247	243	52	218	63	64	1.6	4.0
7	45	121.94	0.71	0.68	285	248	244	52	218	63	65	1.6	4.0
	47.5	123.66	0.73	0.69	285	248	244	52	218	63	66	1.7	4.0
	50	125.41	0.75	0.70	285	248	244	52	203	63	65	1.7	4.0

Traverse: 1			
Start Time: 8:31	Initial Leak Check: 0.009	cfm@ 17	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator: RM

Field Data Sheet

Date: May 19, 2022	Plant: Covanta DYEC	Test No.: 3 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 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	127.16	0.74	0.69	285	248	244	49	205	63	68	1.7	4.0
	55	128.92	0.75	0.70	285	248	245	47	205	63	65	1.7	4.0
	57.5	130.67	0.73	0.69	285	248	244	46	204	64	66	1.7	4.0
9	60	132.42	0.75	0.70	285	249	244	45	208	64	66	1.7	4.0
	62.5	134.17	0.75	0.70	285	248	244	44	219	64	66	1.7	4.0
	65	135.92	0.76	0.70	285	248	244	44	218	64	66	1.8	4.0
10	67.5	137.71	0.73	0.69	283	248	243	43	218	64	66	1.7	4.0
	70	139.46	0.72	0.69	284	248	244	43	218	64	66	1.7	4.0
	72.5	141.22	0.71	0.68	284	248	244	43	218	64	67	1.6	4.0
11	75	142.93	0.68	0.67	284	247	244	43	218	64	66	1.6	4.0
	77.5	144.63	0.69	0.67	276	248	246	43	218	64	66	1.6	4.0
	80	146.32	0.70	0.68	276	248	242	43	218	64	67	1.7	4.0
12	82.5	148.07	0.61	0.64	233	248	242	43	218	64	67	1.4	4.0
	85	149.68	0.64	0.67	237	248	244	43	218	65	67	1.5	4.0
	87.5	151.34	0.67	0.68	239	248	243	43	217	65	67	1.7	3.5
	90	153.08											

Traverse: 1		
Start Time:	Initial Leak Check: <0.002 cfm@ 16 "Hg	
Finish Time: 10:01	Final Leak Check: cfm@ "Hg	

Project No.: 22158

Operator :

Field Data Sheet

Date: May 19, 2022	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 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	153.51	0.82	0.73	284	247	244	55	110	65	66	1.9	4.5
	2.5	155.42	0.82	0.73	283	246	242	43	211	65	65	1.8	4.5
	5	157.20	0.84	0.74	283	246	244	42	216	65	67	1.9	4.5
2	7.5	159.05	0.89	0.76	284	246	243	42	216	65	65	2.0	4.5
	10	160.93	0.88	0.76	284	246	244	42	218	65	66	2.0	4.5
	12.5	162.82	0.89	0.76	284	246	244	42	220	65	67	2.1	4.5
3	15	164.77	0.85	0.75	284	246	243	43	221	65	65	2.0	4.5
	17.5	166.67	0.86	0.75	285	247	244	43	221	65	66	2.0	4.5
	20	168.55	0.86	0.75	285	246	244	43	221	65	66	2.0	4.5
4	22.5	170.43	0.82	0.73	285	246	245	43	221	65	66	1.9	4.5
	25	172.28	0.81	0.73	286	247	245	43	221	65	66	1.9	4.5
	27.5	174.11	0.80	0.72	285	247	245	43	220	65	67	1.9	4.5
5	30	175.94	0.75	0.70	285	247	244	43	220	65	66	1.8	4.5
	32.5	177.76	0.74	0.70	285	247	245	43	220	65	67	1.7	4.5
	35	179.53	0.75	0.70	286	247	243	43	219	65	67	1.7	4.5
6	37.5	181.28	0.66	0.66	286	247	243	43	221	65	67	1.5	4.0
	40	182.93	0.64	0.65	286	247	244	43	220	65	67	1.5	4.0
	42.5	184.61	0.63	0.64	287	246	244	43	220	65	66	1.4	4.0
7	45	186.19	0.68	0.67	287	246	245	43	220	65	66	1.6	4.0
	47.5	187.89	0.72	0.68	287	246	244	43	220	65	67	1.7	4.0
	50	189.64	0.71	0.68	286	247	244	43	220	66	70	1.7	4.0

Traverse: 2			
Start Time: 10:43	Initial Leak Check: 0.006	cfm@ 16	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 19/2022	Plant: Covanta DYEC	Test No.: 3 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 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	191.38	0.76	0.71	286	248	248	42	220	66	66	1.8	4.0
	55	193.17	0.77	0.71	286	248	245	42	221	66	67	1.8	4.0
	57.5	194.98	0.75	0.70	287	247	245	42	221	66	67	1.7	4.0
9	60	196.74	0.71	0.68	286	247	244	42	220	66	68	1.6	4.0
	62.5	198.46	0.73	0.69	286	247	244	43	218	66	67	1.7	4.0
	65	200.20	0.72	0.69	287	247	243	42	218	68	68	1.7	4.0
10	67.5	201.94	0.75	0.70	284	247	244	42	218	66	68	1.7	4.0
	70	203.79	0.75	0.70	286	247	243	41	218	66	68	1.7	4.0
	72.5	205.43	0.74	0.70	286	247	244	41	218	66	68	1.8	4.0
11	75	207.23	0.71	0.68	286	248	244	41	219	66	68	1.7	4.0
	77.5	208.99	0.70	0.68	282	248	245	41	219	66	68	1.6	4.0
	80	210.69	0.69	0.67	282	248	244	41	218	66	68	1.6	4.0
12	82.5	212.40	0.61	0.63	282	248	244	41	217	66	68	1.4	4.0
	85	214.02	0.64	0.65	236	248	244	41	217	66	68	1.5	4.0
	87.5	215.66	0.62	0.66	236	247	244	41	218	66	67	1.5	4.0
	90	217.30											

Traverse: 2		
Start Time: ~~/~~	Initial Leak Check: ~~/~~ cfm@ ~~/~~ "Hg	
Finish Time: 12:13	Final Leak Check: <0.005 cfm@ 15 "Hg	

Project No.: 22158

Operator: BM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	1 Particulate/Metals
Test Date	May 16, 2022
Test Location	APC Outlet No. 1 & 2
Operator	BM

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 1
Impinger Box No.:	3

Pitot Factor	0.843	
DGMCF	0.977	
Barometric Pressure	29.32	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	0.2495	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	mg
Probe	mg

Moisture Gain

CWTR	410.1	g
WCBDA	23.2	g

Combustion Gas Concentration

Oxygen	9.35	%
Carbon Dioxide	9.85	%
Carbon Monoxide	25.5	ppm

Measuring Device	MII Numbers
Probe / Pitot	15A
Trendicator	COE 20094
Control Box	"
Incline Manometer	"
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	0.2500
2	0.2495
3	0.2490
4	0.2495
Average:	0.2495

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 16, 2022	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 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	~~51.14~~ 51.37	0.85	~~0.77~~ 0.78	270	267	256	67	89	79	76	2.1	4.0
	2.5	53.57	0.87	0.78	288	267	255	67	88	77	75	2.1	4.0
	5	55.53	0.91	0.80	288	268	257	67	89	77	75	2.2	3.5
2	7.5	57.58	0.90	0.79	288	269	257	66	92	77	75	2.2	3.5
	10	59.64	0.90	0.79	287	268	256	66	94	77	75	2.1	3.5
	12.5	61.63	0.92	0.80	288	269	259	66	93	78	76	2.1	3.5
3	15	63.61	0.86	0.78	287	269	260	67	92	78	75	2.1	3.5
	17.5	65.59	0.86	0.78	288	269	260	67	220	80	76	2.1	3.5
	20	67.59	0.87	0.78	287	269	260	66	230	79	76	2.1	3.5
4	22.5	69.58	0.83	0.77	288	270	258	63	233	~~80~~	76	2.0	3.5
	25	71.54	0.84	0.77	288	270	260	61	232	80	76	2.0	3.5
	27.5	73.59	0.87	0.78	289	269	260	60	233	80	75	2.0	3.5
5	30	75.53	0.84	0.77	288	269	261	57	235	82	76	2.0	3.5
	32.5	~~77~~ 77.39	0.83	0.77	289	269	262	56	235	82	77	2.0	3.5
	35	79.34	0.81	0.76	289	269	262	56	235	82	77	2.0	3.5
6	37.5	81.30	0.74	0.72	290	270	260	54	224	83	77	1.8	3.5
	40	83.17	0.76	0.73	290	270	260	53	231	84	77	1.8	3.5
	42.5	85.03	0.73	0.72	290	270	260	51	232	83	77	1.8	3.5
7	45	86.9	0.83	0.77	290	270	259	51	233	83	77	1.9	3.5
	47.5	88.80	0.81	0.76	290	270	259	50	232	84	77	1.9	3.5
	50	90.69	0.80	0.75	289	269	258	50	232	84	78	2.0	3.5

Traverse: 1			
Start Time: 10:22	Initial Leak Check: ~~>~~ 0.002	cfm@ 17	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 16, 2022	Plant: Covanta DYEC	Test No.: 1 Particulate/Metals	Page 3 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	92.65	0.81	0.76	289	268	259	49	232	84	77	2.9	3.5
	55	94.56	0.82	0.76	289	270	260	49	232	84	77	1.9	3.5
	57.5	96.49	0.82	0.76	289	268	261	48	233	84	78	1.9	3.5
9	60	98.42	0.82	0.77	288	269	259	48	233	83	77	1.9	3.5
	62.5	100.34	0.82	0.76	288	269	259	48	233	84	78	1.9	3.5
	65	102.27	0.81	0.76	288	268	261	47	233	84	78	1.9	3.5
10	67.5	104.18	0.77	0.74	282	270	259	47	235	84	78	1.8	3.5
	70	106.05	0.78	0.75	278	269	262	47	233	83	77	1.8	3.5
	72.5	107.91	0.78	0.75	278	269	260	47	233	84	78	1.9	3.5
11	75	109.81	0.69	0.71	229	269	260	47	232	83	78	1.8	3.5
	77.5	111.67	0.72	0.75	258	269	258	46	231	84	78	1.8	3.5
	80	113.53	0.74	0.74	267	268	261	46	270	85	78	1.8	3.5
12	82.5	115.38	0.58	0.65	235	268	259	46	231	83	78	1.6	3.5
	85	117.13	0.60	0.68	248	268	261	45	231	84	79	1.6	3.5
	87.5	118.89	0.59	0.66	239	269	261	46	231	84	79	1.6	3.5
	90	120.64											

Traverse: ✓ 1			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 11:52	Final Leak Check: >0.002	cfm@ 16	"Hg

Project No.: 22158

Operator: BM

Field Data Sheet

Date: May 16, 2022	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	121.18	0.99	0.87	285	267	261	49	213	81	79	2.4	3.5
	2.5	123.24	1.0	0.88	289	266	261	45	227	84	78	2.4	3.5
	5	125.37	0.94	0.82	290	266	261	45	234	82	78	2.3	3.5
2	7.5	127.49	0.95	0.82	291	267	261	46	234	81	79	2.3	4.0
	10	129.61	0.93	0.81	291	267	260	45	244	82	79	2.2	4.0
	12.5	131.70	0.91	0.80	290	267	261	47	235	82	79	2.1	4.0
3	15	133.72	0.85	0.79	290	267	261	46	238	82	79	2.1	4.0
	17.5	135.76	0.85	0.78	290	268	262	46	237	83	79	2.0	4.0
	20	137.73	0.82	0.76	290	269	260	47	235	83	79	2.0	3.5
4	22.5	139.71	0.74	0.73	290	268	260	47	234	82	79	1.8	3.5
	25	141.61	0.74	0.73	289	267	260	46	236	83	79	1.7	3.5
	27.5	143.42	0.73	0.72	288	268	261	47	234	82	78	1.7	3.5
5	30	145.23	0.65	0.68	288	268	259	47	233	83	78	1.6	3.5
	32.5	146.98	0.66	0.69	286	268	261	47	234	83	78	1.7	3.5
	35	148.8	0.65	0.68	285	268	260	47	233	83	78	1.7	3.5
6	37.5	150.58	0.56	0.63	284	268	260	46	233	83	78	1.3	3.5
	40	152.24	0.56	0.63	286	269	262	47	233	83	78	1.3	3.5
	42.5	153.87	0.57	0.64	285	269	261	46	233	83	78	1.3	3.5
7	45	155.50	0.57	0.64	285	269	260	46	232	84	79	1.3	3.5
	47.5	157.08	0.65	0.68	284	269	259	46	231	83	78	1.3	3.5
	50	158.69	0.66	0.69	285	269	260	46	230	82	79	1.7	3.5

Traverse: 2			
Start Time: 12:02	Initial Leak Check: .002	cfm@ 15	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator : BM

Field Data Sheet

Date: May 16, 2022	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	160.54	0.69	0.70	285	269	259	46	233	84	78	1.7	3.5
	55	162.35	0.70	0.71	287	269	260	46	235	85	78	1.6	3.5
	57.5	164.18	0.66	0.69	284	268	260	47	233	84	78	1.6	3.5
9	60	165.99	0.63	0.67	282	269	261	47	232	84	79	1.6	3.5
	62.5	167.74	0.60	0.66	280	270	260	47	233	84	79	1.5	3.5
	65	169.45	0.60	0.66	280	268	260	47	233	85	78	1.5	3.5
10	67.5	171.13	0.61	0.67	279	269	259	47	231	83	79	1.4	3.5
	70	172.80	0.59	0.66	255	269	260	46	139	93	78	1.4	3.5
	72.5	174.55	0.61	0.67	274	269	260	46	132	84	79	1.4	3.5
11	75	176.16	0.58	0.66	256	269	260	47	138	85	78	1.4	3.5
	77.5	177.99	0.59	0.67	254	268	260	47	133	83	78	1.7	3.5
	80	179.71	0.60	0.67	256	268	260	46	131	83	78	1.5	3.5
12	82.5	181.42	0.49	0.62	226	269	260	47	135	83	79	1.5	3.5
	85	183.06	0.50	0.63	224	268	259	45	133	84	78	1.3	3.5
	87.5	184.60	0.50	0.63	223	269	260	46	138	83	79	1.2	3.5
	90	186.17											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 13:32	Final Leak Check: < .002	cfm@	16 "Hg

Project No.: 22158

Operator : DM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particulate/Metals
Test Date	May 16, 2022
Test Location	APC Outlet No. 2
Operator	BM

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM1
Impinger Box No.:	7

Pitot Factor	0.843	
DGMCF	0.977	
Barometric Pressure	29.33	"Hg
Static Pressure	ø. -10.5	"H2O
Nozzle Size	0.2495	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	mg
Probe	mg

Moisture Gain

CWTR	490.7	g
WCBDA	28.5	g

Combustion Gas Concentration

Oxygen	8.36	%
Carbon Dioxide	10.84	%
Carbon Monoxide	24.1	ppm

Measuring Device	MII Numbers
Probe / Pitot	15A
Trendicator	COE20094
Control Box	"
Incline Manometer	"
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	0.2500
2	0.2495
3	0.2490
4	0.2495
Average:	0.2495

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 16, 2022	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 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	6.67	0.99	0.84	283	270	246	70	184	81	77	2.3	4.5
	2.5	8.81	1.00	0.85	278	268	248	68	195	78	78	2.3	5.0
	5	10.92	1.00	0.84	290	269	251	65	193	78	77	2.3	5.0
2	7.5	13.03	1.00	.84	288	268	251	60	202	77	77	2.3	5.0
	10	15.13	.99	.84	288	267	257	60	209	76	76	2.2	5.0
	12.5	17.21	.98	.83	287	267	252	60	214	77	76	2.3	5.0
3	15	19.30	.93	.81	287	267	250	58	217	78	77	2.3	5.0
	17.5	21.30	.91	.80	288	269	254	58	221	80	77	2.0	5.0
	20	23.30	.85	.77	292	269	256	59	227	79	77	2.1	5.0
4	22.5	25.32	.93	.77	287	268	255	57	227	79	76	2.1	5.0
	25	27.31	.84	.77	287	268	254	56	231	80	76	2.0	5.0
	27.5	29.25	.84	.77	286	268	256	54	231	80	76	1.9	5.0
5	30	31.18	.73	.72	285	270	258	53	237	83	76	1.9	4.9
	32.5	33.10	.73	.72	285	270	256	54	232	80	75	1.9	4.9
	35	34.95	.77	.74	285	270	256	53	233	81	76	1.7	4.9
6	37.5	36.78	.66	.69	283	270	256	52	233	80	76	1.7	4.9
	40	38.50	.65	.68	285	270	257	52	236	81	76	1.5	4.9
	42.5	40.20	.65	.68	283	270	258	51	234	81	76	1.5	4.8
7	45	41.90	.73	.72	284	270	258	51	233	81	76	1.5	4.8
	47.5	43.69	.71	.71	284	270	258	51	235	81	76	1.7	4.8
	50	45.54	.71	.71	284	270	256	50	235	81	75	1.7	4.8

Traverse: 1				
Start Time: 14:18	Initial Leak Check: 0.004	cfm@ 16	"Hg	
Finish Time:	Final Leak Check:	cfm@	"Hg	

Project No.: 22158

Operator :

Field Data Sheet

Date: May 16, 2022	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 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	47.33	.74	.72	285	270	257	50	234	82	76	1.6	4.8
	55	49.12	.74	.73	284	269	257	50	234	82	76	1.6	4.8
	57.5	51.03	.74	.73	285	270	256	50	236	81	76	1.8	4.8
9	60	52.93	.78	.74	285	269	257	50	237	81	76	1.8	4.8
	62.5	54.70	.78	.74	285	270	257	49	237	81	76	1.8	4.8
	65	56.57	.78	.75	284	269	257	50	236	82	76	1.8	4.8
10	67.5	58.42	.73	.72	278	269	256	50	236	81	76	1.7	4.8
	70	60.24	.72	.72	278	270	257	50	235	82	76	1.7	4.8
	72.5	62.08	.73	.72	279	269	256	50	235	83	77	1.7	4.8
11	75	63.97	.64	.69	249	270	256	51	235	81	76	1.5	4.8
	77.5	65.66	.61	.68	241	270	255	51	235	83	76	1.7	4.8
	80	67.35	.64	.69	260	270	257	50	233	81	76	1.4	4.8
12	82.5	69.00	.37	.55	192	270	257	51	231	81	76	1.3	4.8
	85	70.51	.40	.57	192	268	257	50	229	82	76	1.0	4.6
	87.5	72.03	.41	.58	195	270	257	51	228	81	77	1.1	4.5
	90	73.56											

Traverse:				
Start Time: 45	Initial Leak Check:	.003	cfm@ 17	"Hg
Finish Time: 15', 44	Final Leak Check:		cfm@	"Hg

Project No.: 22158

Operator : BR

Field Data Sheet

Date: May 10, 2022	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 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	74.07	0.93	0.87	280	268	258	50	224	78	75	2.4	5.0
	2.5	76.26	0.92	0.81	286	268	256	51	235	81	76	2.3	5.0
	5	78.38	0.91	0.80	285	268	257	47	237	81	75	2.2	5.0
2	7.5	80.44	0.86	0.78	286	269	257	47	239	80	77	2.1	5.0
	10	82.49	0.91	0.80	285	268	257	48	238	80	77	2.1	5.0
	12.5	84.53	0.94	0.82	286	269	258	47	238	79	76	2.2	5.0
3	15	86.56	0.96	0.83	286	269	256	48	240	81	76	2.2	5.0
	17.5	88.58	0.96	0.83	285	269	256	48	240	80	76	2.2	5.0
	20	90.06	0.96	0.83	286	269	257	47	239	80	76	2.2	5.0
4	22.5	92.64	0.96	0.82	287	269	256	49	241	80	76	2.1	5.0
	25	94.67	0.96	0.83	287	270	257	48	240	81	76	2.1	5.0
	27.5	96.68	0.93	0.81	288	268	257	48	242	80	76	2.2	5.0
5	30	98.76	0.87	0.78	288	269	258	49	242	80	76	2.1	5.0
	32.5	100.79	0.87	0.78	289	268	257	49	242	80	76	2.1	5.0
	35	102.81	0.87	0.78	289	268	257	49	242	80	75	2.0	5.0
6	37.5	104.78	0.77	0.74	289	269	257	48	248	80	76	1.8	4.5
	40	106.65	0.80	0.75	289	269	257	48	241	82	76	1.9	4.5
	42.5	108.56	0.78	0.74	291	268	256	50	242	80	75	1.8	4.5
7	45	110.46	0.82	0.76	290	269	256	49	242	83	76	1.8	4.5
	47.5	112.35	0.82	0.76	290	270	257	49	244	81	76	1.9	4.5
	50	114.28	0.85	0.77	289	270	256	48	244	81	75	2.0	4.5

Traverse: 2			
Start Time: 15:55	Initial Leak Check: 4.002	cfm@ 17	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator :

Field Data Sheet

Date: May 16, 2022	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 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	116.22	0.87	0.78	290	269	257	49	243	81	76	2.0	5.0
	55	118.17	0.89	0.77	290	269	257	49	241	81	75	2.1	5.0
	57.5	120.17	0.82	0.76	290	269	256	49	241	84	75	2.0	5.0
9	60	122.12	0.82	0.76	289	270	256	50	240	82	75	2.0	5.0
	62.5	124.07	0.83	0.77	289	269	258	49	245	82	75	2.0	5.0
	65	126.04	0.84	0.77	286	269	256	49	242	81	76	2.0	5.0
10	67.5	127.98	0.82	0.76	282	270	256	50	240	82	76	1.9	5.0
	70	129.89	0.82	0.77	284	269	256	50	239	82	76	2.0	5.0
	72.5	131.84	0.81	0.76	284	269	256	49	240	82	76	1.9	5.0
11	75	133.78	0.77	0.74	256	268	258	49	240	81	76	1.9	5.0
	77.5	135.68	.75	.75	256	270	257	49	240	81	76	1.95	5.0
	80	137.64	0.75	0.75	257	270	256	51	240	82	76	1.9	5.0
12	82.5	139.55	0.76	0.75	255	270	256	51	240	81	77	1.9	5.0
	85	141.46	0.70	0.72	243	268	256	50	240	81	77	1.6	5.0
	87.5	143.25	0.73	0.74	242	269	258	51	238	81	77	1.8	5.0
	90	145.02											

Traverse: 2		
Start Time:	Initial Leak Check:	cfm@ "Hg
Finish Time: 17:25	Final Leak Check: <0.004	cfm@ 16 "Hg

Project No.: 22158

Operator : BM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particulate/Metals
Test Date	May 17 2022
Test Location	APC Outlet No. 2
Operator	TT

Project No.:	22158
Page	1 of 5
Probe No.:	6 Series
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.60	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

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

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	559.9	g
WCBDA	23.0	g

Combustion Gas Concentration

Oxygen	8.86	%
Carbon Dioxide	10.20	%
Carbon Monoxide	14.5	ppm

Measuring Device	MII Numbers
Probe / Pitot 15D	B03778
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	Env. Canada
Calipers	

Nozzle Measurements	
1	.2505
2	.2515
3	.2510
4	.2515
Average:	.2511

Site Diagram

Notes:

Field Data Sheet

Date: May 17 2022	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	867.41	.81	.75	279	251	252	66	123	68	69	2.0	5
	2.5	869.28	.81	.75	279	251	252	66	123	68	69	2.0	5
	5	871.11	.80	.74	280	254	248	62	204	68	73	1.95	5
2	7.5	872.97	.84	.76	280	253	251	63	206	68	74	2.1	5.5
	10	874.88	.84	.76	286	253	246	64	212	69	76	2.1	5.5
	12.5	876.84	.89	.78	286	253	255	61	215	69	77	2.1	5.5
3	15	878.78	.90	.78	287	253	250	64	220	70	79	2.1	5.5
	17.5	880.71	.88	.78	289	253	249	63	217	70	79	2.1	6
	20	882.66	.88	.78	289	252	250	63	215	71	80	2.1	6
4	22.5	884.64	.89	.78	289	253	250	62	219	71	81	2.1	6
	25	886.59	.88	.78	289	253	249	62	218	71	82	2.1	6
	27.5	888.55	.86	.77	288	253	250	61	217	72	82	2.05	5.5
5	30	890.48	.84	.76	288	253	248	61	216	72	82	2.0	5.5
	32.5	892.39	.84	.76	288	254	252	61	219	72	83	2.0	5.5
	35	894.32	.84	.76	288	254	247	60	217	73	83	2	5.5
6	37.5	896.24	.84	.76	288	253	253	60	220	73	84	2	5.5
	40	898.17	.84	.76	288	254	251	60	220	73	84	2	6
	42.5	900.10	.84	.76	288	254	245	60	223	73	84	2	6
7	45	902.03	.70	.70	288	254	255	59	229	74	84	1.7	5.5
	47.5	903.85	.68	.69	288	254	254	58	230	74	84	1.7	5.5
	50	905.59	.68	.69	287	253	248	58	228	74	85	1.7	5.5

Traverse:				
Start Time: 16:04	Initial Leak Check: .006	cfm@ 15	"Hg	
Finish Time:	Final Leak Check:	cfm@	"Hg	

Project No.: 22158

Operator: TT

Field Data Sheet

Date: May 17 2022	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 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	907.38	.80	.75	288	253	252	57	227	74	85	1.95	6
	55	909.31	.83	.76	288	253	254	57	229	74	85	2.0	6
	57.5	911.26	.78	.74	288	253	247	57	228	75	86	1.9	6
9	60	913.16	.90	.79	287	253	257	57	229	75	85	2.15	6
	62.5	915.17	.89	.79	287	254	256	57	232	75	86	2.15	6
	65	917.19	.90	.79	287	254	250	57	231	75	86	2.1	6
10	67.5	919.19	.97	.82	287	254	250	57	229	75	86	2.2	6
	70	921.25	.97	.82	287	254	257	57	232	75	86	2.2	6
	72.5	923.33	1.05	.86	287	254	251	57	233	75	86	2.45	6.5
11	75	925.49	1.05	.86	287	254	250	57	232	75	86	2.45	6.5
	77.5	927.67	1.05	.86	288	251	256	57	235	76	86	2.45	6.5
	80	929.85	1.05	.86	288	255	253	57	235	76	86	2.45	6.5
12	82.5	932.05	1.05	.86	288	254	249	57	233	76	85	2.45	6.5
	85	934.22	1.05	.86	289	255	257	57	235	76	85	2.4	6.5
	87.5	936.38	1.05	.86	288	255	249	57	234	76	85	2.4	6.5
	90	938.58											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 17:35	Final Leak Check: .002	cfm@ 19	"Hg

Project No.: 22158

Operator : TT

Field Data Sheet

Date: May 17 2022	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 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	939.02	.92	.80	288	251	252	62	178	75	79	2.2	6
	2.5	941.08	.97	.82	287	256	252	59	222	75	81	2.3	6
	5	943.14	.97	.82	288	256	248	56	227	75	82	2.3	6
2	7.5	945.26	.96	.82	288	256	256	54	232	75	83	2.3	6
	10	947.35	.95	.81	287	256	251	53	232	75	83	2.2	6
	12.5	949.41	.93	.81	288	255	253	52	231	75	84	2.2	6
3	15	951.46	.96	.82	287	255	255	52	232	75	84	2.3	6
	17.5	953.54	.96	.82	288	255	247	51	232	75	84	2.3	6
	20	955.60	.96	.82	288	255	258	51	233	75	85	2.3	6
4	22.5	957.69	.95	.81	288	255	253	50	233	75	85	2.2	6
	25	959.77	.99	.83	288	255	248	50	231	75	85	2.35	6.5
	27.5	961.87	1.0	.84	288	255	255	50	233	75	85	2.35	6.5
5	30	963.99	.86	.77	289	255	248	50	233	76	85	2.05	6
	32.5	965.98	.86	.77	289	255	255	50	233	76	85	2.05	6
	35	967.95	.86	.77	289	255	250	50	233	76	85	2.05	6
6	37.5	969.91	.86	.77	289	254	251	50	231	76	85	2.05	6
	40	971.87	.88	.78	290	255	254	50	233	76	86	2.1	6
	42.5	973.85	.88	.78	290	255	248	49	231	76	86	2.1	6
7	45	975.84	.90	.79	290	254	253	49	232	76	86	2.15	6
	47.5	977.87	.88	.78	290	255	248	49	231	76	86	2.1	6
	50	979.84	.88	.78	290	255	253	49	231	76	86	2.1	6

Traverse:			
Start Time: 17:40	Initial Leak Check: .002	cfm@ 19	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22158

Operator: TT

Field Data Sheet

Date: May 17 2022	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 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	981.80	.90	.79	291	255	250	50	231	76	86	2.1	6.5
	55	983.77	.91	.80	291	254	253	50	231	76	86	2.2	6.5
	57.5	985.80	.91	.80	292	254	250	50	229	76	86	2.2	6.5
9	60	987.86	.88	.78	292	254	254	50	231	76	86	2.1	6
	62.5	989.83	.88	.78	292	255	253	51	232	76	86	2.1	6
	65	991.80	.88	.78	292	254	248	51	230	76	86	2.1	6
10	67.5	993.77	.88	.78	291	254	255	51	231	76	86	2.1	6
	70	995.75	.87	.78	291	254	251	51	231	76	86	2.1	6
	72.5	997.71	.87	.78	291	254	252	51	230	76	86	2.1	6
11	75	999.68	.87	.78	291	254	255	51	231	76	86	2.1	6
	77.5	1001.66	.82	.76	291	254	248	51	230	76	86	2.0	6
	80	1003.60	.83	.76	290	254	256	52	230	76	86	2	6
12	82.5	1005.52	.81	.75	290	254	252	52	231	76	86	1.95	6
	85	1007.44	.82	.76	291	254	249	52	228	76	86	2	6
	87.5	1009.38	.82	.76	290	253	255	52	230	76	86	2	6
	90	1011.29											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 19:10	Final Leak Check: .002	cfm@ 17	"Hg

Project No.: 22158

Operator :

APPENDIX 5

Particle Size Distribution Field Data Sheets
(12 pages)

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Particle Size
Test Date	MAY 17 2022
Test Location	APC Outlet No. 1
Operator	RM

Project No.:	22158
Page	1 of 2
Probe No.:	5
Meter Box No.:	T1
Impinger Box No.:	11

Pitot Factor	.854	
DGMCF	.995	
Barometric Pressure	29.61	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	0.1776	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	DWELL
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	180.7	g
WCBDA	8.2	g

Combustion Gas Concentration

Oxygen	8.38	%
Carbon Dioxide	10.99	%
Carbon Monoxide	10.7	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST
Incline Manometer	
Comb.Gas.Analyzer	1
Micromanometer	
Barometer	UNIT 2
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: MAY 17/22	Plant: Covanta DYEC	Test No.: 1 Particle Size	Page 2 of 2
	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	62.64	.75	.35	281	260	249	69	68	75	76	.38	4
2	10.8	66.42	.74		282	251	249	61	64	75	76	.38	4
3	21.2	69.94	.72		283	251	250	57	60	75	76	.38	4
4	31.3	73.54	.65		283	251	252	56	60	75	76	.38	4
5	41.4	77.10	.60		283	251	252	55	59	75	76	.38	4
6	51.0	80.45	.56		283	250	251	54	56	76	77	.38	4
	60.0	83.67											
1	0	83.67	.90		284	261	248	57	59	76	77	.38	4
2	11.0	87.52	.89		286	260	248	55	57	76	77	.38	4
3	21.7	91.28	.84		285	261	249	54	58	76	77	.38	4
4	32.1	94.90	.79		285	260	250	55	58	76	77	.38	4
5	42.0	98.37	.64		284	260	250	54	57	76	77	.36	4
6	51.3	101.63	.60		284	260	252	55	57	76	77	.38	4
	60.0	104.60											

Traverse: 2						
Start Time:	1718	Initial Leak Check:	.003	cfm@	17	"Hg
Finish Time:	1818	Final Leak Check:		cfm@		"Hg

Traverse: 1					
Start Time:	1820	Initial Leak Check:		cfm @	"Hg
Finish Time:	1920	Final Leak Check:		cfm @	"Hg

Project No.: 22158

Operator : DM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 Particle Size
Test Date	MAY 18, 2022
Test Location	APC Outlet No. 1
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	5
Meter Box No.:	T2
Impinger Box No.:	11

Pitot Factor	.854	
DGMCF	.995	
Barometric Pressure	29.75	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	.1776	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	DWELL
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	mg
Probe	mg

Moisture Gain

CWTR	160.2	g
WCBDA	9.7	g

Combustion Gas Concentration

Oxygen	8.26	%
Carbon Dioxide	10.97	%
Carbon Monoxide	17.8	ppm

Measuring Device	MII Numbers
Probe / Pitot	BEE
Trendicator	
Control Box	TEST 1
Incline Manometer	
Comb.Gas.Analyzer	UNIT 2
Micromanometer	
Barometer	
Calipers	

Probe Liner Glass / (Metal) / Teflon / (Other) PFA

Nozzle Glass / (Metal) / Other_____

Union None / (Metal) / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Notes:

Field Data Sheet

Date: MAY 18/22	Plant: Covanta DYEC	Test No.: 2 Particle Size	Page 2 of 2
	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	5.05	.77	.35	282	258	245	62	62	63	63	.38	4
2	10.2	8.62	.73		282	254	244	54	56	63	64	.38	4
3	20.4	12.04	.66		282	254	245	53	56	64	65	.38	4
4	30.4	15.50	.63		282	254	246	53	54	64	66	.38	4
5	39.9	18.80	.57		283	254	246	53	54	65	67	.38	4
6	49.0	21.98	.53		283	254	246	53	55	65	67	.38	4
	57.8	24.94											
1	0	24.94	.85		283	266	244	52	54	66	67	.38	4
2	11.2	28.88	.82		284	260	246	52	54	66	68	.38	4
3	22.3	32.61	.82		284	257	245	52	54	66	68	.38	4
4	33.1	36.39	.75		284	256	246	53	54	66	68	.38	4
5	43.6	39.90	.63		284	255	246	53	55	66	68	.38	4
6	53.0	43.15	.54		284	255	247	53	56	67	68	.38	4
	62.2	46.34											

Traverse: 2					Traverse: 1				
Start Time: 1205	Initial Leak Check: .003	cfm@ 16	"Hg		Start Time: 1305	Initial Leak Check: /	cfm @	"Hg	
Finish Time: 1303	Final Leak Check:	cfm@	"Hg		Finish Time: 1407	Final Leak Check:	cfm @	"Hg	

Project No.: 22158

Operator : DM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particle Size
Test Date	MAY 18, 2022
Test Location	APC Outlet No. 1
Operator	RM

Project No.:	22158
Page	1 of 2
Probe No.:	S
Meter Box No.:	T2
Impinger Box No.:	16

Pitot Factor	.854	
DGMCF	.995	
Barometric Pressure	29.60	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	.1776	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	175.9	g
WCBDA	11.1	g

Combustion Gas Concentration

Oxygen	8.74	%
Carbon Dioxide	10.58	%
Carbon Monoxide	15.1	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST 1
Incline Manometer	
Comb.Gas.Analyzer	UNIT 2
Micromanometer	
Barometer	
Calipers	

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	12

Nozzle Measurements

1 _____
2 _____
3 _____
4 _____
Average:

Probe Liner Glass / Metal /Teflon / (Other) PFA

Nozzle Glass / (Metal) / Other_____

Union None / (Metal) / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

Notes:

Field Data Sheet

Date: MAY 5/22	Plant: Covanta DYEC	Test No.: 3	Particle Size	Page 2 of 2
	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	46.55	.82	.35	281	260	247	61	63	66	67	.38	4
2	10.6	50.35	.81		282	256	246	49	53	66	67	.38	4
3	20.9	53.82	.75		283	256	247	47	54	67	67	.38	4
4	30.7	57.25	.70		283	256	250	47	54	67	67	.38	4
5	40.3	60.60	.63		282	257	251	47	54	67	67	.38	4
6	49.4	63.75	.55		281	257	255	50	55	68	69	.38	4
	582	66.81											
1	0	66.81	.81		281	257	245	49	52	68	69	.38	4
2	11.1	~~66.81~~ 70.70	.81		281	257	244	49	52	68	69	.38	4
3	22.0	~~70.70~~ 74.42	~~.88~~ .85		284	257	245	49	52	68	69	.38	4
4	33.0	78.14	.81		286	255	246	50	52	68	69	.38	4
5	43.4	81.80	.73		286	255	250	50	53	68	69	.38	4
6	53.0	85.20	.67		287	255	255	45	56	68	69	.38	4
	61.8	~~88~~ 89.33											

Traverse: 2				
Start Time: 1725	Initial Leak Check: .004	cfm@ 16	"Hg
Finish Time: 1823	Final Leak Check:	cfm@	"Hg

Traverse: 1			
Start Time: 1827	Initial Leak Check:	cfm @	"Hg
Finish Time: 1929	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator :

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	1 Particle Size
Test Date	MAY 17, 2022
Test Location	APC Outlet No. 2
Operator	DM

Project No.:	22158
Page	1 of 2
Probe No.:	5
Meter Box No.:	TEAM 2
Impinger Box No.:	11

Pitot Factor	0.854	
DGMCF	0.995	
Barometric Pressure	29.48	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	0.1776	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	DWELL
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other PFA

Nozzle Glass / Metal / Other_____

Union None / Metal / Teflon / Other_____

Pitot Leak Checked? Yes No

Particulate Gain

Filter	mg
Probe	mg

Moisture Gain

CWTR	150.5	g
WCBDA	11.7	g

Combustion Gas Concentration

Oxygen	8.67	%
Carbon Dioxide	10.41	%
Carbon Monoxide	15.6	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot	PM10/2.5
Trendicator	
Control Box	COE20092
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV. CAN
Calipers	303906

Nozzle Measurements	
1	0.1775
2	0.1775
3	0.1780
4	0.1775
Average:	

Notes:

Field Data Sheet

Date: MAY 17/22	Plant: Covanta DYEC	Test No.: 1 Particle Size	Page 2 of 2
	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	36.96	.84	0.35	284	261	243	60	63	63	63	.38	4
2	11.0	40.78	.78		282	260	249	49	55	63	64	.38	4
3	21.6	44.46	.76		281	254	248	49	54	64	64	.38	4
4	32.1	48.19	.71		283	249	248	49	54	64	65	.38	4
5	42.3	51.85	.67		284	261	250	51	55	65	66	.38	4
6	51.9	55.20	.68		284	260	250	50	55	66	66	.38	4
	60.9	58.43											
1	0	58.43	.77		284	246	246	54	55	66	68	.38	4
2	10.5	62.00	.74		284	246	247	54	55	66	68	.38	4
3	20.8	65.59	.75		283	247	249	53	55	67	68	.38	4
4	30.8	69.06	.74		284	247	249	53	55	67	68	.38	4
5	40.7	72.50	.72		285	249	250	53	54	68	68	.38	4
6	50.4	75.85	.64		285	251	249	53	54	67	69	.38	4
	59.1	78.91											

Traverse: 2			
Start Time: 841	Initial Leak Check: .004	cfm@ 15	"Hg
Finish Time: 942	Final Leak Check:	cfm@	"Hg

Traverse: 1			
Start Time: 945	Initial Leak Check: /	cfm @	"Hg
Finish Time: 1044	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator : RM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particle Size
Test Date	MAY 17, 2022
Test Location	APC Outlet No. 2
Operator	RM

Project No.:	22158
Page	1 of 2
Probe No.:	5
Meter Box No.:	T1
Impinger Box No.:	16

Pitot Factor	0.854	
DGMCF	0.995	
Barometric Pressure	29.50	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	0.1776	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter	mg
Probe	mg

Moisture Gain

CWTR	155.0	g
WCBDA	7.0	g

Combustion Gas Concentration

Oxygen	8.63	%
Carbon Dioxide	10.38	%
Carbon Monoxide	19.1	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST 1
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Probe Liner Glass / (Metal) / Teflon / (Other) N/A

Nozzle Glass / (Metal) / Other_____

Union None / (Metal) / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

Notes:

Field Data Sheet

Date: MAY 17/22	Plant: Covanta DYEC	Test No.: 2 Particle Size	Page 2 of 2
	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	78.96	.92	.35	283	262	246	61	62	68	68	.38	4
2	10.7	82.71	.90		283	260	249	55	56	68	68	.38	4
3	21.0	86.45	.88		283	260	250	54	56	69	69	.38	4
4	31.2	90.02	.84		283	260	249	53	54	69	70	.38	4
5	41.1	93.45	.76		284	260	250	53	55	69	70	.38	4
6	50.6	96.75	.69		284	260	251	53	54	69	70	.38	4
	60.3	100.12											
1	0	100.12	.86		284	250	251	55	57	70	71	.38	4
2	10.3	103.66	.86		284	250	251	54	55	70	71	.38	4
3	20.3	106.90	.87		284	250	251	54	55	70	71	.38	4
4	30.4	110.30	.84		284	250	251	54	55	70	71	.38	4
5	40.5	113.75	.81		285	251	251	54	55	70	71	.38	4
6	50.4	117.15	.74		287	251	250	55	56	71	72	.38	4
	59.7	120.42											

106.90

Traverse: 2					
Start Time: 11:35	Initial Leak Check: .004	cfm@	16	"Hg
Finish Time: 12:35	Final Leak Check:	cfm@		"Hg

Traverse: 1					
Start Time: 12:38	Initial Leak Check:		cfm @		"Hg
Finish Time: 13:38	Final Leak Check:		cfm @		"Hg

Project No.: 22158

Operator : RM

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particle Size
Test Date	MAY 17, 2022
Test Location	APC Outlet No. 2
Operator	RM

Project No.:	22158
Page	1 of 2
Probe No.:	5
Meter Box No.:	T1
Impinger Box No.:	11

Pitot Factor	0.854	
DGMCF	0.995	
Barometric Pressure	29.56	"Hg
Static Pressure	-10.0	"H2O
Nozzle Size	0.176	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	154.8	g
WCBDA	12.5	g

Combustion Gas Concentration

Oxygen	8.74	%
Carbon Dioxide	10.31	%
Carbon Monoxide	14.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST 1
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Reading Interval	DWELL
Number of Ports	2
Number of Points/Port	12

Nozzle Measurements

1 _____
2 _____
3 _____
4 _____
Average:

Probe Liner Glass / (Metal) / Teflon / (Other) PM

Nozzle Glass / (Metal) / Other_____

Union None / (Metal) / Teflon / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

Notes:

Field Data Sheet

Date: MAY 17/22	Plant: Covanta DYEC	Test No.: 3 Particle Size	Page 2 of 2
	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	20.51	.95	.35	288	261	245	65	64	71	71	.38	4
2	10.5	24.19	.86		288	257	247	56	55	71	72	.38	4
3	20.9	27.93	.82		283	257	250	55	55	71	72	.38	4
4	31.2	31.54	.74		284	256	248	57	56	72	73	.38	4
5	41.3	35.05	.73		285	256	250	58	55	72	73	.38	4
6	50.9	38.37	.65		285	256	251	56	54	72	73	.38	4
	60	41.58											
1	0	41.58	.84		285	255	248	60	56	73	74	.38	4
2	10.2	45.14	.90		287	255	248	57	56	73	74	.38	4
3	20.4	48.74	.90		288	255	249	57	56	73	75	.38	4
4	30.6	52.32	.82		288	258	248	57	57	73	75	.38	4
5	40.7	55.84	.77		288	258	248	57	57	73	75	.38	4
6	50.6	59.29	.68		288	257	250	58	56	74	75	.38	4
	60.0	62.59											

Traverse: 2					Traverse: 1				
Start Time:	1430	Initial Leak Check:	.005 cfm@	12 "Hg	Start Time:	1533	Initial Leak Check:	cfm @	"Hg
Finish Time:	1530	Final Leak Check:	cfm@	"Hg	Finish Time:	1633	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator: RM

APPENDIX 6

SVOC Data Sheets
(30 pages)

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Semi-Volatile Organic Compounds
Test Date	May 18 2022
Test Location	APC Outlet No. 1
Operator	TT

Project No.:	22158
Page	1 of 5
Probe No.:	6 Series
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.79	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	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	642.5	g
WCBDA	17.3	g

Combustion Gas Concentration

Oxygen	8.29	%
Carbon Dioxide	11.96	%
Carbon Monoxide	13.5	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot ISD	B03728
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	.2505
2	.2516
3	.2510
4	.2515
Average:	.2511

Notes:

Field Data Sheet

Date: May 18 2022	Plant: Covanta DYEC	Test No.: SVOC	Page 2 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No.___	

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 [redacted]/Trap °F	Meter Temp Outlet °F	Meter Temp Inlet °F	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
1	0	11.85	.76	.69	282	248	246	59	45	60	59	1.65	7.5
	5	15.27	.84	.73	283	253	247	53	41	59	64	1.9	9
2	10	18.90	.80	.72	283	253	244	49	41	60	66	1.8	9
	15	22.46	.80	.72	283	252	244	47	41	61	68	1.85	9.5
3	20	26.09	.80	.72	283	252	248	46	41	61	69	1.85	9.5
	25	29.72	.76	.70	283	252	249	45	41	62	70	1.8	9
4	30	33.27	.73	.69	283	252	249	44	41	70	62	1.8	9
	35	36.87	.73	.69	283	252	247	44	42	71	63	1.7	9
5	40	40.38	.7	.68	283	253	245	44	44	71	63	1.6	9
	45	43.82	.69	.67	283	252	245	44	43	72	63	1.65	9
6	50	47.23	.67	.66	284	252	249	44	44	72	64	1.6	9
	55	50.68	.67	.66	284	252	248	44	44	72	64	1.6	9
7	60	54.08	.69	.67	284	252	247	44	45	73	64	1.6	9
	65	57.49	.68	.68	284	253	246	44	44	73	64	1.7	9
8	70	60.99	.75	.70	284	252	244	44	45	73	64	1.75	9
	75	64.52	.76	.71	285	252	247	44	45	73	65	1.8	9
9	80	68.09	.75	.7	285	252	250	45	45	73	65	1.75	9
	85	71.68	.74	.7	285	252	250	45	45	73	65	1.75	9
10	90	75.26	.72	.69	285	252	246	45	45	73	65	1.7	9
	95	78.89	.73	.69	284	252	245	45	45	73	65	1.7	9
11	100	82.39	.68	.67	283	251	248	45	45	73	65	1.7	9

Traverse:					
Start Time: 9:32	Initial Leak Check:	.008	cfm@	17	"Hg
Finish Time:	Final Leak Check:	.003	cfm@	4	"Hg

Traverse:					
Start Time:		Initial Leak Check:		cfm @	"Hg
Finish Time:		Final Leak Check:		cfm @	"Hg

Static P

Project No.: 22158

Operator: TT

Field Data Sheet

Date: MAY 18/22	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 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
	105	85.89	.69	.69	248	251	250	45	45	72	65	1.7	9
12	110	89.35	.69	.67	281	251	250	45	45	73	65	1.7	9
	115	92.87	.67	.66	281	251	248	45	45	73	65	1.7	9
	120	96.35	.55	.60	281	251	246	45	45	73	65	1.7	9

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"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.: 22158

Operator : il

Field Data Sheet

Date: May 18/22	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 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	96.88	.86	.75	285	248	245	52	43	65	63	1.9	10
	5	100.68	.84	.74	286	253	243	47	43	67	63	1.9	10
2	10	104.38	.85	.74	286	251	245	47	44	68	63	1.85	10.5
	15	108.12	.84	.73	286	250	245	43	45	69	63	1.9	10.5
3	20	111.83	.85	.74	286	252	249	41	46	70	63	1.9	10.5
	25	115.17	.75	.70	287	252	244	40	47	70	64	1.8	10.5
4	30	118.79	.67	.66	287	252	246	40	47	71	64	1.7	10.5
	35	122.01	.61	.63	286	252	244	40	47	71	64	1.6	10.
5	40	125.35	.57	.61	286	252	244	40	47	72	64	1.5	9.5
	45	129.03	.55	.6	286	252	246	40	47	72	64	1.2	9
6	50	132.14	.6	.63	285	251	249	40	46	73	64	1.4	9
	55	135.33	.6	.63	285	251	249	40	47	74	65	1.4	9
7	60	138.49	.61	.63	285	251	247	40	49	74	65	1.4	9.5
	65	141.73	.61	.63	285	251	246	40	51	74	65	1.5	9.5
8	70	145.02	.73	.69	284	251	245	40	53	74	65	1.4	10
	75	148.40	.7	.68	284	252	244	40	55	73	65	1.6	10
9	80	151.84	.68	.67	284	252	244	41	58	73	65	1.6	10
	85	155.25	.68	.67	283	252	245	41	60	73	65	1.65	10
10	90	158.66	.67	.66	283	251	248	41	62	73	65	1.6	10
	95	162.05	.7	.68	283	251	250	41	64	73	65	1.6	10
11	100	165.47	.63	.64	282	251	251	42	66	73	65	1.55	10

Traverse:				
Start Time: 10:47 AM	Initial Leak Check:	0.004	cfm@ 19	"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.: 22158

Operator:

Field Data Sheet

Date: MAY 18/22	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 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
	105	168.83	.64	.67	247	251	251	42	67	73	65	1.56	10
12	110	172.22	.62	.66	245	251	251	42	66	73	65	1.55	10
	115	175.60	.63	.66	245	241	249	42	50	73	65	1.6	10
	120	179.01											

Traverse:					Traverse:				
Start Time:	Initial Leak Check:		cfm@	"Hg	Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time: 12:47 PM	Final Leak Check:	0.003	cfm@	20 "Hg	Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22158

Operator : TT

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Semi-Volatile Organic Compounds
Test Date	May 18 2022
Test Location	APC Outlet No. 1
Operator	TT

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.66	"Hg
Static Pressure	-10.8	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	673.7	g
WCBDA	15.6	g

Combustion Gas Concentration

Oxygen	8.36	%
Carbon Dioxide	10.85	%
Carbon Monoxide	14.8	ppm

Measuring Device	MII Numbers
Probe / Pitot 15D	B03778
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
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 18 2022	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 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	79.42	.72	.68	283	250	253	61	42	62	64	1.7	6
	5	82.92	.70	.67	283	254	248	58	40	62	67	1.7	7
2	10	86.35	.72	.68	283	253	249	55	40	63	70	1.65	7
	15	89.75	.75	.70	283	252	248	52	40	63	72	1.7	7
3	20	93.24	.77	.71	283	253	247	50	40	64	74	1.8	7
	25	96.81	.75	.70	283	253	251	48	41	65	75	1.7	7
4	30	100.34	.71	.69	283	253	246	48	41	66	76	1.6	7
	35	103.78	.73	.70	284	253	251	48	42	66	76	1.7	7
5	40	107.34	.71	.69	284	253	246	47	43	67	77	1.65	7
	45	110.81	.71	.69	284	253	250	48	43	67	77	1.65	7
6	50	114.27	.67	.67	284	252	247	48	44	67	77	1.5	7
	55	117.61	.67	.67	284	253	247	48	44	68	78	1.55	7
7	60	120.95	.71	.69	284	253	250	48	41	68	78	1.65	7
	65	124.41	.71	.69	284	253	245	47	42	68	78	1.65	7
8	70	127.87	.75	.71	284	253	250	47	42	68	78	1.75	7
	75	131.46	.75	.71	284	253	246	47	43	68	78	1.75	7
9	80	135.05	.79	.73	284	254	249	47	44	68	78	1.9	7.5
	85	138.78	.79	.73	284	253	249	47	46	69	78	1.8	7.5
10	90	142.40	.85	.75	284	254	247	47	47	69	78	1.9	7.5
	95	146.10	.86	.76	284	254	250	48	50	69	78	2.05	8
11	100	149.93	.83	.74	284	254	246	48	53	69	78	1.85	7.5

Traverse:					
Start Time: 14:02	Initial Leak Check:	.006	cfm@	20	"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.: 22158

Operator: TT

Field Data Sheet

Date: May 18 2022	Plant: Covanta DYEC	Test No.: 2 SVOC	Page 3 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
	105	153.69	.83	.74	284	254	251	48	56	69	78	1.95	7.5
12	110	157.46	.81	.74	284	254	245	48	49	~~69~~	~~79~~	1.9	7.5
	115	161.20	.84	.75	284	254	250	49	44	69	78	1.9	7.5
	120	164.97											

Traverse:					
Start Time: —	Initial Leak Check: —	cfm@	"Hg		
Finish Time: 16:07	Final Leak Check: .008	cfm@	18	"Hg	

Traverse:				
Start Time:	Initial Leak Check:	cfm @	"Hg	
Finish Time:	Final Leak Check:	cfm @	"Hg	

Project No.: 22158

Operator: TT

Field Data Sheet

Date: May 18 2022	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	165.37	.83	.74	283	250	247	59	45	68	70	1.95	7.5
	5	169.11	.83	.74	283	255	250	49	42	68	73	1.95	7.5
2	10	172.83	.90	.77	283	254	247	49	43	68	75	2.05	7.5
	15	176.67	.86	.76	283	254	251	49	44	68	76	2	8
3	20	180.49	.85	.75	283	254	246	50	44	68	77	1.95	8
	25	184.29	.81	.73	283	254	251	50	45	68	77	1.9	8
4	30	187.99	.77	.72	283	254	246	50	46	68	77	1.8	7.5
	35	191.63	.75	.71	283	254	251	51	47	69	78	1.8	7.5
5	40	195.20	.68	.67	283	253	246	51	51	69	78	1.6	7
	45	198.63	.68	.67	283	253	251	51	54	69	78	1.55	7
6	50	202.02	.58	.62	283	253	246	51	57	69	78	1.45	7
	55	205.23	.65	.66	283	253	250	50	60	69	78	1.5	7
7	60	208.54	.69	.68	283	253	247	49	51	69	79	1.6	7
	65	211.94	.73	.70	283	253	247	48	52	69	79	1.7	7.5
8	70	215.46	.74	.70	283	253	250	48	46	69	78	1.7	7.5
	75	218.99	.74	.70	283	253	246	47	43	69	78	1.7	7.5
9	80	222.54	.74	.70	283	253	250	47	43	69	78	1.7	7.5
	85	226.10	.73	.70	283	252	247	47	44	69	78	1.7	7.5
10	90	229.60	.76	.71	282	253	248	47	45	69	78	1.75	8
	95	233.20	.72	.69	282	253	250	47	48	69	78	1.65	8
11	100	236.68	.72	.69	282	252	245	48	47	69	78	1.65	8

Traverse:				
Start Time: 16:14	Initial Leak Check: .002	cfm@	17	"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.: 22158

Operator: TT

Field Data Sheet

Date: May 18 2022	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 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
	105	240.20	.64	.65	283	252	250	48	44	69	78	1.45	7
12	110	243.49	.64	.65	283	251	246	48	42	68	77	1.45	7
	115	246.77	.64	.65	283	252	247	48	42	68	78	1.45	7
	120	250.05											

Traverse:					
Start Time: —	Initial Leak Check:	—	cfm@	—	"Hg
Finish Time: 18:14	Final Leak Check:	.004	cfm@	16	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 22158

Operator : TT

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Semi-Volatile Organic Compounds
Test Date	May 19 2022
Test Location	APC Outlet No. 1
Operator	TT

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.38	"Hg
Static Pressure	- 11.2	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	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	686.8	g
WCBDA	12.4	g

Combustion Gas Concentration

Oxygen	8.16	%
Carbon Dioxide	11.00	%
Carbon Monoxide	16.4	ppm

Measuring Device	MII Numbers
Probe / Pitot (SD)	
Trendicator	
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: May 19 2022	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 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	350.54	.62	.63	282	250	245	57	38	59	60	1.4	6
	5	353.72	.60	.62	283	253	245	47	38	59	63	1.35	7
2	10	356.76	.68	.66	283	252	244	46	38	60	66	1.55	7.5
	15	360.05	.71	.68	283	252	245	46	39	60	68	1.6	8
3	20	363.40	.71	.68	284	252	244	45	39	61	70	1.65	8
	25	366.81	.71	.68	285	252	243	45	39	61	71	1.65	8
4	30	370.26	.70	.67	285	252	246	45	39	62	71	1.6	8
	35	373.64	.72	.68	285	252	246	45	39	62	72	1.65	8
5	40	377.10	.71	.68	285	252	246	45	39	63	72	1.7	8
	45	380.58	.71	.68	285	252	247	45	39	63	73	1.65	8
6	50	384.03	.63	.64	285	252	246	45	38	64	73	1.45	8
	55	387.28	.61	.63	286	251	246	46	38	64	73	1.4	8
7	60	390.48	.66	.66	286	251	246	46	38	64	74	1.55	8
	65	393.85	.66	.66	286	252	246	47	39	64	74	1.5	7.5
8	70	397.18	.73	.69	286	252	246	48	38	65	74	1.65	8
	75	400.67	.77	.71	285	252	247	48	39	65	74	1.75	8.5
9	80	404.25	.80	.72	285	252	246	46	39	65	74	1.8	8.5
	85	407.91	.81	.73	284	252	247	46	40	65	74	1.85	8.5
10	90	411.64	.81	.73	285	252	247	46	40	65	74	1.8	8.5
	95	415.29	.83	.74	284	252	246	46	41	65	74	1.9	8.5
11	100	419.04	.82	.73	284	253	246	46	42	65	74	1.8	8.5

Traverse:					
Start Time: 8:32	Initial Leak Check:	.002	cfm@	18	"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.: 22158

Operator: LT

Field Data Sheet

Date: May 19 2022	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 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
	105	422.69	0.82	0.73	284	252	246	46	42	66	74	1.8	8.5
12	110	426.33	0.83	0.74	284	252	249	47	41	66	74	1.9	8.5
	115	430.06	0.81	0.73	284	252	247	47	41	66	74	1.8	8.5
	120	433.74											

Traverse:					Traverse:				
Start Time: –	Initial Leak Check: –	cfm@ –	"Hg		Start Time:	Initial Leak Check:	cfm @	"Hg	
Finish Time: 10:37	Final Leak Check: .005	cfm@ 19	"Hg		Finish Time:	Final Leak Check:	cfm @	"Hg	

Project No.: 22158

Operator :

Field Data Sheet

Date: May 19 2022	Plant: Covanta DYEC	Test No.: 3 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	434.14	.61	.63	283	249	245	56	38	64	67	1.4	7
	5	437.39	.74	.69	283	253	246	46	39	64	69	1.65	8
2	10	440.86	.74	.69	283	252	247	44	39	64	71	1.65	8
	15	444.41	.76	.71	283	252	247	44	40	65	73	1.75	8
3	20	447.98	.77	.71	284	251	247	44	40	65	73	1.75	8
	25	451.57	.77	.71	286	251	248	44	57	65	74	1.75	8
4	30	455.15	.80	.72	286	251	248	44	39	65	74	1.8	8.5
	35	458.79	.81	.73	287	251	249	44	40	65	74	1.85	8.5
5	40	462.47	.78	.71	287	251	249	44	40	65	74	1.75	8
	45	466.08	.77	.71	287	251	249	44	39	65	74	1.75	8
6	50	469.68	.77	.71	287	251	249	44	39	65	74	1.75	8
	55	473.27	.78	.71	288	251	249	44	40	65	74	1.75	8
7	60	476.87	.7	.68	288	251	249	45	40	66	74	1.6	8
	65	480.32	.72	.69	288	251	248	45	39	66	74	1.65	8
8	70	483.80	.76	.71	288	251	248	45	39	66	75	1.75	8.5
	75	487.40	.76	.71	288	251	247	45	40	66	75	1.75	8.5
9	80	490.98	.82	.73	288	252	246	45	40	66	75	1.85	8.5
	85	494.69	.84	.74	288	252	246	45	42	66	74	1.95	9
10	90	498.48	.86	.75	288	252	246	45	42	66	74	1.95	9
	95	502.27	.86	.75	288	252	245	45	42	66	74	1.95	9
11	100	506.05	.86	.75	287	212	246	45	42	66	73	1.95	9

Traverse:					
Start Time: 10:46	Initial Leak Check:	.005	cfm@	19	"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.: 22158

Operator :

Field Data Sheet

Date: May 19 2022	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 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
	105	509.83	.87	.76	285	252	245	45	42	66	73	2.0	9
12	110	513.66	.87	.76	284	252	245	45	42	66	73	2.0	9
	115	517.49	.88	.76	283	252	245	45	42	66	73	2.0	9
	120	521.33											

Traverse:					
Start Time:	–	Initial Leak Check:	–	cfm@	– "Hg
Finish Time:	12:46	Final Leak Check:	.002	cfm@	21 "Hg

Traverse:					
Start Time:		Initial Leak Check:		cfm @	"Hg
Finish Time:		Final Leak Check:		cfm @	"Hg

Project No.: 22158

Operator : TT

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Semi-Volatile Organic Compounds
Test Date May 18, 2022	
Test Location	APC Outlet No. 2
Operator BM	

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	Team 1
Impinger Box No.:	14

Pitot Factor	0.845	
DGMCF	0.977	
Barometric Pressure	29.79	"Hg
Static Pressure	-10.90	"H2O
Nozzle Size	0.2505	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	664.8	g
WCBDA	18.0	g

Combustion Gas Concentration

Oxygen	8.51	%
Carbon Dioxide	10.58	%
Carbon Monoxide	12.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	15E
Trendicator	COE 20094
Control Box	11
Incline Manometer	4
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	0.2510
2	0.2505
3	0.2510
4	0.2495
Average:	0.2505

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 18, 2022	Plant: Covanta DYEC	Test No.: 1 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	83.94	0.97	0.82	272	254	256	52	43	65	63	~~4.5~~ 2.2	4.5
	5	87.93	0.98	0.83	281	~~258~~	256	50	44	64	63	2.3	5.0
2	10	92.05	0.95	0.81	283	258	256	47	44	64	63	2.3	5.0
	15	96.17	0.95	0.81	282	~~259~~	257	45	44	66	63	2.2	5.5
3	20	100.22	0.91	0.79	283	260	258	46	45	67	63	2.1	5.5
	25	104.18	0.89	0.78	283	261	258	45	44	68	64	2.1	5.5
4	30	108.13	0.81	0.75	283	~~283~~	257	45	44	70	64	1.9	5.0
	35	111.85	0.83	0.76	284	261	258	46	42	71	65	2.0	5.0
5	40	115.68	0.74	0.74	283	260	257	45	44	74	65	1.9	5.0
	45	119.48	0.74	0.72	284	262	259	45	43	74	65	1.8	5.0
6	50	123.13	0.62	0.66	284	262	259	44	43	72	66	1.4	4.0
	55	126.40	0.66	0.68	285	262	258	45	42	73	66	1.5	4.5
7	60	129.73	0.72	0.71	285	260	259	42	42	73	66	1.8	5.0
	65	133.37	0.72	0.71	285	262	260	42	43	75	66	1.8	5.0
8	70	137.02	0.74	0.72	284	260	260	41	42	74	67	1.8	5.0
	75	140.68	0.78	0.74	284	~~262~~ 260	260	40	42	74	66	1.9	5.0
9	80	144.43	0.79	0.75	285	262	259	40	42	74	67	1.9	5.0
	85	148.19	0.79	0.75	285	260	260	41	44	74	67	1.9	5.0
10	90	151.94	0.76	0.73	283	261	260	41	45	74	67	1.8	5.0
	95	155.61	0.78	0.74	284	261	260	~~41~~	44	73	68	1.9	5.0
11	100	159.32	0.77	0.74	284	260	259	40	46	76	68	1.9	5.0

Traverse: 1					Traverse:				
Start Time: 8:32	Initial Leak Check: <0.005	cfm@ 17	"Hg		Start Time:	Initial Leak Check:	cfm @	"Hg	
Finish Time:	Final Leak Check:	cfm@	"Hg		Finish Time:	Final Leak Check:	cfm @	"Hg	

Project No.: 22158

Operator: [signature]

Field Data Sheet

Date: May 18, 2022	Plant: Covanta DYEC	Test No.: 1 SVOC	Page 3 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
	105	163.04	0.74	0.72	284	259	258	41	47	75	67	1.7	5.0
12	110	166.65	0.65	0.68	172	259	259	41	46	73	68	1.8	5.0
	115	170.30	0.59	0.70	165	258	258	41	49	74	69	1.7	5.0
	120	173.90											

Traverse: 1			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 10:32	Final Leak Check: 0.006	cfm@ 16	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator : BM

Field Data Sheet

Date: May 18, 2022	Plant: Covanta DYEC	Test No.: 1 SVOC	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	174.28	0.92	0.80	287	254	257	44	47	69	69	2.1	6.0
	5	178.52	0.93	0.81	288	260	257	41	46	71	69	2.1	6.0
2	10	182.62	0.94	0.81	288	261	259	41	45	70	68	2.1	6.0
	15	186.71	0.97	0.82	288	260	259	42	44	72	68	2.2	6.0
3	20	190.80	0.96	0.82	288	263	260	42	43	72	68	2.2	6.0
	25	194.91	0.92	0.80	288	262	260	42	43	72	68	2.2	6.0
4	30	199.00	0.88	0.79	288	261	259	43	42	74	68	2.0	6.0
	35	202.93	0.87	0.78	288	262	258	44	43	74	69	2.0	6.0
5	40	206.85	0.85	0.77	287	261	258	44	44	74	69	2.0	6.0
	45	210.76	0.83	0.76	287	261	260	44	44	75	68	2.0	6.0
6	50	214.66	0.75	0.73	287	263	259	45	42	75	69	1.8	6.0
	55	213.38	0.72	0.71	286	262	259	45	43	74	68	1.7	6.0
7	60	221.97	0.75	0.73	286	262	260	45	41	74	68	1.8	6.0
	65	225.63	0.76	0.73	286	259	261	44	41	75	68	1.8	6.0
8	70	229.28	0.78	0.75	286	260	258	43	41	75	68	1.9	6.0
	75	233.04	0.80	0.75	286	258	260	44	42	75	69	2.0	6.0
9	80	236.89	0.80	0.75	286	258	260	45	43	75	69	2.0	6.0
	85	240.73	0.76	0.73	286	260	260	45	43	75	69	1.8	6.0
10	90	244.42	0.74	0.72	284	260	260	45	41	75	69	1.8	6.0
	95	248.10	0.67	0.69	284	260	260	46	43	76	69	1.6	5.5
11	100	251.63	0.59	0.65	284	261	260	44	41	75	69	1.5	5.0

Traverse: 2			
Start Time: 10:49	Initial Leak Check: 0.005	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.: 22158

Operator: B

Field Data Sheet

Date: May 18, 2022	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
	105	254.99	0.69	0.69	275	260	260	44	43	74	69	1.6	5.5
12	110	258.46	0.67	0.69	275	251	260	45	42	74	69	1.6	5.5
	115	261.93	0.67	0.69	274	261	261	44	43	74	69	1.6	5.5
	120	265.41											

Traverse: 2			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 12:49	Final Leak Check: < 0.005	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator :

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Semi-Volatile Organic Compounds
Test Date May 18, 2022	
Test Location	APC Outlet No. 2
Operator BM	

Project No.:	22158
Page	1 of 5
Probe No.:	
Meter Box No.:	Team 1
Impinger Box No.:	13

Pitot Factor	0.845	
DGMCF	0.977	
Barometric Pressure	29.67	"Hg
Static Pressure	-10.9	"H2O
Nozzle Size	0.2505	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	607.1	g
WCBDA	11.5	g

Combustion Gas Concentration

Oxygen	8.51	%
Carbon Dioxide	10.47	%
Carbon Monoxide	14.2	ppm

Measuring Device	MII Numbers
Probe / Pitot	15E
Trendicator	COE200994
Control Box	〃
Incline Manometer	〃
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	0.2510
2	0.2505
3	0.2510
4	0.2495
Average:	0.2505

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 18, 2022	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	65.77	0.86	0.78	267	253	252	55	34	65	64	2.1	5
	5	69.72	0.91	0.80	283	251	248	56	37	68	66	2.1	4.5
2	10	73.66	0.92	0.80	283	256	252	50	36	66	66	2.2	5.0
	15	77.68	0.91	0.80	282	255	253	44	39	68	66	2.2	5.0
3	20	81.69	0.91	0.80	285	260	257	42	39	69	66	2.2	5.0
	25	85.74	0.92	0.80	284	260	256	41	40	69	66	2.2	5.5
4	30	89.76	0.87	0.78	286	258	256	41	40	72	67	2.0	5.5
	35	93.72	0.86	0.78	286	261	256	40	39	73	67	2.1	5.5
5	40	97.69	0.82	0.76	285	258	257	41	39	73	68	1.9	5.0
	45	101.51	0.81	0.76	286	261	256	41	39	74	68	1.9	5.0
6	50	105.31	0.75	0.73	285	261	258	43	39	75	68	1.7	5.0
	55	108.95	0.71	0.71	285	260	257	43	40	75	68	1.7	5.0
7	60	112.57	0.77	0.74	286	260	256	44	39	76	69	1.8	5.0
	65	116.31	0.80	0.75	286	261	256	41	41	76	670	1.8	5.0
8	70	120.06	0.84	0.77	285	260	257	42	42	76	69	2.1	5.5
	75	123.97	0.84	0.77	285	260	257	43	43	75	68	2.1	5.5
9	80	127.92	0.84	0.77	287	260	257	42	43	75	69	2.0	5.5
	85	131.82	0.81	0.76	287	260	256	42	45	76	70	1.9	5.5
10	90	135.65	0.81	0.76	286	260	256	42	45	77	70	1.9	5.5
	95	139.47	0.83	0.77	286	260	256	42	42	78	70	1.9	5.5
11	100	143.30	0.79	0.75	282	260	256	42	41	76	71	1.9	5.5

Traverse:					
Start Time: 13:58	Initial Leak Check: 0.008	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.: 22158

Operator :

Field Data Sheet

Date: May 18, 2022	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 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
	105	147.17	0.78	0.75	278	260	257	42	42	~~76~~	71	1.8	5.0
12	110	150.92	0.78	0.75	278	260	257	43	41	76	71	1.8	5.0
	115	154.65	0.79	0.75	279	260	256	42	41	76	71	1.8	5.0
	120	158.50											

Traverse: 1				Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg	Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time: 15:58	Final Leak Check: 0.008	cfm@ 15	"Hg	Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator: [signature]

Field Data Sheet

Date: May 18, 2022	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 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	158.76	0.98	0.84	278	258	255	45	39	74	71	2.3	6.0
	5	162.93	1.0	0.84	285	259	252	42	43	75	71	2.2	6.0
2	10	167.12	0.98	0.84	286	259	257	42	43	76	71	2.3	6.0
	15	171.31	0.98	0.84	286	259	257	43	42	75	72	2.3	6.0
3	20	175.5	0.97	0.83	286	259	256	43	44	76	71	2.2	6.0
	25	179.68	0.97	0.83	286	261	257	42	44	76	71	2.2	6.0
4	30	183.87	0.86	0.78	286	260	257	42	46	78	71	2.3	6.0
	35	188.03	0.98	0.79	286	260	257	42	45	76	71	2.2	6.0
5	40	192.1	0.78	0.75	285	260	255	43	44	77	71	2.1	6.0
	45	196.07	0.77	0.74	286	260	255	44	42	76	71	2.0	6.0
6	50	199.86	0.65	0.68	286	261	254	43	41	77	71	1.8	6.0
	55	203.60	0.65	0.68	285	262	255	43	41	77	72	1.8	6.0
7	60	207.03	0.73	0.72	286	260	256	43	41	77	72	1.5	6.0
	65	210.67	0.72	0.72	286	262	256	42	41	76	72	1.8	5.0
8	70	214.43	0.75	0.73	285	261	256	43	41	76	71	1.8	5.0
	75	218.29	0.79	0.75	285	262	257	43	41	76	71	1.9	5.0
9	80	222.08	0.81	0.76	287	259	257	42	42	77	71	2.0	5.0
	85	225.97	0.81	0.76	287	261	257	43	42	77	71	2.0	6.0
10	90	229.90	0.77	0.74	286	261	258	43	44	77	71	2.0	6.0
	95	233.80	0.77	0.74	285	261	258	43	43	78	71	2.0	6.0
11	100	237.73	0.71	0.71	281	260	260	43	45	77	72	2.0	6.0

Traverse: 2			
Start Time: 16:08	Initial Leak Check: 0.008	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.: 22158

Operator : BM / NR

Field Data Sheet

Date: May 18, 2022	Plant: Covanta DYEC	Test No.: 2 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
	105	241.53	0.72	0.72	281	259	259	44	45	76	71	1.8	6.0
12	110	245.12	0.44	0.57	268	259	258	44	48	76	71	1.4	5.0
	115	248.50	0.44	0.57	269	259	258	43	49	77	71	1.2	4.0
	120	251.45											

Traverse: 2			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 18:08	Final Leak Check: 0.008	cfm@ 16	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator : B

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Semi-Volatile Organic Compounds
Test Date	May 19, 2022
Test Location	APC Outlet No. 2
Operator	N Rocchetti

Project No.:	22158
Page	1 of 5
Probe No.:	Covanta Probe
Meter Box No.:	Team 1
Impinger Box No.:	12

Pitot Factor	0.845	
DGMCF	0.977	
Barometric Pressure	29.38	"Hg
Static Pressure	-11.40	"H2O
Nozzle Size	0.305	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	688.3	g
WCBDA	14.4	g

Combustion Gas Concentration

Oxygen	8.23	%
Carbon Dioxide	10.68	%
Carbon Monoxide	16.1	ppm

Measuring Device	MII Numbers
Probe / Pitot	15E
Trendicator	Team 1
Control Box	"
Incline Manometer	"
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV can.
Calipers	

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 19, 2022	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 Δ P "H_2O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinger Temp		Meter Temp		Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
1	0	52.81	.98	.82	277	246	254	50	44	64	61	2.0	6.0
	5	57.09	.96	.80	283	245	256	47	54	63	62	2.5	6.0
2	10	61.31	.95	.80	284	248	257	45	52	64	62	2.3	6.0
	15	65.40	.96	.80	284	246	257	44	51	64	62	2.2	6.0
3	20	69.45	.91	.78	284	247	257	41	49	66	62	2.1	6.0
	25	73.5	.93	.79	283	248	257	40	50	66	62	2.1	6.0
4	30	77.43	.88	.77	285	248	257	40	50	67	62	2.1	6.0
	35	81.37	.89	.78	285	248	258	40	48	69	62	2	6.0
5	40	85.29	.79	.73	286	247	258	39	50	70	62	2	6.0
	45	89.17	.79	.73	285	250	258	39	49	70	63	2	6.0
6	50	93.03	.70	.69	286	249	257	39	49	71	64	2	6.0
	55	96.75	.73	.71	286	249	257	39	50	71	64	1.8	5.5
7	60	100.31	.73	.71	286	248	258	40	47	72	65	1.6	5.5
	65	103.89	.72	.70	286	249	259	40	46	72	65	1.6	5.5
8	70	107.54	.74	.71	285	249	258	40	46	72	65	1.6	5.5
	75	110.98	.75	.72	286	249	259	40	44	72	65	1.5	5.5
9	80	114.56	.75	.72	285	248	258	38	47	73	65	1.8	5.5
	85	118.27	.73	.71	285	249	259	38	45	73	66	1.8	5.5
10	90	121.92	.69	.69	285	249	258	39	46	75	67	1.7	5.5
	95	125.46	.71	.70	284	249	258	39	46	74	67	1.6	5.5
11	100	129.98	.61	.65	277	249	259	38	45	74	68	1.6	5.5

Traverse: 1					
Start Time: 8:37	Initial Leak Check: .003	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.: 22158

Operator: NRochette

Field Data Sheet

Date: May 19/22	Plant: Covanta DYEC	Test No.: 3 SVOC	Page 3 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
	105	132.50	.62	.66	275	248	259	38	46	75	68	1.6	5.5
12	110	135.85	.47	.58	268	249	258	40	45	73	67	1.4	5.0
	115	139.13	.46	.57	266	247	259	40	46	74	68	1.2	4.5
	120	141.91											

Traverse:				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 10:37	Final Leak Check:	.004	cfm@ 17	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator: N. Rocchetti

Field Data Sheet

Date: May 19/22	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 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	142.30	.89	.79	273	246	260	49	42	71	67	2.2	7
	5	146.49	.88	.88	284	246	258	39	48	71	68	2.2	7
2	10	150.43	.90	.79	285	245	259	40	47	72	68	2.1	7
	15	154.44	.91	.79	286	247	258	41	50	72	68	2.1	7
3	20	158.44	.88	.78	285	247	258	41	49	73	68	2.0	7
	25	162.42	.88	.78	285	247	259	40	48	72	68	2.0	7
4	30	166.32	.86	.77	285	246	259	41	49	74	68	2.0	7
	35	170.29	.87	.77	287	247	259	41	48	73	68	2.1	7
5	40	174.25	.81	.75	286	247	259	41	47	73	68	2.1	7
	45	178.28	.77	.73	286	246	258	40	48	73	68	2.0	7
6	50	181.93	.74	.71	287	248	258	40	47	74	68	1.8	6.5
	55	185.67	.71	.70	287	247	258	40	46	75	68	1.8	6.5
7	60	189.23	.79	.74	286	247	259	40	45	75	69	1.6	6.5
	65	192.82	.77	.73	286	247	259	41	48	74	69	1.7	6
8	70	196.60	.77	.73	286	248	258	40	49	74	68	1.9	6
	75	200.49	.78	.73	286	247	258	40	46	74	68	1.8	6
9	80	204.04	.80	.74	284	246	258	41	47	74	69	1.8	6
	85	207.93	.80	.74	286	247	259	41	49	74	69	2.0	7
10	90	211.77	.80	.75	284	248	258	41	48	74	69	1.9	7
	95	215.55	.81	.75	286	247	258	40	49	74	69	1.8	7
11	100	219.32	.72	.71	277	248	258	40	48	75	69	1.8	7

Traverse: 2				
Start Time: 10:46	Initial Leak Check: .005	cfm@	17	"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.: 22158

Operator :

Field Data Sheet

Date: May 19 / 22	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 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
	105	222.96	.73	.72	272	247	257	41	49	73	68	1.7	7
12	110	226.39	.49	.59	267	247	257	40	49	73	69	1.6	4
	115	229.23	.51	.60	267	245	258	41	46	73	69	1.0	5
	120	232.32											

Traverse: 2				Traverse:			
Start Time: ~~12:46~~	Initial Leak Check:	cfm@	"Hg	Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time: 12:46	Final Leak Check: 5.002	cfm@ 16	"Hg	Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator : N. Borcheth

APPENDIX 7

Acid Gas Field Data Sheets
(12 pages)

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	1 M26A
Test Date	May 17 2022
Test Location	APC Outlet No. 1
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.48	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	1
Number of Points/Port	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	145.7	g
WCBDA	11.2	g

Combustion Gas Concentration

Oxygen	8.06	%
Carbon Dioxide	11.17	%
Carbon Monoxide	14.5	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot ISD	303778
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	.2505
2	.2515
3	.2510
4	.2515
Average:	.2511

Notes:

Field Data Sheet

Date: May 17 2022	Plant: Covanta DYEC	Test No.: 1 M26A	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

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	735.92	.75	.71	280	248	247	58	61	61	60	1.7	4.5
	5	~~739~~ 740.29	.73	.69	283	253	248	43	67	61	65	1.6	4.5
	10	743.64	0.7	.68	283	251	244	42	72	68	61	1.5	4.5
	15	747.04	.7	.69	284	251	253	43	74	71	62	1.4	4.5
	20	750.56	.67	.67	284	251	248	43	76	73	63	1.5	4.5
	25	753.89	.67	.67	283	250	245	44	76	74	63	1.4	4.5
	30	757.56	.67	.67	282	251	253	45	76	75	64	1.4	4.5
	35	761.10	.67	.67	281	251	248	46	78	76	65	1.5	4.5
	40	764.63	.67	.67	284	250	245	47	76	76	65	1.4	4.5
	45	768.13	.67	.67	284	251	253	47	78	77	66	1.6	4.5
	50	771.67	.67	.67	284	251	248	49	79	77	66	1.6	5
	55	775.25	.67	.67	284	251	246	49	78	77	66	1.5	4.5
	60	778.82											

Traverse:				
Start Time: 8:33	Initial Leak Check:		cfm@	"Hg
Finish Time: 9:33	Final Leak Check:	0.002	cfm@ 13	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22158

Operator :

14 hg

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	M26A
Test Date	May 17 2022
Test Location	APC Outlet No. 1
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.50	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	1
Number of Points/Port	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	151.6	g
WCBDA	10.6	g

Combustion Gas Concentration

Oxygen	8.50	%
Carbon Dioxide	10.77	%
Carbon Monoxide	13.3	ppm

Measuring Device	MII Numbers
Probe / Pitot 150	
Trendicator	
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: May 17 2022	Plant: Covanta DYEC	Test No.: 2 M26A	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

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	779.03	.75	.71	280	250	248	63	80	64	65	1.5	4
	5	782.35	.81	.73	284	254	250	49	83	64	68	1.55	4
	10	785.69	.81	.73	285	253	244	48	224	64	72	1.7	4
	15	789.18	.81	.73	285	253	254	48	235	65	75	1.9	5
	20	792.90	.81	.73	285	253	251	49	233	66	76	1.9	5
	25	796.64	.81	.74	285	252	244	49	226	66	77	1.9	5
	30	800.34	.77	.72	285	252	255	49	236	67	78	1.8	5
	35	803.96	.81	.74	285	252	252	50	233	67	78	1.95	5
	40	807.68	.78	.72	284	252	244	51	226	67	78	1.8	5
	45	811.34	.78	.73	285	252	254	52	235	68	79	2.0	5
	50	815.19	.78	.73	285	252	254	52	235	68	79	1.9	5
	55	818.89	.78		285	252	245	55	227	68	79	1.9	5
	60	822.68											

Traverse:					
Start Time: 10:10	Initial Leak Check:	.002	cfm@	14	"Hg
Finish Time: 11:10	Final Leak Check:	.004	cfm@	14	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 22158

Operator : TT

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	M26A
Test Date	May 17 2022
Test Location	APC Outlet No. 1
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	6 Series
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.53	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	.251	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	1
Number of Points/Port	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	168.3	g
WCBDA	11.3	g

Combustion Gas Concentration

Oxygen	8.37	%
Carbon Dioxide	10.81	%
Carbon Monoxide	13.2	ppm

Measuring Device	MII Numbers
Probe / Pitot	
Trendicator	
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: May 17 2022	Plant: Covanta DYEC	Test No.: 3 M26A	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

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	823.01	.76	.71	283	251	254	65	72	65	65	1.75	5
	5	~~788~~ 826.61	.78	.72	285	256	249	46	228	65	69	1.8	5
	10	830.18	.80	.73	285	254	246	44	227	65	73	1.9	5
	15	833.88	.78	.72	285	253	253	45	235	66	75	1.8	5
	20	837.49	.78	.72	285	253	249	46	230	67	77	1.8	5
	25	841.12	.78	.72	285	252	246	47	227	67	78	1.85	5
	30	844.75	.79	.73	286	253	255	48	236	68	79	1.9	5
	35	848.49	.81	.74	285	253	249	49	232	68	80	2.0	5
	40	852.29	.78	.73	286	253	247	49	229	69	80	1.9	5
	45	856.04	.78	.73	286	253	255	50	237	69	80	1.8	5
	50	859.67	.78	.73	286	253	251	51	235	70	81	1.8	5
	55	863.32	.78		286	252	245	52	226	70	81		
	60	867.02											

Traverse: 1					
Start Time: 12:16	Initial Leak Check:	.004	cfm@	14	"Hg
Finish Time: 13:16	Final Leak Check:	.003	cfm@	14	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 22158

Operator : TT

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	M26A
Test Date	May 16 2022
Test Location	APC Outlet No. 2
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	6 Series
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.34	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	1
Number of Points/Port	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	133.0	g
WCBDA	14.6	g

Combustion Gas Concentration

Oxygen	9.33	%
Carbon Dioxide	9.75	%
Carbon Monoxide	20.0	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot .5D	B03778
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	.2505
2	.2513
3	.2510
4	.2515
Average:	.2511

Notes:

Field Data Sheet

M 26A

Date: May 16 2022	Plant: Covanta DYEC	Test No.: 1 ~~Preliminary Particulate~~	Page 2 of 2
	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	599.47	.72	.70	283	254	256	71	79	72	72	1.7	5
~~2~~	5	602.99	.74	.71	285	258	248	54	209	72	76	1.75	5
~~3~~	10	606.58	.75	.72	285	257	255	54	216	72	79	1.8	5
~~4~~	15	610.12	.75	.72	285	257	251	54	214	81	73	1.85	5
~~5~~	20	613.9	.77	.73	285	256	248	56	210	83	73	1.85	5
~~6~~	25	617.59	.8	.74	286	257	257	58	219	84	74	1.96	5
~~7~~	30	621.37	.81	.75	287	257	252	61	214	85	75	2.	5.5
~~8~~	35	625.22	.81	.75	287	256	248	62	211	85	75	1.95	5
~~9~~	40	629.03	.78	.74	287	257	257	62	219	86	76	1.95	5
~~10~~	45	632.81	.76	.73	287	256	253	61	216	86	76	1.9	5
~~11~~	50	636.36	.78	.73	286	255	247	57	226	86	76	1.93	5
~~12~~	55	642.9	.76	.74	286	256	257	55	234	87	76	1.9	5
	60	644.68											

Traverse:					
Start Time: 10:23	Initial Leak Check:	.005	cfm@	15	"Hg
Finish Time:	Final Leak Check:	.002	cfm@	15	"Hg

Static (-10.5)

Project No.: 22158

Operator :

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	M26A
Test Date	May 16 2022
Test Location	APC Outlet No. 2
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	6 Series
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.008	
Barometric Pressure	29.30	"Hg
Static Pressure	-10.5	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	1
Number of Points/Port	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	136.4	g
WCBDA	11.7	g

Combustion Gas Concentration

Oxygen	9.63	%
Carbon Dioxide	9.65	%
Carbon Monoxide	34.7	ppm

Measuring Device	MII Numbers
Probe / Pitot ISD	B03778
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Site Diagram

Notes:

Field Data Sheet

Date: May 16 2022	Plant: Covanta DYEC	Test No.: 2 M26A	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

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	644.54	.88	.76	286	253	245	67	132	73	74	1.98	5.5
	5	648.26	.90	.78	288	259	259	51	240	73	77	2.0	5.5
	10	652.11	.87	.77	288	258	257	49	239	73	80	2.0	5.5
	15	655.94	.94	.80	289	257	250	50	233	82	73	2.0	5.5
	20	659.83	.83	.75	289	256	249	50	232	83	73	2.1	5.5
	25	663.69	.79	.74	288	257	256	51	240	84	74	1.9	5.
	30	667.46	.79	.74	286	257	251	52	234	84	74	1.9	5.5
	35	671.21	.76	.72	284	256	248	53	230	84	74	1.9	5.5
	40	674.9	.77	.73	282	256	256	53	238	85	75	1.9	5.5
	45	678.67	.79	.74	283	256	251	54	234	85	75	1.9	5.5
	50	682.42	.8	.75	283	256	247	53	229	85	75	1.9	5.5
	55	686.24	.79	.74	283	256	256	53	238	85	75	1.9	5.5
	60	690.09											

Traverse:					
Start Time: 12:01	Initial Leak Check:	.001	cfm@	15	"Hg
Finish Time:	Final Leak Check:	.003	cfm@	15	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 22158

Operator :

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	M26A
Test Date	May 16 2022
Test Location	APC Outlet No. 2
Operator	

Project No.:	22158
Page	1 of 2
Probe No.:	6 Series
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.847	
DGMCF	1.002	
Barometric Pressure	29.30	"Hg
Static Pressure	-10.1	"H2O
Nozzle Size	.2511	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5
Number of Ports	1
Number of Points/Port	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	162.6	g
WCBDA	18.4	g

Combustion Gas Concentration

Oxygen	8.66	%
Carbon Dioxide	10.48	%
Carbon Monoxide	38.9	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot	B03778
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Notes:

Field Data Sheet

Date: May 16, 2022	Plant: Covanta DYEC	Test No.: 3 M26A	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: 3	APC Outlet No. 2

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	690.46	.82	.74	281	255	250	69	121	71	73	1.8	5
	5	694.12	.84	.75	276	256	254	59	234	76	72	1.8	5
	10	697.81	.83	.75	288	254	257	57	240	79	72	2.0	5
	15	701.61	.84	.76	289	254	251	58	233	81	72	2.0	5
	20	705.47	.82	.75	289	253	247	62	230	82	72	1.8	5
	25	709.26	.8	.74	289	253	257	65	239	83	72	1.8	5
	30	713.12	.75	.72	288	253	252	68	238	83	73	1.8	5
	35	716.73	.75	.72	288	252	246	72	227	83	73	1.6	5
	40	720.43	.77	.73	287	253	256	76	238	83	73	1.8	5
	45	724.19	.78	.73	286	253	253	80	234	84	73	1.8	5
	50	727.98	.78	.73	286	252	246	74	228	84	73	1.8	5
	55	731.92	.76	.72	285	253	255	61	237	84	73	1.8	5
	60	735.58											

Traverse: 1					
Start Time: 13:32	Initial Leak Check:	.002	cfm@	15	"Hg
Finish Time: 14:32	Final Leak Check:	.003	cfm@	15	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 22158

Operator :

APPENDIX 8

VOST Field Data Sheets
(6 pages)

Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Volatile Organics Sampling Train
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 H2O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm3)*
1	0.975	35.00	59.50	24.50	29.80	1.50	17.9	24.46	0.0245
2	0.975	60.16	83.75	23.59	29.79	1.50	20.1	23.37	0.0234
3	0.975	84.70	109.03	24.33	29.80	1.50	20.3	24.09	0.0241
4	0.975	10.00	32.95	22.95	29.78	1.30	20.0	22.72	0.0227

* 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.	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	1.023	4024.10	4044.10	20.00	29.80	1.18	17.8	20.94	0.0209
2	1.023	44.50	64.50	20.00	29.80	1.14	19.3	20.83	0.0208
3	1.023	64.80	84.80	20.00	29.78	1.08	20.0	20.77	0.0208
4	1.023	85.30	105.30	20.00	29.77	1.03	20.1	20.75	0.0207

* Dry at 25°C and 1 atmosphere

ORTECH Consulting Inc.

Vost Data Sheet

Plant: Covanta DYEC			
Plant Location: Courtice, ON	Test Condition:		Control Box ID: M05498
Test location: APC Outlet No. 1	DGMCF: 0.975		Operator: JC.
Date: MAY 18, 2021	Barometric Pressure: "Hg		Project No: 22158
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:	10A 10B

L2697477-68

PBAR - 29.80

Test 1 Start Time: 0830	Initial Leak Check NDL @ 21 "Hg				Sample ID: 5A - 5B
Test 1 End Time: 0914	Final Leak Check NDL @ 22 "Hg				Lab ID: L2697477-6

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	35.00	146	140	15	15	1.5	4.0
5	38.30	145	140	16	16	1.5	4.0
10	41.10	146	140	16	16	1.5	4.0
15	44.38	145	140	16	18	1.5	4.0
20	46.65	145	140	19	18	1.5	4.0
25	49.80	144	140	09	19	1.5	4.0
30	53.15	143	140	08	19	1.5	4.0
35	56.35	146	140	07	20	1.5	4.0
40	59.5	142	139	08	20	1.5	4.0

PBAR - 29.79

Test 2 Start Time: 0915	Initial Leak Check NDL @ 22 "Hg				Sample ID: 6A 6B
Test 2 End Time: 0955	Final Leak Check NDL @ 22 "Hg				Lab ID: L2697477-6

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	60.16	145	140	07	19	1.5	4.0
5	63.45	142	139	07	19	1.5	4.0
10	66.5	145	140	08	20	1.5	4.0
15	69.46	146	140	08	20	1.5	4.0
20	72.35	146	140	07	21	1.5	4.0
25	75.25	143	140	07	20	1.5	4.0
30	77.85	145	141	08	21	1.5	4.0
35	80.85	144	140	07	20	1.5	4.5
40	83.75	144	141	07	21	1.5	4.5

ORTECH Consulting Inc.

Vost Data Sheet

Plant: Covanta DYEC			
Plant Location: Courtice, ON	Test Condition:		Control Box ID: M5498
Test location: APC Outlet No. 1	DGMCF: 0.975		Operator: JC.
Date: MAY 18, 2022	Barometric Pressure: "Hg		Project No: 22158
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: 10A 10B	

L2697472-G

PBAR - 29.80

Test 3 Start Time: 1000	Initial Leak Check NDL @ 22 "Hg				Sample ID: 4A 4B
Test 3 End Time: 1040	Final Leak Check NDL @ 22 "Hg				Lab ID: L2697472-G

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	84.70	143	140	08	19	4.0 ↔ 1.5	
5	87.80	144	140	07	20	1.5	4.0
10	91.00	145	140	07	20	1.5	4.0
15	94.00	146	141	07	21	1.5	4.0
20	97.00	144	141	06	20	1.5	4.0
25	100.00	144	141	06	20	1.5	4.0
30	103.20	144	141	07	21	1.5	4.0
35	106.00	144	141	07	21	1.5	4.0
40	109.03	144	141	07	21	1.5	4.0

PBAR - 29.78

Test 4 Start Time: 1045	Initial Leak Check NDL @ 22 "Hg				Sample ID: ~~3A 3B~~ 4A 4B
Test 4 End Time: 1125	Final Leak Check NDL @ 22 "Hg				Lab ID: L2697472-G

Clock Time	Dry Gas Meter L	Temperatures Probe °C	Stack °C	Condensor °C	Meter Avg °C	Meter Pressure "H_2O	Pump Vacuum "Hg
0	10.00	144	141	07	19	1.3	5.0
5	12.80	144	141	07	19	1.3	5.0
10	16.10	143	141	07	20	1.3	5.0
15	19.00	143	141	07	20	1.3	5.0
20	21.95	145	141	07	20	1.3	5.0
25	25.00	146	141	06	21	1.3	5.0
30	27.80	146	141	07	20	1.3	5.0
35	30.85	145	141	06	21	1.3	5.0
40	33.95	145	141	6	21	1.3	5.0

ORTECH Consulting Inc.

Vost Data Sheet

Plant: Covanta DYEC			
Plant Location: Courtice, ON	Test Condition: Voluntary		Control Box ID: Vost 5
Test location: APC Outlet No. 2	DGMCF: 1.023		Operator: RW
Date: May 18	Barometric Pressure: "Hg		Project No: 22158
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:	9 AeB

PBAR - 29.80

Test 1 Start Time: 8:38	Initial Leak Check NDL @ 15 "Hg	Sample ID: 12 AeB			
Test 1 End Time: 9:18	Final Leak Check NDL @ 13 "Hg	Lab ID: L2697472-70			

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	4024.1	113	138	10	18	1.2	1
5	4026.5	114	138	8	17	1.2	1
10	4029.0	113	138	8	17	1.2	1
15	4031.6	113	138	8	18	1.2	1
20	4034.1	113	138	8	18	1.2	1
25	4036.6	113	139	9	18	1.2	1
30	4039.1	113	139	9	18	1.2	1
35	4041.6	113	139	9	18	1.1	1
40	4044.1	113	139	9	18	1.1	1

PBAR - 29.80

Test 2 Start Time: 9:32	Initial Leak Check NDL @ 15 "Hg	Sample ID: 13 AeB			
Test 2 End Time: 10:12	Final Leak Check NDL @ 15 "Hg	Lab ID: L2696747 2-71			

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	44.5	114	140	9	19	1.1	1.5
5	47.0	114	140	8	19	1.1	1.5
10	49.5	114	140	8	19	1.2	1.5
15	52.0	113	140	8	19	1.2	1.5
20	54.5	113	140	8	19	1.2	1.5
25	57.0	114	140	8	19	1.2	1.5
30	59.5	113	141	8	20	1.1	1.5
35	62.0	113	141	8	20	1.1	1.5
40	64.5	113	141	8	20	1.1	1.5

ORTECH Consulting Inc.

Vost Data Sheet

Plant: Covanta DYEC			
Plant Location: Courtice, ON	Test Condition: Voluntary		Control Box ID: Vost 5
Test location: APC Outlet No. 2	DGMCF: 1.023		Operator: RW
Date: May 18	Barometric Pressure: "Hg		Project No: 22158
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:	9 A & B

PBAR - 29.78

Test 3 Start Time: 10:21	Initial Leak Check NDL @ 15 "Hg				Sample ID: 14 A&B
Test 3 End Time: 11:01	Final Leak Check NDL @ 15 "Hg				Lab ID: L2697472-72

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	64.8	113	143	8	20	1.1	2
5	67.3	113	143	8	20	1.1	2
10	69.8	113	143	8	20	1.1	2
15	72.3	113	142	8	20	1.1	2
20	74.8	113	142	8	20	1.0	2
25	77.3	113	142	8	20	1.0	2
30	79.8	113	142	8	20	1.1	2
35	82.3	113	142	8	20	1.1	2
40	84.8	113	142	8	20	1.1	2

PBAR - 29.77

Test 4 Start Time: 11:08	Initial Leak Check NDL @ 15 "Hg				Sample ID: 15 A&B
Test 4 End Time: 11:48	Final Leak Check NDL @ 15 "Hg				Lab ID: L2697472-73

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	85.3	113	141	8	20	1.1	1.5
5	87.8	113	142	9	20	1.1	2
10	90.3	113	142	9	20	1.1	2
15	92.8	113	141	9	20	1.0	2
20	95.3	113	141	9	20	1.0	2
25	97.8	113	141	9	20	1.0	2
30	100.3	114	141	9	20	1.0	2
35	102.8	114	141	9	20	1.0	2
40	105.3	114	141	10	21	1.0	2

APPENDIX 9

Aldehydes Field Data Sheets
(8 pages)

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	0.975	34.28	69.78	35.50	29.77	1.27	20.8	35.04	0.0350
2	0.975	70.70	106.27	35.57	29.73	1.21	20.7	35.07	0.0351
3	0.975	7.70	41.62	33.92	29.70	1.20	22.1	33.25	0.0333

* 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	1.023	5.70	35.70	30.00	29.76	1.01	19.8	31.15	0.0311
2	1.023	37.00	67.00	30.00	29.73	1.00	20.8	31.01	0.0310
3	1.023	71.10	101.10	30.00	29.67	1.00	22.0	30.82	0.0308

* Dry at 25°C and 1 atmosphere.

ORTECH Consulting Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	1
Test location:	APC Outlet No. 1
Date:	May 18, 2022
Project No.:	22158

Measuring Device	MII Number
Control Module	M054988
Barometer	Env Canada

Barometric Pressure:	29.77	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	34.28	140	141		17	19	1.3	4
5	37.80	142	141		16	20	1.3	4
10	40.90	146	141		16	20	1.3	4
15	43.20	142	141		14	21	1.3	4
20	47.00	142	141		13	21	1.3	4
25	50.40	141	141		10	21	1.3	4
30	53.20	144	140		10	20	1.3	4
35	56.52	144	140		9	21	1.3	4
40	59.54	146	140		8	21	1.3	4
45	62.10	149	140		8	21	1.2	4
50	64.60	146	140		8	21	1.2	4
55	67.25	146	142		8	22	1.2	4
60	69.78	145	142		8	22	1.2	4

Start Time:	1150		
Finish Time:	1250		
Initial Leak Check:	2.01	Lpm @ 15	" Hg
Final Leak Check:		Lpm @	" Hg

DGMCF:	0.975
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	2
Test location:	APC Outlet No. 1
Date:	MAY 18, 2022
Project No.:	22158

Measuring Device	MII Number
Control Module	M05498
Barometer	Env Canada

Barometric Pressure:	29.73	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	70.70	145	141		14	18	1.3	4.0
5	73.2	143	141		13	19	1.3	4.0
10	77.35	143	141		10	19	1.2	4.0
15	80.15	143	141		10	20	1.2	4.0
20	83.12	143	141		08	20	1.2	4.0
25	86.90	144	141		08	21	1.2	4.0
30	89.80	144	141		08	21	1.2	4.0
35	91.80	145	140		08	21	1.2	4.0
40	94.65	143	140		07	22	1.2	4.0
45	97.53	146	140		07	22	1.2	4.0
50	100.50	145	140		07	22	1.2	4.0
55	103.20	143	140		07	22	1.2	4.0
60	106.27	143	140		07	22	1.2	4.0

Start Time:	1343		
Finish Time:	1443		
Initial Leak Check:	2.01	Lpm @ 22	" Hg
Final Leak Check:		Lpm @	" Hg

DGMCF:	0.975
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	3
Test location:	APC Outlet No. 1
Date:	MAY 18, 2022
Project No.:	22158

Measuring Device	MII Number
Control Module	M05498
Barometer	Env Canada

Barometric Pressure:	29.70	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	7.70	144	140		14	23	1.2	3.0
5	10.75	144	140		14	25	1.2	3.0
10	14.20	144	141		14	22	1.2	3.0
15	16.95	145	140		10	22	1.2	3.0
20	20.95	146	141		8	23	1.2	3.0
25	23.95	144	140		8	22	1.2	3.0
30	25.25	144	140		8	22	1.2	3.0
35	28.0	146	140		8	23	1.2	3.0
40	30.82	146	140		8	23	1.2	3.0
45	32.55	146	140		8	22	1.2	3.0
50	36.30	146	140		8	22	1.2	3.0
55	38.90	146	146		8	22	1.2	3.0
60	41.62	146	140		8	22	1.2	3.0

Start Time:	1448		
Finish Time:	1548		
Initial Leak Check:	<.01	Lpm @ 22	"Hg
Final Leak Check:	<.01	Lpm @ 22	"Hg

DGMCF:	0.975
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: Jay

ORTECH Consulting Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	1 M26 ALD-5
Test location:	APC Outlet No. 2
Date:	May 18
Project No.:	22158

Measuring Device	MII Number
Control Module	VOST 5
Barometer	Env Canada

Barometric Pressure:	29.76	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	5.7	133	138		17	19	1.1	2
5	8.2	132	139		12	19	1.0	2
10	10.7	132	140		10	19	1.0	2
15	13.2	135	139		10	19	1.0	2
20	15.7	135	139		10	19	1.0	2
25	18.2	133	139		9	19	1.0	2
30	20.7	134	139		9	20	1.0	2
35	23.2	133	139		9	20	1.0	2
40	25.7	134	139		9	20	1.0	2
45	28.2	134	138		10	20	1.0	2
50	30.7	134	138		10	21	1.0	2
55	33.2	134	138		10	21	1.0	2
60	35.7	134	138		10	21	1.0	2

Start Time:	12:24		
Finish Time:	13:24		
Initial Leak Check:	NDL	Lpm @ 17	" Hg
Final Leak Check:	NDL	Lpm @ 15	" Hg

DGMCF:	1.023
Sample Volume:	30
Average DGM Temp:	19.8
Average DGM Δ H:	1.1

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: RV

ORTECH Consulting Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	2 M26 ACD-6
Test location:	APC Outlet No. 2
Date:	May 18/22
Project No.:	22158

Measuring Device	MII Number
Control Module	VOST #5
Barometer	Env Canada

Barometric Pressure:	29.73	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	37.0	135	139		19	20	1.0	2
5	39.5	135	139		13	20	1.0	2
10	42.0	135	138		12	20	1.0	2
15	44.5	135	139		10	20	1.0	2
20	47.0	135	139		10	21	1.0	2
25	49.5	135	139		10	21	1.0	2
30	52.0	135	139		9	21	1.0	2
35	54.5	134	139		10	21	1.0	2
40	57.0	137	139		10	21	1.0	2
45	59.5	135	139		10	21	1.0	2
50	62.0	135	139		10	21	1.0	2
55	64.5	135	139		10	22	1.0	2
60	67.0							

Start Time:	13:58		
Finish Time:	14:58		
Initial Leak Check:	NDL	Lpm @ 15	" Hg
Final Leak Check:	NDL	Lpm @ 15	" Hg

DGMCF:	1.023
Sample Volume:	30
Average DGM Temp:	20.7
Average DGM Δ H:	1.0

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: R

ORTECH Consulting Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	3 M26 ALO-7
Test location:	APC Outlet No. 2
Date:	May 18
Project No.:	22158

Measuring Device	MII Number
Control Module	VOST #5
Barometer	Env Canada

Barometric Pressure:	29.67	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Oven Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	71.1	133	139		17	22	1.0	2
5	73.6	135	139		14	22	1.0	2
10	76.1	133	139		10	22	1.0	2
15	78.6	133	139		11	22	1.0	2
20	81.1	135	139		11	22	1.0	2
25	83.6	135	139		11	22	1.0	2
30	86.1	135	139		11	22	1.0	2
35	88.6	135	139		11	22	1.0	2
40	91.1	135	139		12	22	1.0	2
45	93.6	137	139		12	22	1.0	2
50	96.1 ~~16:05~~	136	139		12	22	1.0	2
55	98.6	135	139		12	22	1.0	2
60	101.1							

Start Time:	15:05		
Finish Time:	16:05		
Initial Leak Check:	NDL	Lpm @ 15	" Hg
Final Leak Check:	NDL	Lpm @ 15	" Hg

DGMCF:	1.023
Sample Volume:	30
Average DGM Temp:	22
Average DGM Δ H:	1.0

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: [illegible]

APPENDIX 10

ORTECH Sample Log/Chain of Custody Forms
(9 pages)

ORTECH Consulting Inc. - Sample Log

Acid Gases

Covanta

L2707982-COFC

Client: Covanta
Job/Report Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO #: 22158-J2843

ORTECH Sample ID 22-22158-M26A-	Sample Date	Location	Sample Description	Media	Sample Analysis
1	MAY 17/22	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
2	↓	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
3	↓	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
4	MAY 16/22	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
5	↓	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
6	↓	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
Blank 1	MAY 17/22	APC # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia
Blank 2	↓	APC # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	HCl, HF & Ammonia

Analyze for HCl, HF and Ammonia

Relinquished By: _____ Date: _____

Relinquished To: _____ Date: _____

18-May-22

7.2°C

12:10

ORTECH Consulting Inc. - Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote/ PO: 22158-J2843

L2708204-COFC

ORTECH Sample ID 22-22158-M201A-	Date	Test No.	Location	Sample Description	Sample Media	Sample Analysis
1	MAY 17/22	1	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
2				PM 2.5 cyclone Rinse	Acetone	Particulate
3				PM 2.5 exit & connectors	Acetone	Particulate
4				Back up filter	filter	Particulate
5				Impinger Soln & rinse	Water	Particulate
6				Secondary Filter	Filter	Particulate*
7				Impinger Rinse	Acetone & Hexane	Particulate
22	16	1	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
23	17			PM 2.5 cyclone Rinse	Acetone	Particulate
24	18			PM 2.5 exit & connectors	Acetone	Particulate
25	19			Back up filter	filter	Particulate
26	20			Impinger Soln & rinse	Water	Particulate
27				Secondary Filter	Filter	Particulate*
28				Impinger Rinse	Acetone & Hexane	Particulate
29	21	2	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
30	22			PM 2.5 cyclone Rinse	Acetone	Particulate
31	23			PM 2.5 exit & connectors	Acetone	Particulate
32	24			Back up filter	Filter	Particulate
33	25			Impinger Soln & rinse	Water	Particulate
34				Secondary Filter	Filter	Particulate*
35				Impinger Rinse	Acetone & Hexane	Particulate
36	26	3	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
37	27			PM 2.5 cyclone Rinse	Acetone	Particulate
38	28			PM 2.5 exit & connectors	Acetone	Particulate
39	29			Back up filter	Filter	Particulate
40	30			Impinger Soln & rinse	Water	Particulate
41				Secondary Filter	Filter	Particulate*
42				Impinger Rinse	Acetone & Hexane	Particulate
43	31	Blank	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
44	32			PM 2.5 cyclone Rinse	Acetone	Particulate
45	33			PM 2.5 exit & connectors	Acetone	Particulate
46	34			Back up filter	filter	Particulate
47	35			Impinger Soln & rinse	Water	Particulate
48				Secondary Filter	Filter	Particulate*
49				Impinger Rinse	Acetone & Hexane	Particulate

Note: *To be included in condensible particulate analysis as per US EPA Method 202.

Relinquished To: _____ Date: _____

Relinquished By: _____ Date: _____

18-May-22

12:10

7.2°C

ORTECH Consulting Inc. - Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote/ PO: 22158-J2843

L2708204-COFC

ORTECH Sample ID 22-22158-M201A-	Date	Test No.	Location	Sample Description	Sample Media	Sample Analysis
8 6	18-May-22	2	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
9 7				PM 2.5 cyclone Rinse	Acetone	Particulate
10 8				PM 2.5 exit & connectors	Acetone	Particulate
11 9				Back up filter	filter	Particulate
12				Impinger Soln & rinse	Water	Particulate
13 10				Secondary Filter	Filter	Particulate*
14				Impinger Rinse	Acetone & Hexane	Particulate
15 11	18-May-22	3	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
16 12				PM 2.5 cyclone Rinse	Acetone	Particulate
17 13				PM 2.5 exit & connectors	Acetone	Particulate
18 14				Back up filter	filter	Particulate
19				Impinger Soln & rinse	Water	Particulate
20 15				Secondary Filter	Filter	Particulate*
21				Impinger Rinse	Acetone & Hexane	Particulate
50 36	19-May-22	Blank	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
51 37				PM 2.5 cyclone Rinse	Acetone	Particulate
52 38				PM 2.5 exit & connectors	Acetone	Particulate
53 39				Back up filter	Filter	Particulate
54				Impinger Soln & rinse	Water	Particulate
55 40				Secondary Filter	Filter	Particulate*
56				Impinger Rinse	Acetone & Hexane	Particulate

Note: *To be included in condensible particulate analysis as per US EPA Method 202.

19.6°C 11:30

Relinquished To: ANRAN BELTAN Date: 20-MAY-2022

Relinquished By: Date: MAY 20/22

ORTECH Consulting Inc. - Sample Log
VOCs

Client: Covanta
Project Number: 22158
Received By: C Belore
Job Assigned To: ALS
Quote / PO : 22158-J2843

Test Location	Test Number	ORTECH Sample ID 22-22158-VOST-	Sample Date	Sample Description	Sample Analysis
# 1 APC Outlet	1	5 A,B	May 18, 2022	Tenax and Tenax/Charcoal	VOCs 1
	2	6 A,B		Tenax and Tenax/Charcoal	VOCs 2
	3	4 A,B		Tenax and Tenax/Charcoal	VOCs 3
	4	3 A,B		Tenax and Tenax/Charcoal	archive 4
	Field Blank	10 A,B		Tenax and Tenax/Charcoal	VOCs 5
# 2 APC Outlet	1	12 A,B	May 18, 2022	Tenax and Tenax/Charcoal	VOCs 6
	2	13 A,B		Tenax and Tenax/Charcoal	VOCs 7
	3	14 A,B		Tenax and Tenax/Charcoal	archive 8
	4	15 A,B		Tenax and Tenax/Charcoal	VOCs 9
	Field Blank	9 A,B		Tenax and Tenax/Charcoal	VOCs 10
	Trip Blank	16 A,B	MAY 19/22	Tenax and Tenax/Charcoal	VOCs 11

Refer to letter dated April 5, 2022 for lists of analytes.

Custody Relinquished by: _____ Date: MAY 20/22

Custody Received by: Aaron Bolton Date: 20-MAY-2022

11:30 11.4°C

L2708341-COFC

ORTECH Consulting Inc. - Recovery & Sample Log
NCASI Method ISS/FP-A105.01

Client: Covanata DYEC
Job/Report Number: 22158
Received By: Chris Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO #: 22158-J2843

L2708367-COFC

Test Number	Test Location	ORTECH Sample ID 22-22158-	Date Sampled	ID of BHA Sample Bottle	Empty Weight BHA Sample Bottle (g)	Initial Weight Sample Bottle + BHA (g)	Final Weight of BHA Sample Bottle (g)	Weight of Sample Bottle BHA & H2O (g)	Weight of Sample Bottle BHA & H2O & Hexane (g)
1	APC Outlet #1	ALD-1	May 18, 2022	ALD-1	109.7	160.0	162.5	172	172.1
2	APC Outlet #1	ALD-2	"	ALD-2	113.9	164.3	166.1	170.9	174.6
3	APC Outlet #1	ALD-4	"	ALD-4	109.3	158.3	164.8	169.6	~~174.4~~ 172.4
Blank 1	APC Outlet #1	Blank 1	"	ALD-3	112.5	161.4	~~163.4~~	163.4	171.0
1	APC Outlet #2	ALD-5	May 18, 2022	ALD-5	110.1	158.8	161.2	168.8	~~171.7~~ 175.5
2	APC Outlet #2	ALD-6	May 18, 2022	ALD-6	109.6	160.2	162.7	166.6	173.2
3	APC Outlet #2	ALD-7	"	ALD-7	108.7	161.1	~~168.1~~	169.6	175.7
Blank 2	APC Outlet #2	Blank 2	"	ALD-8	111.2	163.4	163.1	169.6	173.2
				ALD-9	109.1	161.6			
	Field BHA&Spike		na	na	na	na	na	na	na
	BHA Blank		na	na	na	na	na	na	na
				ALD-10	110.1	161.0			

Analyze each sample for Acetaldehyde, Formaldehyde, Acrolein.

Relinquished by: _____ Date: May 20/22

Relinquished to: Amra Bulta Date: 20-MAY-2022 11:30 9.9°C

ORTECH Consulting Inc. - Sample Log
Particulate and Metals Samples
Covanta

Client: Covanta
Project Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
QUOTE/PO: 22158-J2843

ORTECH Sample ID 22-22158-PM-	Sample Date	Location	Test No.	Sample Description	Sample Media	Sample Analysis
1		#1 APC Outlet	1	Probe Rinse Acetone	Acetone	Particulate & Metals
2				Probe Rinse Nitric	0.1N Nitric	Metals
3				Filter	Particulate	Particulate & Metals
4				Impinger 1-4 Solution	Nitric/Peroxide	Metals
5				Impinger 5-6 Solution	Acid. KMnO4	Mercury
6				Impinger 5-6 Rinse	8N HCl	Mercury
7		#1 APC Outlet	2	Probe Rinse Acetone	Acetone	Particulate & Metals
8				Probe Rinse Nitric	0.1N Nitric	Metals
9				Filter	Particulate	Particulate & Metals
10				Impinger 1-4 Solution	Nitric/Peroxide	Metals
11				Impinger 5-6 Solution	Acid. KMnO4	Mercury
12				Impinger 5-6 Rinse	8N HCl	Mercury
13		#1 APC Outlet	3	Probe Rinse Acetone	Acetone	Particulate & Metals
14				Probe Rinse Nitric	0.1N Nitric	Metals
15				Filter	Particulate	Particulate & Metals
16				Impinger 1-4 Solution	Nitric/Peroxide	Metals
17				Impinger 5-6 Solution	Acid. KMnO4	Mercury
18				Impinger 5-6 Rinse	8N HCl	Mercury
19		Blank 1	Blank 1	Probe Rinse Acetone	Acetone	Particulate & Metals
20				Probe Rinse Nitric	0.1N Nitric	Metals
21				Filter	Particulate	Particulate & Metals
22				Impinger 1-4 Solution	Nitric/Peroxide	Metals
23				Impinger 5-6 Solution	Acid. KMnO4	Mercury
24				Impinger 5-6 Rinse	8N HCl	Mercury

ORTECH Consulting Inc. - Sample Log
Particulate and Metals Samples
Covanta

Client: Covanta
Project Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
QUOTE/PO: 22158-J2843

ORTECH Sample ID 22-22158-PM-	Sample Date	Location	Test No.	Sample Description	Sample Media	Sample Analysis
25		#2 APC Outlet	1	Probe Rinse Acetone	Acetone	Particulate & Metals
26				Probe Rinse Nitric	0.1N Nitric	Metals
27				Filter	Particulate	Particulate & Metals
28				Impinger 1-4 Solution	Nitric/Peroxide	Metals
29				Impinger 5-6 Solution	Acid. KMnO4	Mercury
30				Impinger 5-6 Rinse	8N HCl	Mercury
31		#2 APC Outlet	2	Probe Rinse Acetone	Acetone	Particulate & Metals
32				Probe Rinse Nitric	0.1N Nitric	Metals
33				Filter	Particulate	Particulate & Metals
34				Impinger 1-4 Solution	Nitric/Peroxide	Metals
35				Impinger 5-6 Solution	Acid. KMnO4	Mercury
36				Impinger 5-6 Rinse	8N HCl	Mercury
37		#2 APC Outlet	3	Probe Rinse Acetone	Acetone	Particulate & Metals
38				Probe Rinse Nitric	0.1N Nitric	Metals
39				Filter	Particulate	Particulate & Metals
40				Impinger 1-4 Solution	Nitric/Peroxide	Metals
41				Impinger 5-6 Solution	Acid. KMnO4	Mercury
42				Impinger 5-6 Rinse	8N HCl	Mercury
43		Blank 2	Blank 2	Probe Rinse Acetone	Acetone	Particulate & Metals
44				Probe Rinse Nitric	0.1N Nitric	Metals
45				Filter	Particulate	Particulate & Metals
46				Impinger 1-4 Solution	Nitric/Peroxide	Metals
47				Impinger 5-6 Solution	Acid. KMnO4	Mercury
48				Impinger 5-6 Rinse	8N HCl	Mercury

Relinquished By: _____ Date: _____

Relinquished To: _____ Date: _____

ORTECH Consulting Inc. - Sample Log
Semi-Volatile Organics Samples
Covanta

Client: Covanta
Job/Report Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO: 22158-J2843

ORTECH Sample ID 22-22158 -SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
1		Test 1 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	SVOC
2		Test 1 Filter		Particulate	SVOC
3		Test 1 XAD-II Trap		N.A.	SVOC
4		Test 1 Impinger Solution		Ethylene Glycol	SVOC
5		Test 1 Impinger Rinse		Hexane/Acetone	SVOC
6		Test 2 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	SVOC
7		Test 2 Filter		Particulate	SVOC
8		Test 2 XAD-II Trap		N.A.	SVOC
9		Test 2 Impinger Solution		Ethylene Glycol	SVOC
10		Test 2 Impinger Rinse		Hexane/Acetone	SVOC
11		Test 3 Probe Rinse	# 1 APC Outlet	Hexane/Acetone	SVOC
12		Test 3 Filter		Particulate	SVOC
13		Test 3 XAD-II Trap		N.A.	SVOC
14		Test 3 Impinger Solution		Ethylene Glycol	SVOC
15		Test 3 Impinger Rinse		Hexane/Acetone	SVOC
16		Blank 1 Probe Rinse	Blank	Hexane/Acetone	SVOC
17		Blank 1 Filter		Particulate	SVOC
18		Blank 1 XAD-II Trap		N.A.	SVOC
19		Blank 1 Impinger Solution		Ethylene Glycol	SVOC
20		Blank 1 Impinger Rinse		Hexane/Acetone	SVOC

Relinquished To: _____ Date: _____

Relinquished By: _____ Date: _____

ORTECH Consulting Inc. - Sample Log
Semi-Volatile Organics Samples
Covanta

Client: Covanta
Job/Report Number: 22158
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO: 22158-J2843

ORTECH Sample ID 22-22158 -SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
21		Test 1 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	SVOC
22		Test 1 Filter		Particulate	SVOC
23		Test 1 XAD-II Trap		N.A.	SVOC
24		Test 1 Impinger Solution		Ethylene Glycol	SVOC
25		Test 1 Impinger Rinse		Hexane/Acetone	SVOC
26		Test 2 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	SVOC
27		Test 2 Filter		Particulate	SVOC
28		Test 2 XAD-II Trap		N.A.	SVOC
29		Test 2 Impinger Solution		Ethylene Glycol	SVOC
30		Test 2 Impinger Rinse		Hexane/Acetone	SVOC
31		Test 3 Probe Rinse	# 2 APC Outlet	Hexane/Acetone	SVOC
32		Test 3 Filter		Particulate	SVOC
33		Test 3 XAD-II Trap		N.A.	SVOC
34		Test 3 Impinger Solution		Ethylene Glycol	SVOC
35		Test 3 Impinger Rinse		Hexane/Acetone	SVOC
36		Blank 2 Probe Rinse	Blank	Hexane/Acetone	SVOC
37		Blank 2 Filter		Particulate	SVOC
38		Blank 2 XAD-II Trap		N.A.	SVOC
39		Blank 2 Impinger Solution		Ethylene Glycol	SVOC
40		Blank 2 Impinger Rinse		Hexane/Acetone	SVOC

Relinquished To: _____ Date: _____

Relinquished By: _____ Date: _____

APPENDIX 11

Particulate and Metals Train Recovery Data Sheets
(8 pages)

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 17/22
Test No.: 1
Test Location: U1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	284.0
After Act. Rinse:	372.5
Total TS1:	88.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	285.0
After 0.1N HNO_3 Rinse:	537.5
Total TS2:	252.5

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: Q29158

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	618.2
Final Wt:	795.0
1 Gain:	176.8
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	667.5
Initial Wt:	761.5
Final Wt:	938.0
2 Gain:	176.5
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	651.0
Initial Wt:	771.3
Final Wt:	840.5
3 Gain:	69.2
Colour:	clear

Impinger #4 Empty	
Empty Wt:	593.0
Final Wt:	597.8
4 Gain:	4.8
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	410.0
w/ Imp. 1-4 Soln:	1043.5
After HNO_3 Rinse:	1167.5
Total TS4:	757.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	660.5
Initial Wt:	773.8
Final Wt:	784.3
5 Gain:	10.5
Colour:	Purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	666.0
Initial Wt:	783.4
Final Wt:	787.2
6 Gain:	3.8
Colour:	Purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	408.5
With Imp. 5&6 Soln:	648.2
After $KMnO_4$ Rinse:	765.2
After100g H_2O Rinse:	866.5
Total TS5-A:	458.0

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	284.5
With 150 mL DI H_2O:	434.5
After HCl Rinse:	501.9
After DI H_2O Rinse:	660.0
Total TS5-B:	375.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	937.2
Final Wt:	958.5
7 Gain:	21.3

Impinger Box ID: 3

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	1
TS2 (Probe Rinse-0.1N HNO_3)	2
TS3 (Filter)	3
TS4 (Impinger 1-4 Sol'n-HNO_3)	4
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	5
TS5-B (Impinger 5,6 Rinse-HCl)	6

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6: 441.6

WCBDA= 7: 21.3

Train Loaded By:
Train Recovered By: DT

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 17, 22
Test No.: 2
Test Location: U1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	284.0
After Act. Rinse:	474.5
Total TS1:	190.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	284.5
After 0.1N HNO_3 Rinse:	540.5
Total TS2:	256.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: Q29159

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	604.0
Final Wt:	720.5
1 Gain:	116.5
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	569.0
Initial Wt:	674.5
Final Wt:	734.0
2 Gain:	59.5
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	656.5
Initial Wt:	765.0
Final Wt:	848.0
3 Gain:	83.0
Colour:	clear

Impinger #4 Empty	
Empty Wt:	591.5
Final Wt:	596.5
4 Gain:	5.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	408.5
w/ Imp. 1-4 Soln:	1081.5
After HNO_3 Rinse:	1221.5
Total TS4:	813.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	662.5
Initial Wt:	778.0
Final Wt:	787.0
5 Gain:	9.0
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	658.0
Initial Wt:	772.0
Final Wt:	777.5
6 Gain:	5.5
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	409.0
With Imp. 5&6 Soln:	649.0
After $KMnO_4$ Rinse:	757.8
After100g H_2O Rinse:	861.5
Total TS5-A:	452.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	283.0
With 150 mL DI H_2O:	438.0
After HCl Rinse:	435.5
After DI H_2O Rinse:	658.0
Total TS5-B:	375.0

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	907.0
Final Wt:	929.5
7 Gain:	22.5

Impinger Box ID: 7

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	7
TS2 (Probe Rinse-0.1N HNO_3)	8
TS3 (Filter)	9
TS4 (Impinger 1-4 Sol'n-HNO_3)	10
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	11
TS5-B (Impinger 5,6 Rinse-HCl)	12

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6: 478.5 ✓

WCBDA= 7: 22.5

Train Loaded By: DT
Train Recovered By:

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 19 / 20
Test No.: 3
Test Location: U1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	285.0
After Act. Rinse:	281.5
Total TS1:	102.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	286.0
After 0.1N HNO_3 Rinse:	543.0
Total TS2:	

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 229161

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	603.5
Final Wt:	771.8
1 Gain:	168.3
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	669.0
Initial Wt:	666.5
Final Wt:	933.0
2 Gain:	266.5
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	656.5
Initial Wt:	772.5
Final Wt:	836.0
3 Gain:	63.5
Colour:	clear

Impinger #4 Empty	
Empty Wt:	591.0
Final Wt:	596.0
4 Gain:	5.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	408.5
w/ Imp. 1-4 Soln:	1118.0
After HNO_3 Rinse:	1294.5
Total TS4:	

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	661.5
Initial Wt:	778.5
Final Wt:	782.0
5 Gain:	3.5
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	656.5
Initial Wt:	770.5
Final Wt:	771.5
6 Gain:	1.0
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	408.5
With Imp. 5&6 Soln:	638.0
After $KMnO_4$ Rinse:	746.5
After100g H_2O Rinse:	843.0
Total TS5-A:	

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	286.5
With 150 mL DI H_2O:	442.0
After HCl Rinse:	506.5
After DI H_2O Rinse:	691.5
Total TS5-B:	

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	914.0
Final Wt:	935.5
7 Gain:	21.5

Impinger Box ID: 7

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	13
TS2 (Probe Rinse-0.1N HNO_3)	14
TS3 (Filter)	15
TS4 (Impinger 1-4 Sol'n-HNO_3)	16
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	17
TS5-B (Impinger 5,6 Rinse-HCl)	18

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6: 507.8

WCBDA= 7: 21.5

Train Loaded By:
Train Recovered By:

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 16-17-22
Test No.: 1
Test Location: U2

Nozzle, Probe Liner, Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	284.5
After Act. Rinse:	385.5
Total TS1:	101.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	285.0
After 0.1N HNO_3 Rinse:	451.0
Total TS2:	166.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 025163

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	617.8
Final Wt:	829.5
1 Gain:	211.7
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	669.1
Initial Wt:	772.9
Final Wt:	933.0
2 Gain:	160.1
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	650.5
Initial Wt:	759.7
Final Wt:	789.7
3 Gain:	30.0
Colour:	clear

Impinger #4 Empty	
Empty Wt:	593.3
Final Wt:	596.9
4 Gain:	3.6
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	408.7
w/ Imp. 1-4 Soln:	1020.2
After HNO_3 Rinse:	1123.7
Total TS4:	715.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	659.5
Initial Wt:	781.6
Final Wt:	785.3
5 Gain:	3.7
Colour:	Purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	665.0
Initial Wt:	775.0
Final Wt:	776.0
6 Gain:	1.0
Colour:	Purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	408.0
With Imp. 5&6 Soln:	638.8
After $KMnO_4$ Rinse:	757.0
After100g H_2O Rinse:	959.5
Total TS5-A:	451.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	284.7
With 150 mL DI H_2O:	436.8
After HCl Rinse:	480.7
After DI H_2O Rinse:	615.8
Total TS5-B:	331.1

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	971.2
Final Wt:	994.4
7 Gain:	23.2

Impinger Box ID: 7

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	25
TS2 (Probe Rinse-0.1N HNO_3)	26
TS3 (Filter)	27
TS4 (Impinger 1-4 Sol'n-HNO_3)	28
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	29
TS5-B (Impinger 5,6 Rinse-HCl)	30

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6: 410.1

WCBDA= 7: 23.2

Train Loaded By:
Train Recovered By:

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	22081
Date:	MAY 16, 22
Test No.:	2
Test Location:	U2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	284.5
After Act. Rinse:	383.0
Total TS1:	99.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	284.0
After 0.1N HNO_3 Rinse:	487.0
Total TS2:	203.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 029157

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	603.5
Final Wt:	750.4
1 Gain:	146.9
Colour:	Clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	568.2
Initial Wt:	667.6
Final Wt:	917.0
2 Gain:	249.4
Colour:	Clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	655.7
Initial Wt:	765.7
Final Wt:	831.5
3 Gain:	65.8
Colour:	Clear

Impinger #4 Empty	
Empty Wt:	591.0
Final Wt:	596.3
4 Gain:	5.3
Colour:	Clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	709.5
w/ Imp. 1-4 Soln:	1090.5
After HNO_3 Rinse:	1208.0
Total TS4:	798.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	661.5
Initial Wt:	778.5
Final Wt:	794.0
5 Gain:	15.5
Colour:	Purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	656.5
Initial Wt:	764.2
Final Wt:	772.0
6 Gain:	7.8
Colour:	Purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A

Empty Wt:	409.0
With Imp. 5&6 Soln:	648.8
After $KMnO_4$ Rinse:	766.6
After100g H_2O Rinse:	871.5
Total TS5-A:	462.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B

Empty Wt:	285.0
With 150 mL DI H_2O:	435.0
After HCl Rinse:	781.0
After DI H_2O Rinse:	643.0
Total TS5-B:	358.0

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	950.5
Final Wt:	979.0
7 Gain:	28.5

Impinger Box ID: 7

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	31
TS2 (Probe Rinse-0.1N HNO_3)	32
TS3 (Filter)	33
TS4 (Impinger 1-4 Sol'n-HNO_3)	34
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	35
TS5-B (Impinger 5,6 Rinse-HCl)	36

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6:	490.7 ✓
WCBDA= 7:	28.5

Train Loaded By:	DT
Train Recovered By:	DT

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 5 / 22
Test No.: 3
Test Location: U2

Nozzle, Probe Liner, Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	282.0
After Act. Rinse:	390.0
Total TS1:	108.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282.0
After 0.1N HNO_3 Rinse:	482.6
Total TS2:	200.6

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 229160

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	619.5
Final Wt:	796.5
1 Gain:	178.0
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	670.0
Initial Wt:	771.0
Final Wt:	956.0
2 Gain:	185.0
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	651.0
Initial Wt:	761.5
Final Wt:	906.9
3 Gain:	145.4
Colour:	clear

Impinger #4 Empty	
Empty Wt:	593.5
Final Wt:	631.2
4 Gain:	37.7
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	460.5
w/ Imp. 1-4 Soln:	1162.0
After HNO_3 Rinse:	1339.0
Total TS4:	928.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	662.0
Initial Wt:	770.0
Final Wt:	780.5
5 Gain:	10.5
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	667.0
Initial Wt:	784.0
Final Wt:	787.3
6 Gain:	3.3
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	409.0
With Imp. 5&6 Soln:	645.0
After $KMnO_4$ Rinse:	755.0
After100g H_2O Rinse:	858.0
Total TS5-A:	449.0

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	282.5
With 150 mL DI H_2O:	433.5
After HCl Rinse:	473.5
After DI H_2O Rinse:	650.4
Total TS5-B:	367.9

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	958.5
Final Wt:	981.5
7 Gain:	23.0

Impinger Box ID: 3

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	37
TS2 (Probe Rinse-0.1N HNO_3)	38
TS3 (Filter)	39
TS4 (Impinger 1-4 Sol'n-HNO_3)	40
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	41
TS5-B (Impinger 5,6 Rinse-HCl)	42

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6:	559.9
WCBDA= 7:	23.0

Train Loaded By:
Train Recovered By:

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 17/22
Test No.: BLANK 1
Test Location:

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	292.5
After Act. Rinse:	417.5
Total TS1:	125.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	283.0
After 0.1N HNO_3 Rinse:	443.0
Total TS2:	160.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: Q29147

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	
Final Wt:	
1 Gain:	
Colour:	

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	
Initial Wt:	
Final Wt:	
2 Gain:	
Colour:	

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	
Initial Wt:	
Final Wt:	
3 Gain:	
Colour:	

Impinger #4 Empty	
Empty Wt:	
Final Wt:	
4 Gain:	
Colour:	

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.0
w/ Imp. 1-4 Soln:	620.0
After HNO_3 Rinse:	723.0
Total TS4:	314.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	
Initial Wt:	
Final Wt:	
5 Gain:	
Colour:	

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	
Initial Wt:	
Final Wt:	
6 Gain:	
Colour:	

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	402.5
With Imp. 5&6 Soln:	629.5
After $KMnO_4$ Rinse:	730.5
After100g H_2O Rinse:	529.5
Total TS5-A:	427.0

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	286.0
With 150 mL DI H_2O:	436.5
After HCl Rinse:	486.0
After DI H_2O Rinse:	615.5
Total TS5-B:	329.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	
Final Wt:	
7 Gain:	

Impinger Box ID:

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	19
TS2 (Probe Rinse-0.1N HNO_3)	20
TS3 (Filter)	21
TS4 (Impinger 1-4 Sol'n-HNO_3)	22
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	23
TS5-B (Impinger 5,6 Rinse-HCl)	24

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6:

WCBDA= 7:

Train Loaded By:
Train Recovered By: DT

ORTECH Consulting Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22081
Date: MAY 19/22
Test No.: BLANK 2
Test Location:

Nozzle, Probe Liner, Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	281.5
After Act. Rinse:	423.5
Total TS1:	142.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	281.0
After 0.1N HNO_3 Rinse:	526.5
Total TS2:	245.5

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 029162

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

SAMPLE IDENTIFICATION	21-22081-PM-
TS1 (Probe Rinse-Acetone)	43
TS2 (Probe Rinse-0.1N HNO_3)	44
TS3 (Filter)	45
TS4 (Impinger 1-4 Sol'n-HNO_3)	46
TS5-A (Impinger 5,6 Sol'n-$KMnO_4$)	47
TS5-B (Impinger 5,6 Rinse-HCl)	48

Train Loaded By:
Train Recovered By:

Impingers 1, 2, 3, and 4

CONTAINER TS4

Impinger #1 Empty	
Empty Wt:	
Final Wt:	
1 Gain:	
Colour:	

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	
Initial Wt:	
Final Wt:	
2 Gain:	
Colour:	

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	
Initial Wt:	
Final Wt:	
3 Gain:	
Colour:	

Impinger #4 Empty	
Empty Wt:	
Final Wt:	
4 Gain:	
Colour:	

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.5
w/ Imp. 1-4 Soln:	622.0
After HNO_3 Rinse:	724.5
Total TS4:	315.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	
Initial Wt:	
Final Wt:	
5 Gain:	
Colour:	

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	
Initial Wt:	
Final Wt:	
6 Gain:	
Colour:	

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	408.5
With Imp. 5&6 Soln:	629.0
After $KMnO_4$ Rinse:	747.0
After100g H_2O Rinse:	847.5
Total TS5-A:	439.0

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	281.5
With 150 mL DI H_2O:	432.0
After HCl Rinse:	481.0
After DI H_2O Rinse:	582.0
Total TS5-B:	300.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

TS1,TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TS5-A - 1000 ml Amber Glass Bottle
TS5-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6:

WCBDA= 7:

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	
Final Wt:	
7 Gain:	

Impinger Box ID:

APPENDIX 12

Inorganics Analytical Reports
(28 pages)

ALS Environmental
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708122		Mississauga, ON L5J 2Y4
Date of Report	3-Jun-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS:

Sample Particulate Analysis via Gravimetric USEPA Method 5 (LL5 31-MAY-2022)

REPORT FLAGS:

J - The value is uncertain and below what can be reliably identified as positive with a ≥99% confidence limit (i.e. below the laboratory determined MDL).

LCB = Laboratory Control Blank
CVS = Continuing Verification Standard Sample (limits: ±2 in the last decimal)
LOR = Limit of Reporting

Certified by: L. Wrona

Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(7 THRU 12) TEST#2 APC OUTLET #1	22-22158-PM-(13 THRU 18) TEST#3 APC OUTLET #1	22-22158-PM-(19 THRU 24) BLANK#1 APC OUTLET #1	22-22158-PM-(25 THRU 30) TEST#1 APC OUTLET #2
ALS Sample ID		L2708122-1	L2708122-2	L2708122-3	L2708122-4	L2708122-5
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		17-May-22	17-May-22	19-May-22	17-May-22	16-May-22
Date of Receipt		18-May-22	18-May-22	20-May-22	18-May-22	18-May-22
PM via Gravimetric Analysis Method 5	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	2.1	2.1	1.7	2.5	3.1
Acetone Particulate Matter	0.4	2.8	0.9	2.2	0.7	9.8
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	86.0	190	102	134	101

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-PM-(31 THRU 36) TEST#2 APC OUTLET #2	22-22158-PM-(37 THRU 42) TEST#3 APC OUTLET #2	22-22158-PM-(43 THRU 48) BLANK#2 APC OUTLET #2		MB	
ALS Sample ID		L2708122-6	L2708122-7	L2708122-8		L2708122-MB	
Matrix		Stack	Stack	Stack		n/a	
Analysis type		Sample	Sample	Sample		Sample	
Sampling Date/Time		16-May-22	17-May-22	19-May-22		n/a	
Date of Receipt		18-May-22	18-May-22	20-May-22		n/a	
PM via Gravimetric Analysis Method 5	**LOR**						
	mg	**mg**	**mg**	**mg**		**mg**	
Filter Particulate Matter	0.8	2.6	2.1	2.6		<0.1	
Acetone Particulate Matter	0.4	0.6	2.9	0.3	J	0.3	J
	g	**g**	**g**	**g**		**g**	
Acetone Mass	0.02	97.3	108	141		31.7	

ALS Environmental

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708204		Mississauga, ON L5J 2Y4
Date of Report	8-Jun-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS:

Sample Particulate Analysis via Gravimetric USEPA Method 5 (LL5 08-JUN-2022)
Sample Particulate Analysis via Gravimetric USEPA Method 202 (LL5 08-JUN-2022)

REPORT FLAGS:

J - The value is uncertain and below what can be reliably identified as positive with a ≥99% confidence limit (i.e. below the laboratory determined MDL).

LCB = Laboratory Control Blank
CVS = Continuing Verification Standard Sample (limits: ±2 in the last decimal)
LOR = Limit of Reporting

Certified by: L. Wrona

Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-1 TEST#1 APC OUTLET #1	22-22158-M201A-2 TEST#1 APC OUTLET #1	22-22158-M201A-3 TEST#1 APC OUTLET #1	22-22158-M201A-4 TEST#1 APC OUTLET #1	22-22158-M201A-(5-7) TEST#1 APC OUTLET #1
ALS Sample ID		L2708204-1	L2708204-2	L2708204-3	L2708204-4	L2708204-5
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		17-May-22	17-May-22	17-May-22	17-May-22	17-May-22
Date of Receipt		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	0.1 J	-
Acetone Particulate Matter	0.4	0.7	0.7	0.1 J	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	31.6	24.5	8.8	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	2.4
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.0
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	281

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-8 TEST#2 APC OUTLET #1	22-22158-M201A-9 TEST#2 APC OUTLET #1	22-22158-M201A-10 TEST#2 APC OUTLET #1	22-22158-M201A-11 TEST#2 APC OUTLET #1	22-22158-M201A-(12-14) TEST#2 APC OUTLET #1
ALS Sample ID		L2708204-6	L2708204-7	L2708204-8	L2708204-9	L2708204-10
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
Date of Receipt		20-May-22	20-May-22	20-May-22	20-May-22	20-May-22
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	0.5 J	-
Acetone Particulate Matter	0.4	0.8	0.6	0.1 J	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	57.4	48.2	17.9	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	2.1
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.2
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	321

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-15 TEST#3 APC OUTLET #1	22-22158-M201A-16 TEST#3 APC OUTLET #1	22-22158-M201A-17 TEST#3 APC OUTLET #1	22-22158-M201A-18 TEST#3 APC OUTLET #1	22-22158-M201A-(19-21) TEST#3 APC OUTLET #1
ALS Sample ID		L2708204-11	L2708204-12	L2708204-13	L2708204-14	L2708204-15
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
Date of Receipt		20-May-22	20-May-22	20-May-22	20-May-22	20-May-22
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	0.3 J	-
Acetone Particulate Matter	0.4	0.4	0.3 J	0.7	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	35.0	29.1	10.9	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	3.7
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.1
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	256

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-22 TEST#1 APC OUTLET #2	22-22158-M201A-23 TEST#1 APC OUTLET #2	22-22158-M201A-24 TEST#1 APC OUTLET #2	22-22158-M201A-25 TEST#1 APC OUTLET #2	22-22158-M201A-(26-28) TEST#1 APC OUTLET #2
ALS Sample ID		L2708204-16	L2708204-17	L2708204-18	L2708204-19	L2708204-20
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		17-May-22	17-May-22	17-May-22	17-May-22	17-May-22
Date of Receipt		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	0.3 J	-
Acetone Particulate Matter	0.4	1.2	0.8	0.5	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	22.8	31.6	12.8	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	2.0
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.5
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	247

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-29 TEST#2 APC OUTLET #2	22-22158-M201A-30 TEST#2 APC OUTLET #2	22-22158-M201A-31 TEST#2 APC OUTLET #2	22-22158-M201A-32 TEST#2 APC OUTLET #2	22-22158-M201A-(33-35) TEST#2 APC OUTLET #2
ALS Sample ID		L2708204-21	L2708204-22	L2708204-23	L2708204-24	L2708204-25
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		17-May-22	17-May-22	17-May-22	17-May-22	17-May-22
Date of Receipt		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	0.2 J	-
Acetone Particulate Matter	0.4	0.5	0.4	0.5	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	25.8	24.0	9.3	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	2.6
Non-Extractable Condensable Particulates	0.4	-	-	-	-	4.1
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	241

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-36 TEST#3 APC OUTLET #2		22-22158-M201A-37 TEST#3 APC OUTLET #2		22-22158-M201A-38 TEST#3 APC OUTLET #2		22-22158-M201A-39 TEST#3 APC OUTLET #2		22-22158-M201A-(40-42) TEST#3 APC OUTLET #2	
ALS Sample ID		L2708204-26		L2708204-27		L2708204-28		L2708204-29		L2708204-30	
Matrix		Stack		Stack		Stack		Stack		Stack	
Analysis type		Sample		Sample		Sample		Sample		Sample	
Sampling Date/Time		17-May-22		17-May-22		17-May-22		17-May-22		17-May-22	
Date of Receipt		18-May-22		18-May-22		18-May-22		18-May-22		18-May-22	
PM via Gravimetric Analysis Method 201A	**LOR**										
	mg	**mg**		**mg**		**mg**		**mg**		**mg**	
Filter Particulate Matter	0.8	-		-		-		<0.1	J	-	
Acetone Particulate Matter	0.4	0.2	J	0.4		0.3	J	-		-	
	g	**g**		**g**		**g**		**g**		**g**	
Acetone Mass	0.02	47.3		26.5		11.3		-		-	
PM via Gravimetric Analysis Method 202	**LOR**										
	mg	**mg**		**mg**		**mg**		**mg**		**mg**	
Extractable Condensable Particulates	0.4	-		-		-		-		2.1	
Non-Extractable Condensable Particulates	0.4	-		-		-		-		3.1	
	g	**g**		**g**		**g**		**g**		**g**	
Water Mass	0.02	-		-		-		-		255	

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-43 BLANK#1 APC OUTLET #1		22-22158-M201A-44 BLANK#1 APC OUTLET #1		22-22158-M201A-45 BLANK#1 APC OUTLET #1	22-22158-M201A-46 BLANK#1 APC OUTLET #1		22-22158-M201A-(47-49) BLANK#1 APC OUTLET #1
ALS Sample ID		L2708204-31		L2708204-32		L2708204-33	L2708204-34		L2708204-35
Matrix		Stack		Stack		Stack	Stack		Stack
Analysis type		Sample		Sample		Sample	Sample		Sample
Sampling Date/Time		17-May-22		17-May-22		17-May-22	17-May-22		17-May-22
Date of Receipt		18-May-22		18-May-22		18-May-22	18-May-22		18-May-22
PM via Gravimetric Analysis Method 201A	**LOR**								
	mg	**mg**		**mg**		**mg**	**mg**		**mg**
Filter Particulate Matter	0.8	-		-		-	0.1	J	-
Acetone Particulate Matter	0.4	0.2	J	0.2	J	0.2	-		-
	g	**g**		**g**		**g**	**g**		**g**
Acetone Mass	0.02	34.5		39.4		37.7	-		-
PM via Gravimetric Analysis Method 202	**LOR**								
	mg	**mg**		**mg**		**mg**	**mg**		**mg**
Extractable Condensable Particulates	0.4	-		-		-	-		0.5
Non-Extractable Condensable Particulates	0.4	-		-		-	-		0.8
	g	**g**		**g**		**g**	**g**		**g**
Water Mass	0.02	-		-		-	-		101

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-M201A-50 BLANK#2 APC OUTLET #2		22-22158-M201A-51 BLANK#2 APC OUTLET #2	22-22158-M201A-52 BLANK#2 APC OUTLET #2	22-22158-M201A-53 BLANK#2 APC OUTLET #2		22-22158-M201A-(54-56) BLANK#2 APC OUTLET #2	
ALS Sample ID		L2708204-36		L2708204-37	L2708204-38	L2708204-39		L2708204-40	
Matrix		Stack		Stack	Stack	Stack		Stack	
Analysis type		Sample		Sample	Sample	Sample		Sample	
Sampling Date/Time		19-May-22		19-May-22	19-May-22	19-May-22		19-May-22	
Date of Receipt		20-May-22		20-May-22	20-May-22	20-May-22		20-May-22	
PM via Gravimetric Analysis Method 201A	**LOR**								
	mg	**mg**		**mg**	**mg**	**mg**		**mg**	
Filter Particulate Matter	0.8	-		-	-	0.3	J	-	
Acetone Particulate Matter	0.4	0.1	J	0.5	0.7	-		-	
	g	**g**		**g**	**g**	**g**		**g**	
Acetone Mass	0.02	44.2		43.8	37.1	-		-	
PM via Gravimetric Analysis Method 202	**LOR**								
	mg	**mg**		**mg**	**mg**	**mg**		**mg**	
Extractable Condensable Particulates	0.4	-		-	-	-		1.2	
Non-Extractable Condensable Particulates	0.4	-		-	-	-		0.2	J
	g	**g**		**g**	**g**	**g**		**g**	
Water Mass	0.02	-		-	-	-		138	

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Sample Analysis Summary Report

Sample Name		MB1		MB2	
ALS Sample ID		L2708204-MB		L2708204-MB	
Matrix		n/a		n/a	
Analysis type		Sample		Sample	
Sampling Date/Time		n/a		n/a	
Date of Receipt		n/a		n/a	
PM via Gravimetric Analysis Method 201A	**LOR**				
	mg	**mg**		**mg**	
Filter Particulate Matter	0.8	0.1	J	-	J
Acetone Particulate Matter	0.4	0.4		0.2	
	g	**g**		**g**	
Acetone Mass	0.02	30.9		31.6	
PM via Gravimetric Analysis Method 202	**LOR**				
	mg	**mg**		**mg**	
Extractable Condensable Particulates	0.4	0.1	J	-	
Non-Extractable Condensable Particulates	0.4	0.5		-	
	g	**g**		**g**	
Water Mass	0.02	253		-	

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Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2707982		Mississauga, ON L5J 2Y4
Date of Report	26-May-22		Canada
Date of Sample Receipt	18-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 COVANTA

COMMENTS:

F as HF Anion Analyzed via Ion Chromatography USEPA Method 26/26A (GN 20-May-22)
Cl as HCl Anion Analyzed via Ion Chromatography USEPA Method 26/26A (GN 20-May-22)
Ammonia, Total (as NH_3) via Ion Chromatography USEPA Method CTM-027 (GN 20-May-22)

LOR = Limit of Reporting
MB = Laboratory Control Blank (limits: <LOR)
LCS = Laboratory Control Sample (limits: 90-110%)
MS = Matrix Spike Sample (limits: 90-110%, NH_3: 85-115%)
RPD = Relative Percent Difference (limits: <20% for sample duplicate, <10% for duplicate injection)

Certified by: Falguni Patel

Falguni Patel
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name	22-22158-M26A-1 APC OUTLET#1	22-22158-M26A-2 APC OUTLET#1	22-22158-M26A-3 APC OUTLET#1	22-22158-M26A-4 APC OUTLET#2	22-22158-M26A-5 APC OUTLET#2
ALS Sample ID	L2707982-1	L2707982-2	L2707982-3	L2707982-4	L2707982-5
Matrix	Stack	Stack	Stack	Stack	Stack
Analysis type	Sample	Sample	Sample	Sample	Sample
Sampling Date/Time	17-May-22	17-May-22	17-May-22	16-May-22	16-May-22
Date of Receipt	18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
Ion Chromatography Analysis USEPA Method 26/26A	**mg**	**mg**	**mg**	**mg**	**mg**
Total F^- as HF (ave)	<0.142	<0.160	<0.160	<0.145	<0.138
Analysis 1	<0.142	<0.160	<0.160	<0.145	<0.138
Analysis 2	<0.142	<0.160	<0.160	<0.145	<0.138
Total Cl^- as HCl (ave)	6.09	5.48	5.15	6.31	6.49
Analysis 1	6.08	5.51	5.15	6.33	6.50
Analysis 2	6.09	5.45	5.15	6.29	6.49
Ion Chromatography Analysis USEPA Method CTM-027 Ammonia	**mg**	**mg**	**mg**	**mg**	**mg**
Total Ammonia as NH_3	1.39	1.30	1.37	0.851	0.825

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Sample Analysis Summary Report

Sample Name	22-22158-M26A-6 APC OUTLET#2	22-22158-M26A-BLANK1 APC OUTLET#1	22-22158-M26A-BLANK2 APC OUTLET#2
ALS Sample ID	L2707982-6	L2707982-7	L2707982-8
Matrix	Stack	Stack	Stack
Analysis type	Sample	Sample	Sample
Sampling Date/Time	16-May-22	17-May-22	17-May-22
Date of Receipt	18-May-22	18-May-22	18-May-22
Ion Chromatography Analysis USEPA Method 26/26A	**mg**	**mg**	**mg**
Total F^- as HF (ave)	<0.163	<0.104	<0.105
Analysis 1	<0.163	<0.104	<0.105
Analysis 2	<0.163	<0.104	<0.105
Total Cl^- as HCl (ave)	5.50	0.160	0.157
Analysis 1	5.52	0.161	0.156
Analysis 2	5.49	0.158	0.158
Ion Chromatography Analysis USEPA Method CTM-027 Ammonia	**mg**	**mg**	**mg**
Total Ammonia as NH_3	4.82	<0.278	<0.283

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Sample QC Summary Report

Sample Name	MB	LCS	LCS
ALS Sample ID	MB	LCS	LCS
Matrix	Stack	Stack	Stack
Analysis type	Method Blank	Blank Spike	Blank Spike
Sampling Date/Time	n/a	n/a	n/a
Date of Receipt	n/a	n/a	n/a
Ion Chromatography Analysis			
USEPA Method 26/26A	**mg**	**mg**	**% Rec**
Total F^- as HF (ave)	0.00178	0.0558	103%
Analysis 1	0.00179	0.0564	
Analysis 2	0.00178	0.0552	
Total Cl^- as HCl (ave)	<0.00241	0.0803	102%
Analysis 1	<0.00241	0.0813	
Analysis 2	<0.00241	0.0794	
Ion Chromatography Analysis			
USEPA Method CTM-027 Ammonia	**mg**	**mg**	**% Rec**
Ammonia, Total (as NH_3)	<0.00472	0.0509	108%

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Sample QC Summary Report

Sample Name	22-22158-M26A-1 APC OUTLET#1	22-22158-M26A-1 APC OUTLET#1	22-22158-M26A-1 APC OUTLET#1	22-22158-M26A-1 APC OUTLET#1
ALS Sample ID	L2707982-1	L2707982-1DUP	L2707982-1MS	L2707982-1MS
Matrix	Stack	Stack	Stack	Stack
Analysis type	Sample	Duplicate	Matrix Spike	Matrix Spike
Sampling Date/Time	17-May-22	17-May-22	17-May-22	17-May-22
Date of Receipt	18-May-22	18-May-22	18-May-22	18-May-22
Ion Chromatography Analysis USEPA Method 26/26A	**mg**	**mg**	**mg**	**% Rec**
Total F^- as HF (ave)	<0.142	<0.142	4.43	95%
Analysis 1	<0.142	<0.142	4.47	
Analysis 2	<0.142	<0.142	4.40	
Total Cl^- as HCl (ave)	6.09	5.99	13.0	105%
Analysis 1	6.08	6.01	13.1	
Analysis 2	6.09	5.97	13.0	
Ion Chromatography Analysis USEPA Method CTM-027 Ammonia	**mg**	**mg**	**mg**	**% Rec**
Ammonia, Total (as NH_3)	1.39	1.35	5.31	101%

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Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708122		Mississauga, ON L5J 2Y4
Date of Report	3-Jun-22		Canada
Date of Sample Receipt	18-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS:

Sample Preparation via USEPA Method 29 (LL5 01-JUN-2022)
Mercury Analysis via CVAA using Method USEPA 7470A (TPH 03-JUN-2022)

LOR = Limit of Reporting
LCB = Laboratory Control Blank (limits: <LOR)
LCS = Laboratory Control Sample (limits: hivol, solids: 85-115%, stack: 90-110%)
MS = Matrix Spike Sample (limits: 75-125%)
RPD = Relative Percent Difference (limits: <20%)
CCV/CVS = Calibration Verification Standard (limits: 85-115%)

Certified by: L. Wrona

Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name			22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(7 THRU 12) TEST#2 APC OUTLET #1	22-22158-PM-(13 THRU 18) TEST#3 APC OUTLET #1	22-22158-PM-(19 THRU 24) BLANK#1 APC OUTLET #1	22-22158-PM-(25 THRU 30) TEST#1 APC OUTLET #2
ALS Sample ID			L2708122-1	L2708122-2	L2708122-3	L2708122-4	L2708122-5
Matrix			Stack	Stack	Stack	Stack	Stack
Analysis type			Sample	Sample	Sample	Sample	Sample
Sampling Date/Time			17-May-22	17-May-22	19-May-22	17-May-22	16-May-22
Date of Receipt			18-May-22	18-May-22	20-May-22	18-May-22	18-May-22
Mercury via CVAA		**LOR**					
	Method 29	**ug**	**ug**	**ug**	**ug**	**ug**	**ug**
	Analytical Fraction 1B	0.015	<0.015	<0.015	<0.015	<0.015	<0.015
	Analytical Fraction 2B	0.050	<0.37	<0.40	<0.435	<0.15	<0.35
	Analytical Fraction 3B	0.025	<0.025	<0.025	<0.025	<0.025	<0.025
	Analytical Fraction 3C	0.25	<0.25	<0.25	<0.25	<0.25	<0.25

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Sample Analysis Summary Report

Sample Name			22-22158-PM-(31 THRU 36) TEST#2 APC OUTLET #2	22-22158-PM-(37 THRU 42) TEST#3 APC OUTLET #2	22-22158-PM-(43 THRU 48) BLANK#2 APC OUTLET #2
ALS Sample ID			L2708122-6	L2708122-7	L2708122-8
Matrix			Stack	Stack	Stack
Analysis type			Sample	Sample	Sample
Sampling Date/Time			16-May-22	17-May-22	19-May-22
Date of Receipt			18-May-22	18-May-22	20-May-22
Mercury via CVAA		**LOR**			
	Method 29	**ug**	**ug**	**ug**	**ug**
	Analytical Fraction 1B	0.015	<0.015	<0.015	<0.015
	Analytical Fraction 2B	0.050	<0.39	<0.455	<0.15
	Analytical Fraction 3B	0.025	<0.025	<0.025	<0.025
	Analytical Fraction 3C	0.25	<0.25	<0.25	<0.25

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Sample QC Summary Report

Sample Name		LCB	LCS	LCS	LCSD	LCSD
ALS Sample ID		LCB	LCS	LCS	LCSD	LCSD
Analysis type		Method Blank	Blank Spike	Blank Spike	Blank Spike Dup	Blank Spike Dup
Sampling Date/Time		N/A	N/A	N/A	N/A	N/A
Date of Receipt		N/A	N/A	N/A	N/A	N/A
Mercury via CVAA	**LOR**					
Method 29	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Analytical Fraction 1B	0.015	<0.015	0.306	100%	0.303	99%
Analytical Fraction 2B	0.050	<0.05	1.00	100%	1.02	102%
Analytical Fraction 3B	0.025	<0.025	0.487	96%	0.497	98%
Analytical Fraction 3C	0.25	<0.25	4.81	96%	4.76	95%

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Sample QC Summary Report

Sample Name		22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1
ALS Sample ID		L2708122-1	L2708122-1DUP	L2708122-1MS	L2708122-1MS	L2708122-1MSD	L2708122-1MSD
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date/Time		17-May-22	17-May-22	17-May-22	17-May-22	17-May-22	17-May-22
Date of Receipt		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
Mercury via CVAA	**LOR**						
Method 29	**ug**	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Analytical Fraction 1B	0.015	<0.015	<0.015	0.303	101%	0.306	102%
Analytical Fraction 2B	0.050	<0.37	<0.37	7.62	100%	7.62	100%
Analytical Fraction 3B	0.025	<0.025	<0.025	0.482	96%	0.489	97%
Analytical Fraction 3C	0.250	<0.25	<0.25	4.65	91%	4.63	91%

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Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708122		Mississauga, ON L5J 2Y4
Date of Report	6-Jun-22		Canada
Date of Sample Receipt	18-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS:
Metals analysed via ICP-MS Method USEPA 6020B (SA 01-Jun-22)
Sample Preparation via USEPA Method 29 (LL5 31-May-22)

ANALYST COMMENTS:
Fraction 1A:
Cu, Mo and Ni observed in the method blank (MB) above their LORs. This QC sample differs from the reagent blank, by the inclusion of a representative unsampled filter. Sample data may be biased high as a result of this background contribution. **PE 2-Jun-22**

LCB = Laboratory Control Blank
LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
LOR = Limit of Reporting

Certified by: L. Wrona
Lynne Wrona
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(7 THRU 12) TEST#2 APC OUTLET #1	22-22158-PM-(13 THRU 18) TEST#3 APC OUTLET #1	22-22158-PM-(19 THRU 24) BLANK#1 APC OUTLET #1	22-22158-PM-(25 THRU 30) TEST#1 APC OUTLET #2	22-22158-PM-(31 THRU 36) TEST#2 APC OUTLET #2
ALS Sample ID		L2708122-1	L2708122-2	L2708122-3	L2708122-4	L2708122-5	L2708122-6
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis Type		Sample	Sample	Sample	Sample	Sample	Sample
Sampling Date		17-May-22	17-May-22	19-May-22	17-May-22	16-May-22	16-May-22
Date of Receipt		18-May-22	18-May-22	20-May-22	18-May-22	18-May-22	18-May-22
Multi-Metals via ICP-MS	**LOR ug**	**ug**	**ug**	**ug**	**ug**	**ug**	**ug**
Front Half HF Fraction 1A							
	Antimony	0.2	0.305	0.703	0.361	<	1.15	0.661
	Arsenic	1	<	<	<	<	<	<
	Barium	5	<	5.23	5.19	<	5.44	5.80
	Beryllium	0.2	<	<	<	<	<	<
	Cadmium	0.1	<	0.113	0.103	<	0.218	<
	Chromium	1	2.44	2.33	2.17	2.02	2.73	2.86
	Cobalt	0.2	<	<	<	<	<	<
	Copper	1	5.49	5.99	6.75	4.72	6.80	6.93
	Lead	0.5	0.501	0.643	0.677	<	1.12	0.587
	Molybdenum	0.2	36.0	35.4	33.6	33.2	34.5	35.2
	Nickel	0.2	1.53	1.50	1.51	1.63	1.87	1.68
	Selenium	2	<	<	<	<	<	<
	Silver	0.2	<	<	<	<	<	<
	Thallium	0.2	<	<	<	<	<	<
	Vanadium	1	<	<	<	<	<	<
	Zinc	6	10.1	12.6	16.6	<	23.8	11.4
Back Half (HNO3 / H2O2) Fraction 2A							
	Antimony	0.1	<	0.118	<	<	<	<
	Arsenic	0.2	<	<	<	<	<	<
	Barium	0.5	1.00	0.999	1.03	0.748	1.18	0.951
	Beryllium	0.1	<	<	<	<	<	<
	Cadmium	0.05	<	<	<	<	0.0513	<
	Chromium	0.15	0.749	0.513	0.774	0.381	0.793	3.38
	Cobalt	0.1	0.136	<	<	<	0.155	0.165
	Copper	0.3	2.92	3.38	3.19	2.62	3.26	3.19
	Lead	0.05	0.433	0.304	0.402	0.212	0.482	0.421
	Molybdenum	0.1	0.136	<	<	<	<	0.128
	Nickel	0.1	0.698	0.794	0.901	0.883	0.870	1.93
	Selenium	1	<	<	<	<	<	<
	Silver	0.1	<	<	<	<	<	<
	Thallium	0.05	<	<	<	<	<	<
	Vanadium	0.1	<	<	<	<	<	<
	Zinc	3	5.55	4.62	9.97	<	7.77	5.56

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Sample Analysis Summary Report

Sample Name		22-22158-PM-(37 THRU 42) TEST#3 APC OUTLET #2	22-22158-PM-(43 THRU 48) BLANK#2 APC OUTLET #2	MB
ALS Sample ID		L2708122-7	L2708122-8	L2708122-MB
Matrix		Stack	Stack	QC
Analysis Type		Sample	Sample	Sample
Sampling Date		17-May-22	19-May-22	n/a
Date of Receipt		18-May-22	20-May-22	n/a
Multi-Metals via ICP-MS	**LOR**			
	ug	**ug**	**ug**	**ug**
Front Half HF Fraction 1A				
Antimony	0.2	0.216	<	<
Arsenic	1	<	<	<
Barium	5	8.05	<	<
Beryllium	0.2	<	<	<
Cadmium	0.1	0.165	<	<
Chromium	1	2.55	2.01	2.12
Cobalt	0.2	<	<	<
Copper	1	7.71	5.14	4.88
Lead	0.5	0.780	0.535	<
Molybdenum	0.2	36.0	33.2	34.3
Nickel	0.2	1.73	1.10	1.38
Selenium	2	<	<	<
Silver	0.2	<	<	<
Thallium	0.2	<	<	<
Vanadium	1	<	<	<
Zinc	6	20.6	<	6.75
Back Half (HNO3 / H2O2) Fraction 2A				
Antimony	0.1	<	<	-
Arsenic	0.2	<	<	-
Barium	0.5	1.14	0.673	-
Beryllium	0.1	<	<	-
Cadmium	0.05	<	<	-
Chromium	0.15	0.784	1.39	-
Cobalt	0.1	0.103	<	-
Copper	0.3	2.99	2.76	-
Lead	0.05	0.458	0.213	-
Molybdenum	0.1	0.104	<	-
Nickel	0.1	0.828	1.19	-
Selenium	1	<	<	-
Silver	0.1	<	<	-
Thallium	0.05	<	<	-
Vanadium	0.1	<	<	-
Zinc	3	7.98	<	-

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Sample QC Summary Report

Sample Name		RB	LCS	LCS	LCSD	LCSD
ALS Sample ID		LCB	LCS	LCS	LCSD	LCSD
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis Type		Blank	LCS	LCS	LCS	LCS
Sampling Date		n/a	n/a	n/a	n/a	n/a
Date of Receipt		n/a	n/a	n/a	n/a	n/a
Multi-Metals via ICP-MS	**LOR**					
	ug	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HF Fraction 1A						
Antimony	0.2	<	11.6	97	11.5	96
Arsenic	1	<	60.0	100	60.9	101
Barium	5	<	63.1	105	61.2	102
Beryllium	0.2	<	59.4	99	60.0	100
Cadmium	0.1	<	29.9	100	29.7	99
Chromium	1	<	61.3	102	61.2	102
Cobalt	0.2	<	61.0	102	61.1	102
Copper	1	<	61.9	103	62.0	103
Lead	0.5	<	58.1	97	59.9	100
Molybdenum	0.2	<	30.8	103	30.5	102
Nickel	0.2	0.476	61.9	102	62.4	103
Selenium	2	<	56.7	94	55.1	92
Silver	0.2	<	2.86	10	28.2	94
Thallium	0.2	<	60.6	101	61.7	103
Vanadium	1	<	61.0	102	60.7	101
Zinc	6	<	124	102	124	101
Back Half (HNO3 / H2O2) Fraction 2A						
Antimony	0.1	<	5.30	88	5.25	87
Arsenic	0.2	<	28.3	94	28.0	93
Barium	0.5	<	28.9	96	29.3	98
Beryllium	0.1	<	27.7	92	27.1	90
Cadmium	0.05	<	14.5	97	14.5	97
Chromium	0.15	<	29.4	98	28.9	96
Cobalt	0.1	<	29.0	97	28.5	95
Copper	0.3	<	29.5	98	29.0	97
Lead	0.05	<	28.6	95	28.8	96
Molybdenum	0.1	<	14.3	95	14.3	95
Nickel	0.1	<	29.4	98	28.9	96
Selenium	1	<	27.0	90	26.3	88
Silver	0.1	<	13.4	89	13.4	89
Thallium	0.05	<	29.7	99	28.8	96
Vanadium	0.1	<	29.0	96	28.7	96
Zinc	3	<	57.1	95	57.3	95

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Sample QC Summary Report

Sample Name		22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1	22-22158-PM-(1 THRU 6) TEST#1 APC OUTLET #1
ALS Sample ID		L2708122-1	L2708122-1	MS	MS	MSD	MSD
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis Type		Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date		17-May-22	17-May-22	17-May-22	17-May-22	17-May-22	17-May-22
Date of Receipt		18-May-22	18-May-22	18-May-22	18-May-22	18-May-22	18-May-22
Multi-Metals via ICP-MS	**LOR**						
	ug	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HF Fraction 1A							
Antimony	0.2	0.305	0.316	22.1	91	22.3	92
Arsenic	1	<	<	116	97	119	99
Barium	5	<	<	125	101	127	103
Beryllium	0.2	<	<	114	95	115	96
Cadmium	0.1	<	<	59.6	99	60.7	101
Chromium	1	2.44	2.42	122	100	125	102
Cobalt	0.2	<	<	118	99	120	100
Copper	1	5.49	5.65	125	100	128	102
Lead	0.5	0.501	0.505	119	99	122	101
Molybdenum	0.2	36.0	36.9	92.2	94	93.5	96
Nickel	0.2	1.53	1.57	121	100	123	101
Selenium	2	<	<	110	92	105	88
Silver	0.2	<	<	53.8	90	55.0	92
Thallium	0.2	<	<	118	99	125	104
Vanadium	1	<	<	119	99	121	101
Zinc	6	10.1	9.87	246	98	244	97
Back Half (HNO3 / H2O2) Fraction 2A							
Antimony	0.1	<	<	11.1	92	11.0	91
Arsenic	0.2	<	<	57.5	96	57.5	96
Barium	0.5	1.00	1.02	61.7	101	62.1	102
Beryllium	0.1	<	<	58.2	97	59.2	99
Cadmium	0.05	<	<	28.7	96	30.5	102
Chromium	0.15	0.749	0.781	61.5	101	61.7	102
Cobalt	0.1	0.136	0.143	59.4	99	60.9	101
Copper	0.3	2.92	2.85	63.9	102	64.3	102
Lead	0.05	0.433	0.442	63.5	105	58.9	97
Molybdenum	0.1	0.136	0.141	29.6	98	30.1	100
Nickel	0.1	0.698	0.680	61.4	101	62.3	103
Selenium	1	<	<	54.4	91	53.9	90
Silver	0.1	<	<	27.8	93	28.0	93
Thallium	0.05	<	<	62.0	103	61.2	102
Vanadium	0.1	<	<	60.4	101	60.8	101
Zinc	3	5.55	5.96	126	101	125	99

APPENDIX 13

Particle Size Distribution Train Recovery Data Sheets
(8 pages)

ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: MAY 17/22

Test No.: 1
Test Location: U 1

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	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	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
			Filter ID: 27912	Impinger #1 Knock Out Empty Wt: 516.5 Final Wt: 698.6 1 Gain: 182.1 Colour: clear	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.*	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4			Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Initial Wt: Final Wt: Gain: Colour: WHITE Seal and label container TS4	Impinger #2 Empty Empty Wt: 677.5 Final Wt: 677.5 2 Gain: 0.0 Colour: — Secondary Filter	Purge On: 07:10 Purge Off: 08:10 Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	22-22158-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_20 and rinse)	5
TS6 (Secondary Filter)	6
TS7 (Acetone / Hexane rinse)	7

Train Loaded By: DT/DU
Train Recovered By: DT/DU

985.0
993.2
8.2

Impinger #3 H_2O
Empty Wt: 654.0
Initial Wt: 791.7
Final Wt: 790.3
3 Gain: -1.4
Colour: clear

CONTAINER TS5
Mark Fluid Level and Seal and Label Container

CONTAINER TS6
Secondary Filter

Impinger #4 Silica Gel
Initial Wt: ~~766.0~~ 985.0
Final Wt: 993.2
4 Gain: ~~27.2~~ 8.2
% Spent:

Seal and label container TS6

CWTR=1+2+3: 180.7
WCBDA=4: ~~25.2~~ 8.2

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ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: MAY 18, 22

Test No.: 2
Test Location: 41

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	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	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
			Filter ID: 229113	Impinger #1 Knock Out Empty Wt: 490.5 Final Wt: 682.0 1 Gain: 191.5 Colour: clear	Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr) * *if there is no goin purge is not required.*	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4			Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Initial Wt: Final Wt: Gain: Colour: WHITE Seal and label container TS4	Impinger #2 Empty Empty Wt: 689.5 Final Wt: 689.5 2 Gain: 0 Colour: —	Purge On: 15:00 Purge Off: 16:00 Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container
				Secondary Filter		
				Impinger #3 H_2O Empty Wt: 665 ✓ Initial Wt: 756.0 Final Wt: 754.7 3 Gain: -1.3 Colour: clear	CONTAINER TS5 Mark Fluid Level and Seal and Label Container	
					CONTAINER TS6 Secondary Filter	
				Impinger #4 Silica Gel Initial Wt: 780.5 Final Wt: 990.2 4 Gain: 9.7 % Spent:	Seal and label container TS6	CWTR=1+2+3: 160.2 WCBDA=4: 9.7

SAMPLE IDENTIFICATION	22-22158-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: DU
Train Recovered By: BD/DU

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ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: APRIL 16/17-2

Test No.: 3
Test Location: U1

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.S cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
			Filter ID: QZ9114	Impinger #1 Knock Out Empty Wt: 516.5 Final Wt: 692.7 1 Gain: 176.2 Colour: clear	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.*	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4			Acetone/Hexane Rinse
			Initial Wt: Final Wt: Gain: Colour: WHITE	Impinger #2 Empty Empty Wt: 677.5 Final Wt: 677.5 2 Gain: 0 Colour:	Purge On: 19:40 Purge Off: 20:40	
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Seal and label container TS4		Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container

SAMPLE IDENTIFICATION	22-22158-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

Secondary Filter

Impinger #3 H_2O
Empty Wt: 654.0
Initial Wt: 750.3
Final Wt: 750.0
3 Gain: -0.3
Colour: clear

Impinger #4 Silica Gel
Initial Wt: 961.5
Final Wt: 972.6
4 Gain: 11.1
% Spent:

CONTAINER TS5
Mark Fluid Level and Seal and Label Container

CONTAINER TS6
Secondary Filter

Seal and label container TS6

CWTR=1+2+3: 175.9
WCBDA=4: 11.1

Train Loaded By: BT/SU
Train Recovered By: SU/BT

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ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: MAY 17, '22

Test No.: 1
Test Location: U 2

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	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	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	Filter ID: Q29118	Impinger #1 Knock Out	Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
			CONTAINER TS4	Empty Wt: 490.7	* if there is no gain purge is not required.	
			Initial Wt:	Final Wt: 643.7		Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Final Wt:	1 Gain: 153.0	Purge On: 11:00	
			Gain:	Colour: clear	Purge Off: 12:00	Mark Fluid Level and Seal and Label Container
			Colour: WHITE	Impinger #2 Empty		
			Seal and label container TS4	Empty Wt: 689.0	Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	
				Final Wt: 689.0		
				2 Gain: 0.0		
				Colour:		
				Secondary Filter		
				Impinger #3 H_2O	CONTAINER TS5	
				Empty Wt: 665.1	Mark Fluid Level and Seal and Label Container	
				Initial Wt: 761.5		
				Final Wt: 759.0		
				3 Gain: -2.5		
				Colour: clear	CONTAINER TS6	
					Secondary Filter	
				Impinger #4 Silica Gel		
				Initial Wt: 956.3	Seal and label container TS6	
				Final Wt: 968.0		
				4 Gain: 11.7		
				% Spent:		

SAMPLE IDENTIFICATION	22-22158-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: DU
Train Recovered By: DT/DU

CWTR=1+2+3:	150.5
WCBDA=4:	11.7

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ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: MAY 17/22

Test No.: 2
Test Location: U2

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.S cyclone. PM 2.S Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter
			Filter ID: 27919
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Initial Wt:
			Final Wt:
			Gain:
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Colour: WHITE
			Seal and label container TS4

SAMPLE IDENTIFICATION	22-22158-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: DH
Train Recovered By: DT/DH

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	516.6
	Final Wt:	674.0
1	Gain:	157.4
	Colour:	clear

	Impinger #2 Empty	
	Empty Wt:	678.6
	Final Wt:	677.7
2	Gain:	-0.9
	Colour:	clear

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	654.0
	Initial Wt:	753.2
	Final Wt:	751.7
3	Gain:	-1.5
	Colour:	clear

	Impinger #4 Silica Gel	
	Initial Wt:	978.0
	Final Wt:	985.0
4	Gain:	7.0
	% Spent:	

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no goin purge is not required.*

Purge On: 14:10
Purge Off: 15:10

Rinse all glassware from filter to front half 2nd filter with di H2O into TS5

CONTAINER TS5
Mark Fluid Level and Seal and Label Container

CONTAINER TS6
Secondary Filter

Seal and label container TS6

CONTAINER TS7

Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7

Acetone/Hexane Rinse

Mark Fluid Level and Seal and Label Container

CWTR=1+2+3:	155.0
WCBDA=4:	7.0

ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: MAY 17/22

Test No.: 3
Test Location: U2

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	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	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
			Filter ID: RZ9120	Impinger #1 Knock Out Empty Wt: 490.7 Final Wt: 648.0 1 Gain: 157.3 Colour: clear	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.*	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4			Acetone/Hexane Rinse
			Initial Wt: Final Wt: Gain: Colour: WHITE	Impinger #2 Empty Empty Wt: 689.0 Final Wt: 689.5 2 Gain: 0.5 Colour: clear	Purge On: 16:45 Purge Off: 17:45	
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Seal and label container TS4		Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container
				Secondary Filter		
				Impinger #3 H_2O Empty Wt: 665.1 Initial Wt: 757.0 Final Wt: 756.0 3 Gain: -3.0 Colour: clear	CONTAINER TS5 Mark Fluid Level and Seal and Label Container	
					CONTAINER TS6 Secondary Filter	
				Impinger #4 Silica Gel Initial Wt: 968.0 Final Wt: 980.5 4 Gain: 12.5 % Spent:	Seal and label container TS6	

SAMPLE IDENTIFICATION	22-22158-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_20 and rinse)	40
TS6 (Secondary Filter)	41
TS7 (Acetone / Hexane rinse)	42

CWTR=1+2+3: 154.8
WCBDA=4: 12.5

Train Loaded By: DU
Train Recovered By: DT/DU

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ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC

Project No.: 22158

Date: MAY 17, 22

Test No.: BLANK 1

Test Location:

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.S cyclone. PM 2.S Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TSS & TS6	CONTAINER TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	Filter ID: QC9122	Impinger #1 Knock Out	Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
			CONTAINER TS4	1 Empty Wt: / Final Wt: / Gain: / Colour:	* *if there is no gain purge is not required.*	
			Initial Wt:			Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Final Wt:	Impinger #2 Empty	Purge On:	
			Gain:	Empty Wt: / Final Wt:	Purge Off:	Mark Fluid Level and Seal and Label Container
			Colour: WHITE	2 Gain: / Colour:	Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	
			Seal and label container TS4	Secondary Filter		
				Impinger #3 H_2O	CONTAINER TS5	
				Empty Wt: / Initial Wt: / Final Wt: / 3 Gain: / Colour:	Mark Fluid Level and Seal and Label Container	
					CONTAINER TS6	
				Impinger #4 Silica Gel	Secondary Filter	
				Initial Wt: / Final Wt: / 4 Gain: / % Spent:	Seal and label container TS6	
						CWTR=1+2+3:
						WCBDA=4:

SAMPLE IDENTIFICATION	22-22158-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_20 and rinse)	47
TS6 (Secondary Filter)	48
TS7 (Acetone / Hexane rinse)	49

Train Loaded By:

Train Recovered By: DT

ORTECH Consulting Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22158
Date: MAY 19/22

Test No.: BLANK 2
Test Location:

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.S cyclone. PM 2.S Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TSS & TS6	CONTAINER TS7
			Filter ID: RZ9115	Impinger #1 Knock Out Empty Wt: Final Wt: 1 Gain: Colour:	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.*	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4			Acetone/Hexane Rinse
			Initial Wt: Final Wt: Gain: Colour: WHITE	Impinger #2 Empty Empty Wt: Final Wt: 2 Gain: Colour:	Purge On: Purge Off:	
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS3	Seal and label container TS4		Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container
				Secondary Filter		
				Impinger #3 H_2O Empty Wt: Initial Wt: Final Wt: 3 Gain: Colour:	CONTAINER TSS Mark Fluid Level and Seal and Label Container	
					CONTAINER TS6 Secondary Filter	
				Impinger #4 Silica Gel Initial Wt: Final Wt: 4 Gain: % Spent:	Seal and label container TS6	CWTR=1+2+3: WCBDA=4:

SAMPLE IDENTIFICATION	22-22158-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:
Train Recovered By: DT

APPENDIX 14

SVOC Train Recovery Data Sheets
(8 pages)

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client :	Covanta DYEC
Project No.:	22158
Sample Batch No.:	22-22158-SVOC-

Test No.:	1
Test Date:	MAY 18, 22
Test Location:	U1

Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	
1	2	3	4	5	
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)

Empty Wt:	408.0	Colour:	WHITE	Initial Wt:	373.7	Impinger #1 Empty		Empty Wt:	408.0	Initial Wt:	946.7
After Acetone/ Hexane Rinse:	579.5	FOLD IN FOIL		Final Wt:	380.1	Empty Wt:	545.4	After Acetone/ Hexane Rinse:	629.0	Final Wt:	964.0
Total TS1:	171.5	SEAL AND LABEL CONTAINER TS2		1 Gain:	6.8	Final Wt:	926.0	Total TS5:	221.0	5 Gain:	17.3
MARK FLUID LEVEL		SEAL TRAP		Colour:	WHITE	2 Gain:	380.6			% Spent:	
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL				Colour:	clear				
		LABEL AS CONTAINER TS3				Impinger #2 Ethylene Glycol					
						Empty Wt:	761.7				
						Initial Wt:	761.6				
						Final Wt:	973.0				
						3 Gain:	211.4				
						Colour:	clear				
						Impinger #3 Empty					
						Empty Wt:	608.3				
						Final Wt:	652.0				
						4 Gain:	43.7				
						Colour:	clear				
						Container TS4 Weights					
						Empty Wt:	408.0				
						With Imp Soln:	1126.2				
						After ~100g H_2O Rinse:	1242.5				
						Total TS4:	843.5				

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	2
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	211211
Hexane Batch No.:	106835
Acetone Batch No.:	106906

Impinger Box ID: 1

CWTR = 1 + 2 + 3 + 4:	642.5 ✓
WCBDA=5:	17.3

Train Loaded By: BM

Train Recovered By: DT

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 22158
Sample Batch No.: 22-22158-5VOC-

Test No.: 2
Test Date: MAY 18, 22
Test Location: CC1

Sample ID 6	Sample ID 7	Sample ID 8	Sample ID 9	Sample ID 10	
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)
Empty Wt: 408.0	Colour: WHITE	Initial Wt: 376.9	Impinger #1 Empty	Empty Wt: 408.5	Initial Wt: 932.4
After Acetone/ Hexane Rinse: 603.5	FOLD IN FOIL	Final Wt: 385.0	Empty Wt: ~~610.6~~ 609.7	After Acetone/ Hexane Rinse: 633.2	Final Wt: 948.0
Total TS1: 195.5	SEAL AND LABEL CONTAINER TS2	1 Gain: 8.1	Final Wt: 1144.3	Total TS5: 224.7	5 Gain: 15.6
MARK FLUID LEVEL	SEAL TRAP	Colour: WHITE	2 Gain: 534.6		% Spent:
SEAL AND LABEL CONTAINER TS1	WRAP IN FOIL	LABEL AS CONTAINER TS3	Colour: clear		
			Impinger #2 Ethylene Glycol		
			Empty Wt: 562.2		
			Initial Wt: 664.8		
			Final Wt: 795.8		
			3 Gain: 131.0		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 658.7		
			Final Wt: 658.7		
			4 Gain: 0		
			Colour: —		
			Container TS4 Weights		
			Empty Wt: 409.3		
			With Imp Soln: 1167.0		
			After ~100g H_2O Rinse: 1260.5		
			Total TS4: 851.0		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	5
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	211214
Hexane Batch No.:	
Acetone Batch No.:	

Impinger Box ID: 2

CWTR = 1 + 2 + 3 + 4: 673.7 ✓

WCBDA=5: 15.6

Train Loaded By: Blair McIntyre
Train Recovered By: BL

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 22158
Sample Batch No.: 22-22158-SVOC-

Test No.: 3
Test Date: May 19/22
Test Location: U1

Sample ID 11	Sample ID 12	Sample ID 13	Sample ID 14	Sample ID 15	
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)
Empty Wt: 409.0	Colour: WHITE	Initial Wt: 356.9	Impinger #1 Empty	Empty Wt: 408.5	Initial Wt: 718.8
After Acetone/ Hexane Rinse: 648.0	FOLD IN FOIL	Final Wt: 365.4	Empty Wt: 528.7	After Acetone/ Hexane Rinse: 961.5	Final Wt: 731.2
Total TS1: 240.0	SEAL AND LABEL CONTAINER TS2	1 Gain: 8.5	Final Wt: 1045.5	Total TS5:	5 Gain: 12.4
MARK FLUID LEVEL	SEAL TRAP	Colour: WHITE	2 Gain: 516.8		% Spent:
SEAL AND LABEL CONTAINER TS1	WRAP IN FOIL		Colour: clear		
	LABEL AS CONTAINER TS3		Impinger #2 Ethylene Glycol		
			Empty Wt: 550.4		
			Initial Wt: 669.9		
			Final Wt: 781.0		
			3 Gain: 111.1		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 659.6		
			Final Wt: 660.0		
			4 Gain: 0.4		
			Colour: clear		
			Container TS4 Weights		
			Empty Wt: 409.5		
			With Imp Soln: 1192.0		
			After ~100g H_2O Rinse: 1323.0		
			Total TS4:		

Impinger Box ID: 8

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	3
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

CWTR = 1 + 2 + 3 + 4:	686.8
WCBDA=5:	12.4

Train Loaded By: DL
Train Recovered By: DL

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client :	Covanta DYEC
Project No.:	22158
Sample Batch No.:	22-22158-SVOC-

Test No.:	1
Test Date:	MAR 18, 22
Test Location:	U2

Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	
21	22	23	24	25	
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)
Empty Wt: 409.5	Colour: WHITE	Initial Wt: 378.1	Impinger #1 Empty	Empty Wt: 408.5	Initial Wt: 928.0
After Acetone/ Hexane Rinse: 594.5	FOLD IN FOIL	1 Final Wt: 388.3	Empty Wt: 645.9	After Acetone/ Hexane Rinse: 623.5	Final Wt: 946.0
Total TS1: 195.0	SEAL AND LABEL CONTAINER TS2	Gain: 10.2	Final Wt: 953.3	5 Total TS5: 215.0	5 Gain: 18.0
MARK FLUID LEVEL		Colour: WHITE	2 Gain: 307.4		% Spent:
SEAL AND LABEL CONTAINER TS1		SEAL TRAP	Colour: clear		
		WRAP IN FOIL	Impinger #2 Ethylene Glycol		
		LABEL AS CONTAINER TS3	Empty Wt: 550.7		
			Initial Wt: 647.0		
			Final Wt: 898.5		
			3 Gain: 251.5		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 481.8		
			Final Wt: 577.5		
			4 Gain: 95.7		
			Colour: clear		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	4
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	211211
Hexane Batch No.:	106835
Acetone Batch No.:	106906

Container TS4 Weights	
Empty Wt:	409.0
With Imp Soln:	1149.5
After ~100g H_2O Rinse:	1246.5
Total TS4:	837.5

Impinger Box ID: 14

CWTR = 1 + 2 + 3 + 4:	664.8
WCBDA=S:	13.0

Train Loaded By: RT

Train Recovered By: ST

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client :	Covanta DYEC
Project No.:	22158
Sample Batch No.:	22-22158-SVOC-

Test No.:	2
Test Date:	MAY 16, 22
Test Location:	42

Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	
26	27	28	29	30	
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)

Empty Wt:	408.0	Colour:	WHITE	Initial Wt:	388.0		Impinger #1 Empty		Empty Wt:	408.5	Initial Wt: 930.9 *
After Acetone/ Hexane Rinse:	574.5	FOLD IN FOIL		Final Wt:	398.8		Empty Wt:	478.3	After Acetone/ Hexane Rinse:	561.0	Final Wt: 942.4
Total TS1:	166.5	SEAL AND LABEL CONTAINER TS2		1 Gain:	10.8		Final Wt:	1045.5	Total TS5:	152.5	5 Gain: 11.5
MARK FLUID LEVEL		SEAL TRAP		Colour:	WHITE	2	Gain:	567.2			% Spent:
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL					Colour:	clear			
		LABEL AS CONTAINER TS3					Impinger #2 Ethylene Glycol				
							Empty Wt:	659.0			
							Initial Wt:	760.0			
							Final Wt:	788.9			
						3	Gain:	28.9			
							Colour:	clear			
							Impinger #3 Empty				
							Empty Wt:	657.8			
							Final Wt:	658.0			
						4	Gain:	0.2			
							Colour:	clear			
							Container TS4 Weights				
							Empty Wt:	408.5			
							With Imp Soln:	1098.0			
							After ~100g H_2O Rinse:	1220.0			
							Total TS4:	811.5			

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	1
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Impinger Box ID: 13

CWTR = 1 + 2 + 3 + 4:	607.1 ✓
WCBDA=5:	11.5

Train Loaded By: BF

Train Recovered By:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client :	Covanta DYEC
Project No.:	22158
Sample Batch No.:	22-22158-SVOC-

Test No.:	3
Test Date:	MAY 19/22
Test Location:	U3

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)
Empty Wt: 409.0	Colour: WHITE	Initial Wt: 354.0	Impinger #1 Empty	Empty Wt: 409.0	Initial Wt: 954.7
After Acetone/ Hexane Rinse: 654.0	FOLD IN FOIL	Final Wt: 363.0	Empty Wt: 569.4	After Acetone/ Hexane Rinse: 623.0	Final Wt: 968.6
Total TS1:		1 Gain: 9.0	Final Wt: 948.0	Total TS5:	5 Gain: 14.4
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: 378.0		% Spent:
		SEAL TRAP	Colour: clear		
MARK FLUID LEVEL			Impinger #2 Ethylene Glycol		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Empty Wt: 527.4		
			Initial Wt: 622.2		
		LABEL AS CONTAINER TS3	Final Wt: 880.0		
			3 Gain: 257.8		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 501.2	Impinger Box ID: P2	
			Final Wt: 544.5		
			4 Gain: 43.3		
			Colour:		
			Container TS4 Weights	CWTR = 1 + 2 + 3 + 4: 688.3	
			Empty Wt: 408.0		
			With Imp Soln: 1172.5	WCBDA=5: 14.4	
			After ~100g H_2O Rinse: 1346.0		
			Total TS4:		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	3
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: DX

Train Recovered By: DT

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 22158
Sample Batch No.: 22-22158-SVOC-

Test No.: BLANK 1
Test Date: MAY 19/22
Test Location:

Sample ID 16	Sample ID 17	Sample ID 18	Sample ID 19	Sample ID 20	
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)
Empty Wt: 408.0	Colour: WHITE	Initial Wt: 347.8	Impinger #1 Empty	Empty Wt: 409.0	Initial Wt: 953.8
After Acetone/ Hexane Rinse: 608.0	FOLD IN FOIL	Final Wt: 347.8	Empty Wt: 605.0	After Acetone/ Hexane Rinse: 540.5	Final Wt: 953.8
Total TS1: 200.0	SEAL AND LABEL CONTAINER TS2	1 Gain: 0	Final Wt: 605.0	Total TS5: 131.5	5 Gain: 0
MARK FLUID LEVEL	SEAL TRAP	Colour: WHITE	2 Gain: 0		% Spent:
SEAL AND LABEL CONTAINER TS1	WRAP IN FOIL		Colour: —		
	LABEL AS CONTAINER TS3		Impinger #2 Ethylene Glycol		
			Empty Wt: 559.4		
			Initial Wt: 661.6		
			Final Wt: 661.6		
			3 Gain: 0		
			Colour: —		
			Impinger #3 Empty		
			Empty Wt: 681.9		
			Final Wt: 681.9		
			4 Gain: 0		
			Colour: —		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	6
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Container TS4 Weights	
Empty Wt:	408.5
With Imp Soln:	502.4
After ~100g H_2O Rinse:	609.5
Total TS4:	200.0

Impinger Box ID: 6

CWTR = 1 + 2 + 3 + 4: 0

WCBDA=5: 0

Train Loaded By: IT
Train Recovered By: AT

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: 22158
Sample Batch No.: 22-22158-SVOC-

Test No.: BLANK 2
Test Date: MAY 19/22
Test Location:

Sample ID 36	Sample ID 37	Sample ID 38	Sample ID 39	Sample ID 40	
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	Filter	XAD-II Trap 7	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)
Empty Wt: 408.0	Colour: WHITE	Initial Wt: 374.6	Impinger #1 Empty	Empty Wt: 409.0	Initial Wt: 929.7
After Acetone/ Hexane Rinse: 648.0	FOLD IN FOIL	1 Final Wt: 374.6	Empty Wt: 608.3	After Acetone/ Hexane Rinse: 610.0	Final Wt: 929.7
Total TS1: 240.0		Gain: 0	Final Wt: 608.3	5 Total TS5: 201.0	Gain: 0
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: 0		% Spent:
		SEAL TRAP	Colour: —		
MARK FLUID LEVEL			Impinger #2 Ethylene Glycol		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Empty Wt: 673.3		
			Initial Wt: 774.4		
		LABEL AS CONTAINER TS3	Final Wt: 774.4		
			3 Gain: 0		
			Colour: —		
			Impinger #3 Empty	Impinger Box ID: 10	
			Empty Wt: 468.0		
			Final Wt: 468.0		
			4 Gain: 0		
			Colour: —		
			Container TS4 Weights	CWTR = 1 + 2 + 3 + 4: 0	
			Empty Wt: 408.5		
			With Imp Soln: 514.5	WCBDA=5: 0	
			After ~100g H_2O Rinse: 627.0		
			Total TS4: 218.5		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	7
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: BT
Train Recovered By:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

APPENDIX 15

SVOC Analytical Report
(70 pages)

1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708349 Revision 1		Mississauga, ON
Date of Report	29-Jun-22		L5J 2Y4
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **PCDD/F by EPA M23**

Revised Report: To include Field Spike corrected 2378-target values

The field run samples (not including the blanks and laboratory QC samples) all showed poor extraction standard and field spike standard recoveries. For the impacted samples, sample data have been provided both uncorrected and corrected for field spike recoveries. The corrected values have been corrected based upon the corresponding field spike recoveries (i.e. Corrected Values = Uncorrected Value x 100 / % Rec of corresponding C13 Field Spike target)

Certified by:

Ron McLeod, PhD
Director, Air Toxics & Special Chemistries, Life Sciences

ALS Life Sciences

Sample Analysis summary Report

Sample Name	22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET	22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET	22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET	22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET	22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET	22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET
ALS Sample ID	L2708349-1	L2708349-2	L2708349-3	L2708349-4	L2708349-5	L2708349-6
Sample Size	1	1	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample	Sample	Sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack	Stack	Stack
Sampling Date	18-May-22	18-May-22	19-May-22	19-May-22	18-May-22	18-May-22
Extraction Date	7-May-22	7-May-22	7-May-22	7-May-22	7-May-22	7-May-22
FS Uncorrected Target Analytes	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	<7.9	<7.2	<5.6	<1.3	<2.6	<3.5
1,2,3,7,8-PeCDD	<4.3	<11	<3.4	<0.65	<2.6	<2.0
1,2,3,4,7,8-HxCDD	<3.4	<5.4	<3.8	<0.64	<2.0	<1.8
1,2,3,6,7,8-HxCDD	<9.5	<6.4	10.7	<0.60	<7.3	8.09
1,2,3,7,8,9-HxCDD	<4.1	<4.0	<3.7	<0.62	4.13	<2.7
1,2,3,4,6,7,8-HpCDD	<54	60.0	65.7	3.11	38.7	38.7
OCDD	95.4	78.3	85.1	<5.9	<33	40.7
2,3,7,8-TCDF	<6.3	<6.0	<3.3	<0.90	<3.2	<3.1
1,2,3,7,8-PeCDF	3.34	<4.3	<2.5	1.27	<2.2	4.19
2,3,4,7,8-PeCDF	<3.1	5.66	<3.7	<0.60	7.96	5.74
1,2,3,4,7,8-HxCDF	<3.7	<5.9	<3.5	<0.45	<2.9	<3.1
1,2,3,6,7,8-HxCDF	6.60	<6.2	<3.5	<0.45	<2.9	<4.5
2,3,4,6,7,8-HxCDF	<9.9	8.82	6.01	<0.47	<3.5	6.77
1,2,3,7,8,9-HxCDF	<16	16.8	<8.5	<3.7	<9.5	<6.8
1,2,3,4,6,7,8-HpCDF	16.3	<9.1	<15	<0.57	12.0	<10
1,2,3,4,7,8,9-HpCDF	<5.2	<6.9	<3.5	<0.67	<2.8	<1.8
OCDF	13.8	<18	<15	<2.8	<7.8	9.02
Field Spike Standards	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	36	46	42	114	44	45
13C12-1,2,3,4,7,8-HxCDD	34	42	38	125	49	42
13C12-2,3,4,7,8-PeCDF	38	47	43	119	46	48
13C12-1,2,3,4,7,8-HxCDF	36	44	42	108	44	44
13C12-1,2,3,4,7,8,9-HpCDF	35	42	40	105	43	42
Extraction Standards						
13C12-2,3,7,8-TCDD	14	13	19	53	24	28
13C12-1,2,3,7,8-PeCDD	14	14	21	57	26	30
13C12-1,2,3,6,7,8-HxCDD	16	16	24	62	30	34
13C12-1,2,3,4,6,7,8-HpCDD	16	16	23	66	29	34
13C12-OCDD	14	12	18	58	24	31
13C12-2,3,7,8-TCDF	14	13	20	55	26	29
13C12-1,2,3,7,8-PeCDF	14	13	19	53	24	27
13C12-1,2,3,6,7,8-HxCDF	16	16	23	66	31	34
13C12-1,2,3,4,6,7,8-HpCDF	16	16	22	65	29	34
Cleanup Standard						
13C12-1,2,3,7,8,9-HxCDF	68	66	64	80	78	75
Homologue Group Totals	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
Total-TCDD	33.9	30.7	43.1	<1.3	77.5	48.6
Total-PeCDD	25.7	<11	30.2	<0.65	53.3	108
Total-HxCDD	125	137	161	<0.64	153	140
Total-HpCDD	60.8	60.0	144	3.11	38.7	72.0
Total-TCDF	<6.3	<6.0	<3.3	<0.90	<3.2	<3.1
Total-PeCDF	5.65	13.3	10.3	1.27	23.6	17.1
Total-HxCDF	12.2	52.6	9.36	0.756	12.0	29.2
Total-HpCDF	16.3	<6.9	<3.5	<0.67	12.0	<1.8
Toxic Equivalency - (WHO 2005)						
Lower Bound PCDD/F TEQ (WHO 2005)	0.956	4.88	2.35	0.0692	3.31	3.74
Mid Point PCDD/F TEQ (WHO 2005)	12.9	16.8	11.6	1.72	8.58	8.48
Upper Bound PCDD/F TEQ (WHO 2005)	20.0	26.8	15.4	3.00	11.7	11.6

ALS Life Sciences

Sample Analysis summary Report

Sample Name	22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET	22-22158-5VOC-(36 THRU 40) BLANK2 #2 APC OUTLET
ALS Sample ID	L2708349-7	L2708349-8
Sample Size	1	1
Sample size units	Sample	Sample
Percent Moisture	n/a	n/a
Sample Matrix	Stack	Stack
Sampling Date	19-May-22	19-May-22
Extraction Date	7-May-22	7-May-22
FS Uncorrected Target Analytes	**pg**	**pg**
2,3,7,8-TCDD	<3.8	<1.4
1,2,3,7,8-PeCDD	<4.0	<0.87
1,2,3,4,7,8-HxCDD	<3.9	<0.65
1,2,3,6,7,8-HxCDD	6.82	<0.61
1,2,3,7,8,9-HxCDD	<4.6	<0.63
1,2,3,4,6,7,8-HpCDD	<35	2.88
OCDD	<36	<3.4
2,3,7,8-TCDF	<4.7	<0.83
1,2,3,7,8-PeCDF	<3.5	<1.2
2,3,4,7,8-PeCDF	<3.7	<0.65
1,2,3,4,7,8-HxCDF	5.39	<0.52
1,2,3,6,7,8-HxCDF	2.60	<0.52
2,3,4,6,7,8-HxCDF	<5.4	<0.54
1,2,3,7,8,9-HxCDF	<9.8	3.12
1,2,3,4,6,7,8-HpCDF	9.27	<0.90
1,2,3,4,7,8,9-HpCDF	<3.2	<1.1
OCDF	14.0	<1.8
Field Spike Standards	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	51	107
13C12-1,2,3,4,7,8-HxCDD	47	111
13C12-2,3,4,7,8-PeCDF	50	110
13C12-1,2,3,4,7,8-HxCDF	49	102
13C12-1,2,3,4,7,8,9-HpCDF	42	94
Extraction Standards		
13C12-2,3,7,8-TCDD	19	44
13C12-1,2,3,7,8-PeCDD	20	49
13C12-1,2,3,6,7,8-HxCDD	23	57
13C12-1,2,3,4,6,7,8-HpCDD	20	52
13C12-OCDD	13	37
13C12-2,3,7,8-TCDF	20	48
13C12-1,2,3,7,8-PeCDF	19	44
13C12-1,2,3,6,7,8-HxCDF	24	60
13C12-1,2,3,4,6,7,8-HpCDF	21	54
Cleanup Standard		
13C12-1,2,3,7,8,9-HxCDF	72	62
Homologue Group Totals	**pg**	**pg**
Total-TCDD	85.0	<1.4
Total-PeCDD	11.4	<0.87
Total-HxCDD	6.82	<0.65
Total-HpCDD	45.8	2.88
Total-TCDF	<4.7	<0.83
Total-PeCDF	18.0	<0.69
Total-HxCDF	7.99	3.63
Total-HpCDF	9.27	<1.1
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	1.58	0.341
Mid Point PCDD/F TEQ (WHO 2005)	9.67	1.84
Upper Bound PCDD/F TEQ (WHO 2005)	13.8	3.29

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Sample Analysis summary Report

Sample Name	22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET	22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET	22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET	22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET	22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET	22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET
ALS Sample ID	L2708349-1	L2708349-2	L2708349-3	L2708349-5	L2708349-6	L2708349-7
Sample Size	1	1	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample	Sample	Sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack	Stack	Stack
Sampling Date	18-May-22	18-May-22	19-May-22	18-May-22	18-May-22	19-May-22
Extraction Date	7-May-22	7-May-22	7-May-22	7-May-22	7-May-22	7-May-22
FS Corrected Target Analytes	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	<22	<16	<13	<5.9	<7.8	<7.5
1,2,3,7,8-PeCDD	<11	<23	<7.9	<5.7	<4.2	<8.0
1,2,3,4,7,8-HxCDD	<10	<13	<10	<4.1	<4.3	<8.3
1,2,3,6,7,8-HxCDD	<28	<15	28.2	<15	19.3	14.5
1,2,3,7,8,9-HxCDD	<12	<9.5	<9.7	8.43	<6.4	<9.8
1,2,3,4,6,7,8-HpCDD	<150	143	164	90.0	92.1	<83
OCDD	273	186	213	<77	96.9	<86
2,3,7,8-TCDF	<18	<13	<7.9	<7.3	<6.9	<9.2
1,2,3,7,8-PeCDF	8.79	<9.1	<5.8	<4.8	8.73	<7.0
2,3,4,7,8-PeCDF	<8.2	12.0	<8.6	17.3	12.0	<7.4
1,2,3,4,7,8-HxCDF	<10	<13	<8.3	<6.6	<7.0	11.0
1,2,3,6,7,8-HxCDF	18.3	<14	<8.3	<6.6	<10	5.31
2,3,4,6,7,8-HxCDF	<28	20.0	14.3	<8.0	15.4	<11
1,2,3,7,8,9-HxCDF	<44	38.2	<20	<22	<15	<20
1,2,3,4,6,7,8-HpCDF	46.6	<22	<38	27.9	<24	22.1
1,2,3,4,7,8,9-HpCDF	<15	<16	<8.8	<6.5	<4.3	<7.6
OCDF	39.4	<43	<38	<18	21.5	33.3

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG3730529-1	WG3730529-2
Sample Size	1	1
Sample size units	Sample	n/a
Percent Moisture	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	7-May-22	7-May-22
Target Analytes	**pg**	**% Rec**
2,3,7,8-TCDD	<1.5	95
1,2,3,7,8-PeCDD	<0.88	106
1,2,3,4,7,8-HxCDD	<1.0	105
1,2,3,6,7,8-HxCDD	<2.1	113
1,2,3,7,8,9-HxCDD	<1.3	115
1,2,3,4,6,7,8-HpCDD	<4.5	101
OCDD	21.5	94
2,3,7,8-TCDF	<1.1	100
1,2,3,7,8-PeCDF	<1.8	106
2,3,4,7,8-PeCDF	<1.2	103
1,2,3,4,7,8-HxCDF	<0.95	102
1,2,3,6,7,8-HxCDF	<0.95	106
2,3,4,6,7,8-HxCDF	<1.2	105
1,2,3,7,8,9-HxCDF	6.01	105
1,2,3,4,6,7,8-HpCDF	<2.2	97
1,2,3,4,7,8,9-HpCDF	2.95	98
OCDF	9.49	96
Field Spike Standards	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	NS	NS
13C12-1,2,3,4,7,8-HxCDD	NS	NS
13C12-2,3,4,7,8-PeCDF	NS	NS
13C12-1,2,3,4,7,8-HxCDF	NS	NS
13C12-1,2,3,4,7,8,9-HpCDF	NS	NS
Extraction Standards		
13C12-2,3,7,8-TCDD	46	44
13C12-1,2,3,7,8-PeCDD	50	51
13C12-1,2,3,6,7,8-HxCDD	54	57
13C12-1,2,3,4,6,7,8-HpCDD	56	64
13C12-OCDD	46	59
13C12-2,3,7,8-TCDF	48	45
13C12-1,2,3,7,8-PeCDF	45	46
13C12-1,2,3,6,7,8-HxCDF	57	59
13C12-1,2,3,4,6,7,8-HpCDF	56	61
Cleanup Standard		
13C12-1,2,3,7,8,9-HxCDF	65	72
Homologue Group Totals	**pg**	
Total-TCDD	<1.5	
Total-PeCDD	<0.88	
Total-HxCDD	<1.0	
Total-HpCDD	<1.4	
Total-TCDF	<1.1	
Total-PeCDF	<1.2	
Total-HxCDF	6.01	
Total-HpCDF	2.95	
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	0.640	
Mid Point PCDD/F TEQ (WHO 2005)	2.79	
Upper Bound PCDD/F TEQ (WHO 2005)	4.36	

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET**	Sampling Date	18-May-22		
ALS Sample ID	L2708349-1	Extraction Date	7-May-22		Approved:
Analysis Method	EPA M23	Sample Size	1	Sample	*E. Sabljic*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	7-220614A22
Run Date	15-Jun-22 02:48
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<7.9	7.9	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<4.3	4.3	U		150
1,2,3,4,7,8-HxCDD	0.1	34.28	<3.4	3.4	M,U	2.6	150
1,2,3,6,7,8-HxCDD	0.1	34.33	<9.5	3.2	M,J,R	9.5	150
1,2,3,7,8,9-HxCDD	0.1	34.45	<4.1	3.4	M,J,R	4.1	150
1,2,3,4,6,7,8-HpCDD	0.01	35.95	<54	3.9	J,R	54	150
OCDD	0.0003	37.47	95.4	14	M,J,B		300
2,3,7,8-TCDF	0.1	NotFnd	<6.3	6.3	U		30
1,2,3,7,8-PeCDF	0.03	31.36	3.34	3.3	J		150
2,3,4,7,8-PeCDF	0.3	31.98	<3.1	3.1	U	1.9	150
1,2,3,4,7,8-HxCDF	0.1	33.79	<3.7	3.2	J,R	3.7	150
1,2,3,6,7,8-HxCDF	0.1	33.88	6.60	3.2	J		150
2,3,4,6,7,8-HxCDF	0.1	34.19	<9.9	3.3	J,R	9.9	150
1,2,3,7,8,9-HxCDF	0.1	34.61	<16	3.8	J,R	16	150
1,2,3,4,6,7,8-HpCDF	0.01	35.39	16.3	4.4	J		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<5.2	5.2	U		150
OCDF	0.0003	37.56	13.8	5.5	J,B		300

Field Spike Standards	**pg**		**% Rec**	**Limits**
37Cl4-2,3,7,8-TCDD	600	28.41	36	70-130
13C12-1,2,3,4,7,8-HxCDD	6000	34.27	34	70-130
13C12-2,3,4,7,8-PeCDF	6000	32.05	38	70-130
13C12-1,2,3,4,7,8-HxCDF	6000	33.79	36	70-130
13C12-1,2,3,4,7,8,9-HpCDF	6000	36.20	35	70-130
Extraction Standards				
13C12-2,3,7,8-TCDD	12000	28.40	14	40-130
13C12-1,2,3,7,8-PeCDD	12000	32.26	14	40-130
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	16	40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.95	16	25-130
13C12-OCDD	24000	37.46	14	25-130
13C12-2,3,7,8-TCDF	12000	27.48	14	40-130
13C12-1,2,3,7,8-PeCDF	12000	31.35	14	40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	16	40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	16	25-130
Cleanup Standard	**pg**			
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	68	40-130

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	1	33.9	7.9		30
Total-PeCDD	1	25.7	4.3		150
Total-HxCDD	1	125	3.4		150
Total-HpCDD	1	60.8	3.9		150
Total-TCDF	0	<6.3	6.3	U	30
Total-PeCDF	2	5.65	3.3		150
Total-HxCDF	2	12.2	3.8		150
Total-HpCDF	1	16.3	5.2		150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.956
Mid Point PCDD/F TEQ (WHO 2005)	12.9
Upper Bound PCDD/F TEQ (WHO 2005)	20.0
Corrected Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	2.6
Mid Point PCDD/F TEQ (WHO 2005)	36.0
Upper Bound PCDD/F TEQ (WHO 2005)	55.6

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET**	Sampling Date	18-May-22		Approved:
ALS Sample ID	L2708349-2	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A23
Run Date	15-Jun-22 03:31
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<7.2	7.2	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<11	11	U		150
1,2,3,4,7,8-HxCDD	0.1	34.28	<5.4	4.1	J,R	5.4	150
1,2,3,6,7,8-HxCDD	0.1	34.33	<6.4	3.8	J,R	6.4	150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<4.0	4.0	U		150
1,2,3,4,6,7,8-HpCDD	0.01	35.95	60.0	5.8	J		150
OCDD	0.0003	37.47	78.3	29	J,B		300
2,3,7,8-TCDF	0.1	NotFnd	<6.0	6.0	U		30
1,2,3,7,8-PeCDF	0.03	31.36	<4.3	4.3	M,U	4.2	150
2,3,4,7,8-PeCDF	0.3	31.98	5.66	4.0	M,J		150
1,2,3,4,7,8-HxCDF	0.1	33.80	<5.9	5.9	U	3.9	150
1,2,3,6,7,8-HxCDF	0.1	33.87	<6.2	5.9	M,J,R	6.2	150
2,3,4,6,7,8-HxCDF	0.1	34.18	8.82	6.2	J		150
1,2,3,7,8,9-HxCDF	0.1	34.62	16.8	7.0	J,B		150
1,2,3,4,6,7,8-HpCDF	0.01	35.39	<9.1	5.8	J,R	9.1	150
1,2,3,4,7,8,9-HpCDF	0.01	36.21	<6.9	6.9	U	3.7	150
OCDF	0.0003	37.56	<18	17	J,R	18	300

Field Spike Standards	**pg**		**% Rec**	**Limits**
37Cl4-2,3,7,8-TCDD	600	28.41	46	70-130
13C12-1,2,3,4,7,8-HxCDD	6000	34.27	42	70-130
13C12-2,3,4,7,8-PeCDF	6000	32.05	47	70-130
13C12-1,2,3,4,7,8-HxCDF	6000	33.79	44	70-130
13C12-1,2,3,4,7,8,9-HpCDF	6000	36.20	42	70-130
Extraction Standards				
13C12-2,3,7,8-TCDD	12000	28.38	13	40-130
13C12-1,2,3,7,8-PeCDD	12000	32.26	14	40-130
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	16	40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.95	16	25-130
13C12-OCDD	24000	37.46	12	25-130
13C12-2,3,7,8-TCDF	12000	27.48	13	40-130
13C12-1,2,3,7,8-PeCDF	12000	31.35	13	40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	16	40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	16	25-130
Cleanup Standard	**pg**			
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	66	40-130

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	1	30.7	7.2		30
Total-PeCDD	0	<11	11	U	150
Total-HxCDD	1	137	4.1		150
Total-HpCDD	1	60.0	5.8		150
Total-TCDF	0	<6.0	6.0	U	30
Total-PeCDF	2	13.3	4.3		150
Total-HxCDF	4	52.6	7.0		150
Total-HpCDF	0	<6.9	6.9	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	4.88
Mid Point PCDD/F TEQ (WHO 2005)	16.8
Upper Bound PCDD/F TEQ (WHO 2005)	26.8
Corrected Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	11.6
Mid Point PCDD/F TEQ (WHO 2005)	38.5
Upper Bound PCDD/F TEQ (WHO 2005)	61.1

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET**	Sampling Date	19-May-22		Approved:
ALS Sample ID	L2708349-3	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A24
Run Date	15-Jun-22 04:15
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<5.6	5.6	U		30
1,2,3,7,8-PeCDD	1	32.27	<3.4	2.5	M,J,R	3.4	150
1,2,3,4,7,8-HxCDD	0.1	34.28	<3.8	3.8	M,U	2.0	150
1,2,3,6,7,8-HxCDD	0.1	34.33	10.7	3.6	M,J		150
1,2,3,7,8,9-HxCDD	0.1	34.46	<3.7	3.7	U	3.7	150
1,2,3,4,6,7,8-HpCDD	0.01	35.96	65.7	2.2	J		150
OCDD	0.0003	37.46	85.1	6.3	J,B		300
2,3,7,8-TCDF	0.1	NotFnd	<3.3	3.3	U		30
1,2,3,7,8-PeCDF	0.03	31.34	<2.5	2.5	U	1.1	150
2,3,4,7,8-PeCDF	0.3	32.05	<3.7	2.4	J,R	3.7	150
1,2,3,4,7,8-HxCDF	0.1	33.80	<3.5	3.5	M,U		150
1,2,3,6,7,8-HxCDF	0.1	33.86	<3.5	3.5	M,U	2.0	150
2,3,4,6,7,8-HxCDF	0.1	34.21	6.01	3.6	J		150
1,2,3,7,8,9-HxCDF	0.1	34.62	<8.5	4.1	J,R	8.5	150
1,2,3,4,6,7,8-HpCDF	0.01	35.39	<15	3.0	J,R	15	150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<3.5	3.5	U		150
OCDF	0.0003	37.56	<15	4.8	M,J,R	15	300

Field Spike Standards	**pg**		**% Rec**	**Limits**
37Cl4-2,3,7,8-TCDD	600	28.41	42	70-130
13C12-1,2,3,4,7,8-HxCDD	6000	34.27	38	70-130
13C12-2,3,4,7,8-PeCDF	6000	32.05	43	70-130
13C12-1,2,3,4,7,8-HxCDF	6000	33.79	42	70-130
13C12-1,2,3,4,7,8,9-HpCDF	6000	36.20	40	70-130
Extraction Standards				
13C12-2,3,7,8-TCDD	12000	28.40	19	40-130
13C12-1,2,3,7,8-PeCDD	12000	32.26	21	40-130
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	24	40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.95	23	25-130
13C12-OCDD	24000	37.46	18	25-130
13C12-2,3,7,8-TCDF	12000	27.48	20	40-130
13C12-1,2,3,7,8-PeCDF	12000	31.35	19	40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	23	40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	22	25-130
Cleanup Standard	**pg**			
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	64	40-130

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	2	43.1	5.6		30
Total-PeCDD	1	30.2	2.5		150
Total-HxCDD	3	161	3.8		150
Total-HpCDD	2	144	2.2		150
Total-TCDF	0	<3.3	3.3	U	30
Total-PeCDF	1	10.3	2.5		150
Total-HxCDF	2	9.36	4.1		150
Total-HpCDF	0	<3.5	3.5	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	2.35
Mid Point PCDD/F TEQ (WHO 2005)	11.6
Upper Bound PCDD/F TEQ (WHO 2005)	15.4
Corrected Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	6.0
Mid Point PCDD/F TEQ (WHO 2005)	30.5
Upper Bound PCDD/F TEQ (WHO 2005)	39.8

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET**	Sampling Date	19-May-22		Approved:
ALS Sample ID	L2708349-4	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A25
Run Date	15-Jun-22 04:59
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	28.43	<1.3	1.3	M,U	0.84	30
1,2,3,7,8-PeCDD	1	NotFnd	<0.65	0.65	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<0.64	0.64	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<0.60	0.60	U		150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<0.62	0.62	U		150
1,2,3,4,6,7,8-HpCDD	0.01	35.95	3.11	0.59	J		150
OCDD	0.0003	37.46	<5.9	1.2	J,R	5.9	300
2,3,7,8-TCDF	0.1	NotFnd	<0.90	0.90	U		30
1,2,3,7,8-PeCDF	0.03	31.36	1.27	0.63	M,J		150
2,3,4,7,8-PeCDF	0.3	NotFnd	<0.60	0.60	U		150
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<0.45	0.45	U		150
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<0.45	0.45	U		150
2,3,4,6,7,8-HxCDF	0.1	34.18	<0.47	0.47	U	0.44	150
1,2,3,7,8,9-HxCDF	0.1	34.61	<3.7	0.53	J,R	3.7	150
1,2,3,4,6,7,8-HpCDF	0.01	NotFnd	<0.57	0.57	U		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<0.67	0.67	U		150
OCDF	0.0003	37.56	<2.8	1.4	M,J,R	2.8	300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.41	114	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	34.27	125	70-130			
13C12-2,3,4,7,8-PeCDF	12000	32.05	119	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.79	108	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.20	105	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.40	53	40-130			
13C12-1,2,3,7,8-PeCDD	12000	32.26	57	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	62	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.94	66	25-130			
13C12-OCDD	24000	37.45	58	25-130			
13C12-2,3,7,8-TCDF	12000	27.48	55	40-130			
13C12-1,2,3,7,8-PeCDF	12000	31.35	53	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	66	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	65	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	80	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<1.3	1.3	U	30
Total-PeCDD	0	<0.65	0.65	U	150
Total-HxCDD	0	<0.64	0.64	U	150
Total-HpCDD	1	3.11	0.59		150
Total-TCDF	0	<0.90	0.90	U	30
Total-PeCDF	1	1.27	0.63		150
Total-HxCDF	1	0.756	0.53		150
Total-HpCDF	0	<0.67	0.67	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.0692
Mid Point PCDD/F TEQ (WHO 2005)	1.72
Upper Bound PCDD/F TEQ (WHO 2005)	3.00

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET**	Sampling Date	18-May-22		Approved:
ALS Sample ID	L2708349-5	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A26
Run Date	15-Jun-22 05:42
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<2.6	2.6	U		30
1,2,3,7,8-PeCDD	1	32.29	<2.6	2.6	M,U	1.9	150
1,2,3,4,7,8-HxCDD	0.1	34.28	<2.0	2.0	U	2.0	150
1,2,3,6,7,8-HxCDD	0.1	34.33	<7.3	1.9	J,R	7.3	150
1,2,3,7,8,9-HxCDD	0.1	34.46	4.13	2.0	J		150
1,2,3,4,6,7,8-HpCDD	0.01	35.95	38.7	5.4	J		150
OCDD	0.0003	37.47	<33	4.3	M,J,R	33	300
2,3,7,8-TCDF	0.1	NotFnd	<3.2	3.2	U		30
1,2,3,7,8-PeCDF	0.03	31.35	<2.2	1.9	M,J,R	2.2	150
2,3,4,7,8-PeCDF	0.3	31.99	7.96	1.7	J		150
1,2,3,4,7,8-HxCDF	0.1	33.80	<2.9	2.9	U	2.8	150
1,2,3,6,7,8-HxCDF	0.1	33.87	<2.9	2.9	U		150
2,3,4,6,7,8-HxCDF	0.1	34.19	<3.5	3.1	J,R	3.5	150
1,2,3,7,8,9-HxCDF	0.1	34.62	<9.5	3.5	J,R	9.5	150
1,2,3,4,6,7,8-HpCDF	0.01	35.39	12.0	2.4	J		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<2.8	2.8	U		150
OCDF	0.0003	37.56	<7.8	2.8	J,R	7.8	300

Field Spike Standards	**pg**		**% Rec**	**Limits**
37Cl4-2,3,7,8-TCDD	600	28.43	44	70-130
13C12-1,2,3,4,7,8-HxCDD	6000	34.28	49	70-130
13C12-2,3,4,7,8-PeCDF	6000	32.06	46	70-130
13C12-1,2,3,4,7,8-HxCDF	6000	33.79	44	70-130
13C12-1,2,3,4,7,8,9-HpCDF	6000	36.20	43	70-130
Extraction Standards				
13C12-2,3,7,8-TCDD	12000	28.40	24	40-130
13C12-1,2,3,7,8-PeCDD	12000	32.26	26	40-130
13C12-1,2,3,6,7,8-HxCDD	12000	34.33	30	40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.95	29	25-130
13C12-OCDD	24000	37.46	24	25-130
13C12-2,3,7,8-TCDF	12000	27.48	26	40-130
13C12-1,2,3,7,8-PeCDF	12000	31.35	24	40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.87	31	40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	29	25-130
Cleanup Standard	**pg**			
13C12-1,2,3,7,8,9-HxCDF	12000	34.61	78	40-130

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	4	77.5	2.6		30
Total-PeCDD	3	53.3	2.6		150
Total-HxCDD	3	153	2.0		150
Total-HpCDD	1	38.7	5.4		150
Total-TCDF	0	<3.2	3.2	U	30
Total-PeCDF	4	23.6	1.9		150
Total-HxCDF	4	12.0	3.5		150
Total-HpCDF	1	12.0	2.8		150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	3.31
Mid Point PCDD/F TEQ (WHO 2005)	8.58
Upper Bound PCDD/F TEQ (WHO 2005)	11.7
Corrected Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	7.3
Mid Point PCDD/F TEQ (WHO 2005)	18.9
Upper Bound PCDD/F TEQ (WHO 2005)	25.9

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET**	Sampling Date	18-May-22		Approved:
ALS Sample ID	L2708349-6	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A27
Run Date	15-Jun-22 06:26
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<3.5	3.5	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<2.0	2.0	U		150
1,2,3,4,7,8-HxCDD	0.1	34.27	<1.8	1.2	J,R	1.8	150
1,2,3,6,7,8-HxCDD	0.1	34.32	8.09	1.1	J		150
1,2,3,7,8,9-HxCDD	0.1	34.44	<2.7	1.2	M,J,R	2.7	150
1,2,3,4,6,7,8-HpCDD	0.01	35.94	38.7	2.1	J		150
OCDD	0.0003	37.44	40.7	3.4	J,B		300
2,3,7,8-TCDF	0.1	NotFnd	<3.1	3.1	M,U		30
1,2,3,7,8-PeCDF	0.03	31.36	4.19	2.9	M,J		150
2,3,4,7,8-PeCDF	0.3	31.98	5.74	2.7	M,J		150
1,2,3,4,7,8-HxCDF	0.1	33.79	<3.1	3.1	U	2.0	150
1,2,3,6,7,8-HxCDF	0.1	33.87	<4.5	3.1	J,R	4.5	150
2,3,4,6,7,8-HxCDF	0.1	34.18	6.77	3.2	J		150
1,2,3,7,8,9-HxCDF	0.1	34.61	<6.8	3.7	J,R	6.8	150
1,2,3,4,6,7,8-HpCDF	0.01	35.37	<10	1.6	J,R	10	150
1,2,3,4,7,8,9-HpCDF	0.01	36.20	<1.8	1.8	U	1.7	150
OCDF	0.0003	37.56	9.02	3.0	M,J,B		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	600	28.41	45	70-130			
13C12-1,2,3,4,7,8-HxCDD	6000	34.26	42	70-130			
13C12-2,3,4,7,8-PeCDF	6000	32.04	48	70-130			
13C12-1,2,3,4,7,8-HxCDF	6000	33.78	44	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	6000	36.19	42	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.38	28	40-130			
13C12-1,2,3,7,8-PeCDD	12000	32.25	30	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	34.31	34	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.94	34	25-130			
13C12-OCDD	24000	37.44	31	25-130			
13C12-2,3,7,8-TCDF	12000	27.47	29	40-130			
13C12-1,2,3,7,8-PeCDF	12000	31.34	27	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.84	34	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.37	34	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	12000	34.59	75	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	1	48.6	3.5		30
Total-PeCDD	4	108	2.0		150
Total-HxCDD	3	140	1.2		150
Total-HpCDD	2	72.0	2.1		150
Total-TCDF	0	<3.1	3.1	U	30
Total-PeCDF	4	17.1	2.9		150
Total-HxCDF	4	29.2	3.7		150
Total-HpCDF	0	<1.8	1.8	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	3.74
Mid Point PCDD/F TEQ (WHO 2005)	8.48
Upper Bound PCDD/F TEQ (WHO 2005)	11.6
Corrected Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	4.3
Mid Point PCDD/F TEQ (WHO 2005)	18.7
Upper Bound PCDD/F TEQ (WHO 2005)	25.6

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor — TEQ: Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET**	Sampling Date	19-May-22		Approved:
ALS Sample ID	L2708349-7	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A28
Run Date	15-Jun-22 07:10
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<3.8	3.8	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<4.0	4.0	U		150
1,2,3,4,7,8-HxCDD	0.1	34.28	<3.9	2.9	J,R	3.9	150
1,2,3,6,7,8-HxCDD	0.1	34.33	6.82	2.7	J		150
1,2,3,7,8,9-HxCDD	0.1	34.46	<4.6	2.8	M,J,R	4.6	150
1,2,3,4,6,7,8-HpCDD	0.01	35.96	<35	4.3	J,R	35	150
OCDD	0.0003	37.47	<36	9.3	M,J,R	36	300
2,3,7,8-TCDF	0.1	NotFnd	<4.7	4.7	U		30
1,2,3,7,8-PeCDF	0.03	31.37	<3.5	3.3	J,R	3.5	150
2,3,4,7,8-PeCDF	0.3	31.99	<3.7	3.1	J,R	3.7	150
1,2,3,4,7,8-HxCDF	0.1	33.80	5.39	2.2	J		150
1,2,3,6,7,8-HxCDF	0.1	33.87	2.60	2.2	J		150
2,3,4,6,7,8-HxCDF	0.1	34.19	<5.4	2.2	J,R	5.4	150
1,2,3,7,8,9-HxCDF	0.1	34.61	<9.8	2.5	J,R	9.8	150
1,2,3,4,6,7,8-HpCDF	0.01	35.39	9.27	2.8	J		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<3.2	3.2	U		150
OCDF	0.0003	37.56	14.0	7.6	M,J,B		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	600	28.41	51	70-130			
13C12-1,2,3,4,7,8-HxCDD	6000	34.27	47	70-130			
13C12-2,3,4,7,8-PeCDF	6000	32.05	50	70-130			
13C12-1,2,3,4,7,8-HxCDF	6000	33.79	49	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	6000	36.20	42	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.40	19	40-130			
13C12-1,2,3,7,8-PeCDD	12000	32.26	20	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	23	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.95	20	25-130			
13C12-OCDD	24000	37.46	13	25-130			
13C12-2,3,7,8-TCDF	12000	27.48	20	40-130			
13C12-1,2,3,7,8-PeCDF	12000	31.35	19	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	24	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	21	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	72	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	2	85.0	3.8		30
Total-PeCDD	1	11.4	4.0		150
Total-HxCDD	1	6.82	2.9		150
Total-HpCDD	1	45.8	4.3		150
Total-TCDF	0	<4.7	4.7	U	30
Total-PeCDF	4	18.0	3.3		150
Total-HxCDF	2	7.99	2.5		150
Total-HpCDF	1	9.27	3.2		150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	1.58
Mid Point PCDD/F TEQ (WHO 2005)	9.67
Upper Bound PCDD/F TEQ (WHO 2005)	13.8
Corrected Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	3.3
Mid Point PCDD/F TEQ (WHO 2005)	20.2
Upper Bound PCDD/F TEQ (WHO 2005)	28.9

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVDC-(36 THRU 40) BLANK2 #2 APC OUTLET**	Sampling Date	19-May-22		Approved:
ALS Sample ID	L2708349-8	Extraction Date	7-May-22		*E. Sabljic*
Analysis Method	EPA M23	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-220614A29
Run Date	15-Jun-22 07:53
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSU52331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<1.4	1.4	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<0.87	0.87	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<0.65	0.65	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<0.61	0.61	U		150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<0.63	0.63	U		150
1,2,3,4,6,7,8-HpCDD	0.01	35.95	2.88	2.1	J		150
OCDD	0.0003	37.46	<3.4	2.3	M,J,R	3.4	300
2,3,7,8-TCDF	0.1	NotFnd	<0.83	0.83	U		30
1,2,3,7,8-PeCDF	0.03	31.37	<1.2	0.69	J,R	1.2	150
2,3,4,7,8-PeCDF	0.3	NotFnd	<0.65	0.65	U		150
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<0.52	0.52	U		150
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<0.52	0.52	U		150
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<0.54	0.54	U		150
1,2,3,7,8,9-HxCDF	0.1	34.61	3.12	0.61	M,J,B		150
1,2,3,4,6,7,8-HpCDF	0.01	NotFnd	<0.90	0.90	U		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<1.1	1.1	U		150
OCDF	0.0003	NotFnd	<1.8	1.8	U		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.41	107	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	34.27	111	70-130			
13C12-2,3,4,7,8-PeCDF	12000	32.05	110	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.79	102	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.20	94	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.38	44	40-130			
13C12-1,2,3,7,8-PeCDD	12000	32.26	49	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	57	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.94	52	25-130			
13C12-OCDD	24000	37.45	37	25-130			
13C12-2,3,7,8-TCDF	12000	27.48	48	40-130			
13C12-1,2,3,7,8-PeCDF	12000	31.35	44	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	60	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	54	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	62	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<1.4	1.4	U	30
Total-PeCDD	0	<0.87	0.87	U	150
Total-HxCDD	0	<0.65	0.65	U	150
Total-HpCDD	1	2.88	2.1		150
Total-TCDF	0	<0.83	0.83	U	30
Total-PeCDF	0	<0.69	0.69	U	150
Total-HxCDF	2	3.63	0.61		150
Total-HpCDF	0	<1.1	1.1	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.341
Mid Point PCDD/F TEQ (WHO 2005)	1.84
Upper Bound PCDD/F TEQ (WHO 2005)	3.29

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a		
ALS Sample ID	WG3730529-1	Extraction Date	7-May-22		Approved:
Analysis Method	EPA M23	Sample Size	1	Sample	*E. Sabljic*
Analysis Type	Blank	Percent Moisture	n/a		--e-signature--
Sample Matrix	QC	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	7-220614A20
Run Date	15-Jun-22 01:20
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<1.5	1.5	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<0.88	0.88	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<1.0	1.0	U		150
1,2,3,6,7,8-HxCDD	0.1	34.33	<2.1	0.96	J,R	2.1	150
1,2,3,7,8,9-HxCDD	0.1	34.45	<1.3	0.99	J,R	1.3	150
1,2,3,4,6,7,8-HpCDD	0.01	35.97	<4.5	1.4	J,R	4.5	150
OCDD	0.0003	37.46	21.5	2.1	M,J		300
2,3,7,8-TCDF	0.1	NotFnd	<1.1	1.1	U		30
1,2,3,7,8-PeCDF	0.03	31.36	<1.8	1.2	J,R	1.8	150
2,3,4,7,8-PeCDF	0.3	NotFnd	<1.2	1.2	M,U		150
1,2,3,4,7,8-HxCDF	0.1	33.79	<0.95	0.95	U	0.52	150
1,2,3,6,7,8-HxCDF	0.1	33.88	<0.95	0.95	U	0.83	150
2,3,4,6,7,8-HxCDF	0.1	34.21	<1.2	0.99	J,R	1.2	150
1,2,3,7,8,9-HxCDF	0.1	34.62	6.01	1.1	J		150
1,2,3,4,6,7,8-HpCDF	0.01	35.39	<2.2	0.88	J,R	2.2	150
1,2,3,4,7,8,9-HpCDF	0.01	36.21	2.95	1.0	J		150
OCDF	0.0003	37.56	9.49	1.9	J		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD			NS				
13C12-1,2,3,4,7,8-HxCDD			NS				
13C12-2,3,4,7,8-PeCDF			NS				
13C12-1,2,3,4,7,8-HxCDF			NS				
13C12-1,2,3,4,7,8,9-HpCDF			NS				
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.40	46	40-130			
13C12-1,2,3,7,8-PeCDD	12000	32.26	50	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	34.33	54	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.95	56	25-130			
13C12-OCDD	24000	37.46	46	25-130			
13C12-2,3,7,8-TCDF	12000	27.48	48	40-130			
13C12-1,2,3,7,8-PeCDF	12000	31.35	45	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.87	57	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	56	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	12000	34.61	65	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		
Total-TCDD	0	<1.5	1.5	U	30
Total-PeCDD	0	<0.88	0.88	U	150
Total-HxCDD	0	<1.0	1.0	U	150
Total-HpCDD	0	<1.4	1.4	U	150
Total-TCDF	0	<1.1	1.1	U	30
Total-PeCDF	0	<1.2	1.2	U	150
Total-HxCDF	1	6.01	1.1		150
Total-HpCDF	1	2.95	1.0		150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.640
Mid Point PCDD/F TEQ (WHO 2005)	2.79
Upper Bound PCDD/F TEQ (WHO 2005)	4.36

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
TEQ	Indicates the Toxic Equivalency
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a		
ALS Sample ID	WG3730529-2	Extraction Date	7-May-22		Approved:
Analysis Method	EPA M23	Sample Size	1	n/a	*E. Sabljic*
Analysis Type	LCS	Percent Moisture	n/a		--e-signature--
Sample Matrix	QC	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	7-220614A17
Run Date	14-Jun-22 23:13
Final Volume	10 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-7 DB5MSUS2331133H

Target Analytes	pg	Ret. Time	% Rec	Limits	Flags
2,3,7,8-TCDD	1200	28.43	95	70-130	
1,2,3,7,8-PeCDD	6000	32.27	106	70-130	
1,2,3,4,7,8-HxCDD	6000	34.28	105	70-130	
1,2,3,6,7,8-HxCDD	6000	34.33	113	70-130	
1,2,3,7,8,9-HxCDD	6000	34.46	115	70-130	
1,2,3,4,6,7,8-HpCDD	6000	35.95	101	70-130	
OCDD	12000	37.46	94	70-130	
2,3,7,8-TCDF	1200	27.51	100	70-130	
1,2,3,7,8-PeCDF	6000	31.36	106	70-130	
2,3,4,7,8-PeCDF	6000	32.06	103	70-130	
1,2,3,4,7,8-HxCDF	6000	33.80	102	70-130	
1,2,3,6,7,8-HxCDF	6000	33.87	106	70-130	
2,3,4,6,7,8-HxCDF	6000	34.19	105	70-130	
1,2,3,7,8,9-HxCDF	6000	34.61	105	70-130	
1,2,3,4,6,7,8-HpCDF	6000	35.38	97	70-130	
1,2,3,4,7,8,9-HpCDF	6000	36.20	98	70-130	
OCDF	12000	37.55	96	70-130	
Field Spike Standards	**pg**		**% Rec**	**Limits**	
37Cl4-2,3,7,8-TCDD			NS		
13C12-1,2,3,4,7,8-HxCDD			NS		
13C12-2,3,4,7,8-PeCDF			NS		
13C12-1,2,3,4,7,8-HxCDF			NS		
13C12-1,2,3,4,7,8,9-HpCDF			NS		
Extraction Standards					
13C12-2,3,7,8-TCDD	12000	28.40	44	40-130	
13C12-1,2,3,7,8-PeCDD	12000	32.26	51	40-130	
13C12-1,2,3,6,7,8-HxCDD	12000	34.32	57	40-130	
13C12-1,2,3,4,6,7,8-HpCDD	12000	35.94	64	25-130	
13C12-OCDD	24000	37.45	59	25-130	
13C12-2,3,7,8-TCDF	12000	27.48	45	40-130	
13C12-1,2,3,7,8-PeCDF	12000	31.35	46	40-130	
13C12-1,2,3,6,7,8-HxCDF	12000	33.86	59	40-130	
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.38	61	25-130	
Cleanup Standard	**pg**				
13C12-1,2,3,7,8,9-HxCDF	12000	34.60	72	40-130	

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708349		Mississauga,ON
Date of Report	20-Jun-22		L5J 2Y4
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **PCB Congeners by EPA 1668C**

PCB Congener Group Totals and Total PCB are a sum of detected values, including EMPC values, consistent with USEPA CLP SOW CBC1.2

Poor extraction standard recoveries have been observed for the field run samples (not including the blanks and lab QC samples) indicating a potential low bias to the analytical results. Field spike recoveries from the PCDD/F portion of the train indicates a low bias on the field samples as much as a factor in the range of 2.5 to 3.0.

Certified by:

Ron McLeod, PhD
Director, Air Toxics & Special Chemistries, Life Sciences

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET	22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET	22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET	22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET	22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET	22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET
ALS Sample ID	L2708349-1	L2708349-2	L2708349-3	L2708349-4	L2708349-5	L2708349-6
Sample Size	1	1	1	1	1	1
Sample size units	sample	sample	sample	sample	sample	sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack	Stack	Stack
Sampling Date	18-May-22	18-May-22	19-May-22	19-May-22	18-May-22	18-May-22
Extraction Date	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22
Target Analytes	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
PCB-081	<8.9	<8.2	<7.1	<2.4	<6.1	<4.6
PCB-077	40.7	83.9	32.2	<7.8	<37	40.0
PCB-123	<21	<18	9.84	4.69	<7.8	24.9
PCB-118	604	1980	809	148	1170	1220
PCB-114	20.5	<35	<23	5.29	<31	33.4
PCB-105	192	704	244	53.3	392	387
PCB-126	<11	13.4	<6.3	<1.7	<16	<4.5
PCB-167	8.46	25.0	9.64	3.89	12.5	13.0
PCB-156/157	<23	58.7	25.5	12.4	33.0	30.1
PCB-169	<6.6	<5.1	<3.3	<5.3	<3.7	<3.4
PCB-189	<4.4	<3.3	<1.9	<3.6	<2.9	<2.2
Extraction Standards	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
13C12-PCB-081	10	13	18	47	15	24
13C12-PCB-077	10	13	19	49	16	25
13C12-PCB-123	11	14	20	51	17	25
13C12-PCB-118	11	15	20	52	17	26
13C12-PCB-114	11	15	20	52	17	26
13C12-PCB-105	11	14	20	51	17	26
13C12-PCB-126	11	15	21	52	18	26
13C12-PCB-167	12	15	23	54	19	27
13C12-PCB-156/157	12	15	23	58	20	29
13C12-PCB-169	13	16	25	60	21	30
13C12-PCB-189	15	19	29	67	24	34
Field Spike Standards						
13C12-PCB-031	35	41	31	89	38	38
13C12-PCB-095	30	33	32	78	31	35
13C12-PCB-153	36	39	34	89	37	38
Cleanup Standards						
13C12-PCB-028	46	51	45	52	37	51
13C12-PCB-111	54	59	57	60	45	60
13C12-PCB-178	77	86	92	85	68	86
Homologue Group Totals						
Total MonoCB	126	154	199	24.7	121	120
Total DiCB	872	1120	715	429	690	715
Total TriCB	934	1340	717	182	832	788
Total TetraCB	4000	11200	6800	446	4430	4470
Total PentaCB	5720	18000	8400	723	9780	10400
Total HexaCB	1350	4870	1720	207	2770	2860
Total HeptaCB	171	593	182	27.1	311	318
Total OctaCB	60.1	151	44.6	9.39	53.8	59.5
Total NonaCB	8.43	<4.9	<2.7	4.00	<3.6	<2.8
DecaCB	<4.2	9.36	6.90	6.49	7.03	8.04
Total PCB	13200	37400	18800	2060	19000	19700
Toxic Equivalency - (WHO 2005)						
Lower Bound PCB TEQ	0.0288	1.43	0.0362	0.00683	0.0482	0.0553
Mid Point PCB TEQ	0.681	1.51	0.402	0.252	1.71	0.332
Upper Bound PCB TEQ	1.33	1.59	0.768	0.337	1.77	0.609

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Sample Analysis Summary Report

Sample Name	22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET	22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET
ALS Sample ID	L2708349-7	L2708349-8
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	Stack	Stack
Sampling Date	19-May-22	19-May-22
Extraction Date	27-May-22	n/a
Target Analytes	**pg**	**pg**
PCB-081	<7.7	<2.0
PCB-077	43.8	<2.0
PCB-123	<11	<1.5
PCB-118	1280	20.2
PCB-114	33.1	<1.4
PCB-105	441	9.58
PCB-126	<14	<1.5
PCB-167	11.8	<1.4
PCB-156/157	34.4	<2.6
PCB-169	<4.5	<1.4
PCB-189	<2.5	<0.84
Extraction Standards	**% Rec**	**% Rec**
13C12-PCB-081	18	57
13C12-PCB-077	19	58
13C12-PCB-123	19	60
13C12-PCB-118	19	61
13C12-PCB-114	19	62
13C12-PCB-105	19	64
13C12-PCB-126	19	64
13C12-PCB-167	21	63
13C12-PCB-156/157	21	66
13C12-PCB-169	22	70
13C12-PCB-189	25	76
Field Spike Standards		
13C12-PCB-031	42	81
13C12-PCB-095	36	73
13C12-PCB-153	40	79
Cleanup Standards		
13C12-PCB-028	53	61
13C12-PCB-111	61	65
13C12-PCB-178	88	98
Homologue Group Totals		
Total MonoCB	134	34.3
Total DiCB	756	17600
Total TriCB	875	90.9
Total TetraCB	4780	176
Total PentaCB	10800	188
Total HexaCB	2990	61.6
Total HeptaCB	340	<0.84
Total OctaCB	45.4	4.47
Total NonaCB	<3.7	<1.1
DecaCB	3.50	2.91
Total PCB	20700	18200
Toxic Equivalency - (WHO 2005)		
Lower Bound PCB TEQ	0.0584	0.000893
Mid Point PCB TEQ	1.53	0.0974
Upper Bound PCB TEQ	1.60	0.194

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Quality Control Summary Report

Sample Name	Method Blank
ALS Sample ID	WG3730529-1
Sample Size	1
Sample size units	sample
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	27-May-22
Target Analytes	**pg**
PCB-081	<2.1
PCB-077	2.67
PCB-123	<2.3
PCB-118	<6.8
PCB-114	<2.7
PCB-105	6.82
PCB-126	<2.2
PCB-167	<2.0
PCB-156/157	<3.4
PCB-169	<1.6
PCB-189	<1.3
Extraction Standards	**% Rec**
13C12-PCB-081	44
13C12-PCB-077	45
13C12-PCB-123	46
13C12-PCB-118	47
13C12-PCB-114	48
13C12-PCB-105	49
13C12-PCB-126	50
13C12-PCB-167	51
13C12-PCB-156/157	52
13C12-PCB-169	56
13C12-PCB-189	61
Cleanup Standards	
13C12-PCB-028	48
13C12-PCB-111	54
13C12-PCB-178	77
Homologue Group Totals	
Total MonoCB	13.9
Total DiCB	59.6
Total TriCB	39.0
Total TetraCB	69.7
Total PentaCB	53.3
Total HexaCB	26.3
Total HeptaCB	3.26
Total OctaCB	7.85
Total NonaCB	<1.6
DecaCB	5.00
Total PCB	278
Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	0.000472
Mid Point PCB TEQ	0.135
Upper Bound PCB TEQ	0.270

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Sample Analysis Summary Report

Sample Name	Laboratory Control Sample
ALS Sample ID	WG3730529-2
Sample Size	1
Sample size units	n/a
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	27-May-22

Target Analytes	% Rec
PCB-081	99
PCB-077	97
PCB-123	101
PCB-118	99
PCB-114	103
PCB-105	96
PCB-126	101
PCB-167	90
PCB-156/157	89
PCB-169	90
PCB-189	104
Extraction Standards	**% Rec**
13C12-PCB-081	37
13C12-PCB-077	37
13C12-PCB-123	40
13C12-PCB-118	41
13C12-PCB-114	41
13C12-PCB-105	41
13C12-PCB-126	41
13C12-PCB-167	46
13C12-PCB-156/157	47
13C12-PCB-169	51
13C12-PCB-189	56
Cleanup Standards	
13C12-PCB-028	42
13C12-PCB-111	47
13C12-PCB-178	66

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET**	Sampling Date	18-May-22		Approved:
ALS Sample ID	L2708349-1	Extraction Date	27-May-22		*Ella Gdyczynski*
Analysis Method	EPA 1668C	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-220606A26
Run Date	07-Jun-22 04:58
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<8.9	8.9	U		150
PCB-077	0.0001	22.15	40.7	9.1	M,J		150
PCB-123	0.00003	23.10	<21	10	M,J,R	21	150
PCB-118	0.00003	23.28	604	9.4			150
PCB-114	0.00003	23.59	20.5	9.7	J		150
PCB-105	0.00003	23.93	192	9.6			150
PCB-126	0.1	25.56	<11	11	U	8.0	150
PCB-167	0.00003	26.42	8.46	6.4	M,J		150
PCB-156/157	0.00003	27.01	<23	7.6	M,J,R	23	300
PCB-169	0.03	NotFnd	<6.6	6.6	U		150
PCB-189	0.00003	NotFnd	<4.4	4.4	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.83	10	10-145
13C12-PCB-077	12000	22.14	10	10-145
13C12-PCB-123	12000	23.10	11	10-145
13C12-PCB-118	12000	23.27	11	10-145
13C12-PCB-114	12000	23.57	11	10-145
13C12-PCB-105	12000	23.92	11	10-145
13C12-PCB-126	12000	25.53	11	10-145
13C12-PCB-167	12000	26.40	12	10-145
13C12-PCB-156/157	24000	27.02	12	10-145
13C12-PCB-169	12000	28.69	13	10-145
13C12-PCB-189	12000	29.94	15	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.85	35	70-130
13C12-PCB-095	12000	19.12	30	70-130
13C12-PCB-153	12000	24.17	36	70-130
Cleanup Standards				
13C12-PCB-028	12000	16.03	46	5-145
13C12-PCB-111	12000	22.04	54	10-145
13C12-PCB-178	12000	25.05	77	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.0288
Mid Point PCB TEQ	0.681
Upper Bound PCB TEQ	1.33

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET**	Sampling Date	18-May-22		Approved:
ALS Sample ID	L2708349-2	Extraction Date	27-May-22		*Ella Gdyczynski*
Analysis Method	EPA 1668C	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-220606A27
Run Date	07-Jun-22 05:41
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<8.2	8.2	U		150
PCB-077	0.0001	22.15	83.9	8.5	J		150
PCB-123	0.00003	23.10	<18	9.2	M,J,R	18	150
PCB-118	0.00003	23.28	1980	8.9			150
PCB-114	0.00003	23.56	<35	9.1	J,R	35	150
PCB-105	0.00003	23.93	704	9.0			150
PCB-126	0.1	25.55	13.4	9.7	J		150
PCB-167	0.00003	26.38	25.0	4.8	J		150
PCB-156/157	0.00003	27.01	58.7	5.9	J		300
PCB-169	0.03	28.68	<5.1	5.1	U	4.7	150
PCB-189	0.00003	NotFnd	<3.3	3.3	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.82	13	10-145
13C12-PCB-077	12000	22.13	13	10-145
13C12-PCB-123	12000	23.08	14	10-145
13C12-PCB-118	12000	23.27	15	10-145
13C12-PCB-114	12000	23.56	15	10-145
13C12-PCB-105	12000	23.91	14	10-145
13C12-PCB-126	12000	25.51	15	10-145
13C12-PCB-167	12000	26.38	15	10-145
13C12-PCB-156/157	24000	27.02	15	10-145
13C12-PCB-169	12000	28.69	16	10-145
13C12-PCB-189	12000	29.93	19	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.84	41	70-130
13C12-PCB-095	12000	19.11	33	70-130
13C12-PCB-153	12000	24.17	39	70-130
Cleanup Standards				
13C12-PCB-028	12000	16.02	51	5-145
13C12-PCB-111	12000	22.03	59	10-145
13C12-PCB-178	12000	25.05	86	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	1.43
Mid Point PCB TEQ	1.51
Upper Bound PCB TEQ	1.59

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET**	Sampling Date	19-May-22		
ALS Sample ID	L2708349-3	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	sample	*Ella Gdyczynski*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A28
Run Date	07-Jun-22 06:23
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<7.1	7.1	U		150
PCB-077	0.0001	22.15	32.2	7.1	J		150
PCB-123	0.00003	23.10	9.84	6.1	M,J		150
PCB-118	0.00003	23.28	809	5.7			150
PCB-114	0.00003	23.58	<23	5.9	J,R	23	150
PCB-105	0.00003	23.93	244	5.8			150
PCB-126	0.1	NotFnd	<6.3	6.3	U		150
PCB-167	0.00003	26.40	9.64	3.1	M,J		150
PCB-156/157	0.00003	27.01	25.5	3.7	J		300
PCB-169	0.03	28.70	<3.3	3.3	U	1.6	150
PCB-189	0.00003	NotFnd	<1.9	1.9	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.82	18	10-145
13C12-PCB-077	12000	22.13	19	10-145
13C12-PCB-123	12000	23.10	20	10-145
13C12-PCB-118	12000	23.27	20	10-145
13C12-PCB-114	12000	23.57	20	10-145
13C12-PCB-105	12000	23.92	20	10-145
13C12-PCB-126	12000	25.51	21	10-145
13C12-PCB-167	12000	26.38	23	10-145
13C12-PCB-156/157	24000	27.02	23	10-145
13C12-PCB-169	12000	28.69	25	10-145
13C12-PCB-189	12000	29.94	29	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.85	31	70-130
13C12-PCB-095	12000	19.12	32	70-130
13C12-PCB-153	12000	24.17	34	70-130
Cleanup Standards				
13C12-PCB-028	12000	16.02	45	5-145
13C12-PCB-111	12000	22.03	57	10-145
13C12-PCB-178	12000	25.05	92	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.0362
Mid Point PCB TEQ	0.402
Upper Bound PCB TEQ	0.768

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET**	Sampling Date	19-May-22		
ALS Sample ID	L2708349-4	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	sample	*Ella Gdyczynski*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A24
Run Date	07-Jun-22 03:34
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	21.83	<2.4	2.1	M,J,R	2.4	150
PCB-077	0.0001	22.15	<7.8	2.0	M,J,R	7.8	150
PCB-123	0.00003	23.10	4.69	1.6	M,J		150
PCB-118	0.00003	23.28	148	1.5	M,J		150
PCB-114	0.00003	23.56	5.29	1.6	M,J		150
PCB-105	0.00003	23.93	53.3	1.6	J,B		150
PCB-126	0.1	NotFnd	<1.7	1.7	U		150
PCB-167	0.00003	26.41	3.89	1.0	J		150
PCB-156/157	0.00003	27.02	12.4	1.1	J		300
PCB-169	0.03	28.70	<5.3	1.0	M,J,R	5.3	150
PCB-189	0.00003	29.96	<3.6	0.65	M,J,R	3.6	150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.82	47	10-145
13C12-PCB-077	12000	22.13	49	10-145
13C12-PCB-123	12000	23.10	51	10-145
13C12-PCB-118	12000	23.27	52	10-145
13C12-PCB-114	12000	23.57	52	10-145
13C12-PCB-105	12000	23.92	51	10-145
13C12-PCB-126	12000	25.51	52	10-145
13C12-PCB-167	12000	26.38	54	10-145
13C12-PCB-156/157	24000	27.02	58	10-145
13C12-PCB-169	12000	28.69	60	10-145
13C12-PCB-189	12000	29.94	67	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.85	89	70-130
13C12-PCB-095	12000	19.12	78	70-130
13C12-PCB-153	12000	24.17	89	70-130
Cleanup Standards				
13C12-PCB-028	12000	16.02	52	5-145
13C12-PCB-111	12000	22.04	60	10-145
13C12-PCB-178	12000	25.05	85	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.00683
Mid Point PCB TEQ	0.252
Upper Bound PCB TEQ	0.337

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET**	Sampling Date	18-May-22		
ALS Sample ID	L2708349-5	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	sample	*Ella Gdyczynski*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A29
Run Date	07-Jun-22 07:05
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<6.1	6.1	U		150
PCB-077	0.0001	22.13	<37	6.2	M,J,R	37	150
PCB-123	0.00003	23.12	<7.8	7.8	M,U		150
PCB-118	0.00003	23.27	1170	7.4			150
PCB-114	0.00003	23.57	<31	7.9	J,R	31	150
PCB-105	0.00003	23.92	392	7.6			150
PCB-126	0.1	25.54	<16	8.2	J,R	16	150
PCB-167	0.00003	26.40	12.5	3.5	J		150
PCB-156/157	0.00003	27.02	33.0	4.1	J		300
PCB-169	0.03	NotFnd	<3.7	3.7	U		150
PCB-189	0.00003	29.94	<2.9	2.5	M,J,R	2.9	150
Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**			
13C12-PCB-081	12000	21.82	15	10-145			
13C12-PCB-077	12000	22.13	16	10-145			
13C12-PCB-123	12000	23.08	17	10-145			
13C12-PCB-118	12000	23.25	17	10-145			
13C12-PCB-114	12000	23.56	17	10-145			
13C12-PCB-105	12000	23.91	17	10-145			
13C12-PCB-126	12000	25.51	18	10-145			
13C12-PCB-167	12000	26.38	19	10-145			
13C12-PCB-156/157	24000	27.01	20	10-145			
13C12-PCB-169	12000	28.68	21	10-145			
13C12-PCB-189	12000	29.93	24	10-145			
Field Spike Standards							
13C12-PCB-031	12000	15.84	38	70-130			
13C12-PCB-095	12000	19.11	31	70-130			
13C12-PCB-153	12000	24.17	37	70-130			
Cleanup Standards							
13C12-PCB-028	12000	16.02	37	5-145			
13C12-PCB-111	12000	22.03	45	10-145			
13C12-PCB-178	12000	25.05	68	10-145			

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.0482
Mid Point PCB TEQ	1.71
Upper Bound PCB TEQ	1.77

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	**22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET**	Sampling Date	18-May-22		Approved:
ALS Sample ID	L2708349-6	Extraction Date	27-May-22		*Ella Gdyczynski*
Analysis Method	EPA 1668C	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		15-Jun-2022
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-220606A30
Run Date	07-Jun-22 07:47
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<4.6	4.6	U		150
PCB-077	0.0001	22.16	40.0	4.7	J		150
PCB-123	0.00003	23.10	24.9	4.4	M,J		150
PCB-118	0.00003	23.28	1220	4.1			150
PCB-114	0.00003	23.59	33.4	4.3	J		150
PCB-105	0.00003	23.94	387	4.2			150
PCB-126	0.1	NotFnd	<4.5	4.5	U		150
PCB-167	0.00003	26.41	13.0	3.1	M,J		150
PCB-156/157	0.00003	27.02	30.1	3.8	J		300
PCB-169	0.03	NotFnd	<3.4	3.4	U		150
PCB-189	0.00003	NotFnd	<2.2	2.2	M,U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.83	24	10-145
13C12-PCB-077	12000	22.14	25	10-145
13C12-PCB-123	12000	23.10	25	10-145
13C12-PCB-118	12000	23.28	26	10-145
13C12-PCB-114	12000	23.58	26	10-145
13C12-PCB-105	12000	23.92	26	10-145
13C12-PCB-126	12000	25.53	26	10-145
13C12-PCB-167	12000	26.40	27	10-145
13C12-PCB-156/157	24000	27.04	29	10-145
13C12-PCB-169	12000	28.70	30	10-145
13C12-PCB-189	12000	29.94	34	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.86	38	70-130
13C12-PCB-095	12000	19.13	35	70-130
13C12-PCB-153	12000	24.18	38	70-130
Cleanup Standards				
13C12-PCB-028	12000	16.03	51	5-145
13C12-PCB-111	12000	22.04	60	10-145
13C12-PCB-178	12000	25.07	86	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.0553
Mid Point PCB TEQ	0.332
Upper Bound PCB TEQ	0.609

EDL	Indicates the Estimated Oetection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET**	Sampling Date	19-May-22		
ALS Sample ID	L2708349-7	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	sample	*Ella Gdyczynski*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A31
Run Date	07-Jun-22 08:29
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<7.7	7.7	U		150
PCB-077	0.0001	22.15	43.8	7.6	M,J		150
PCB-123	0.00003	23.13	<11	7.2	M,J,R	11	150
PCB-118	0.00003	23.28	1280	6.8	M		150
PCB-114	0.00003	23.57	33.1	7.2	M,J		150
PCB-105	0.00003	23.93	441	7.1	M		150
PCB-126	0.1	25.54	<14	7.8	J,R	14	150
PCB-167	0.00003	26.42	11.8	4.2	J		150
PCB-156/157	0.00003	27.04	34.4	5.0	M,J		300
PCB-169	0.03	28.70	<4.5	4.5	U	2.4	150
PCB-189	0.00003	NotFnd	<2.5	2.5	U		150
Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**			
13C12-PCB-081	12000	21.83	18	10-145			
13C12-PCB-077	12000	22.14	19	10-145			
13C12-PCB-123	12000	23.10	19	10-145			
13C12-PCB-118	12000	23.27	19	10-145			
13C12-PCB-114	12000	23.57	19	10-145			
13C12-PCB-105	12000	23.92	19	10-145			
13C12-PCB-126	12000	25.53	19	10-145			
13C12-PCB-167	12000	26.40	21	10-145			
13C12-PCB-156/157	24000	27.02	21	10-145			
13C12-PCB-169	12000	28.69	22	10-145	M,R		
13C12-PCB-189	12000	29.94	25	10-145			
Field Spike Standards							
13C12-PCB-031	12000	15.85	42	70-130			
13C12-PCB-095	12000	19.12	36	70-130			
13C12-PCB-153	12000	24.18	40	70-130			
Cleanup Standards							
13C12-PCB-028	12000	16.03	53	5-145			
13C12-PCB-111	12000	22.04	61	10-145			
13C12-PCB-178	12000	25.05	88	10-145			

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.0584
Mid Point PCB TEQ	1.53
Upper Bound PCB TEQ	1.60

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET**	Sampling Date	19-May-22		
ALS Sample ID	L2708349-8	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	sample	*Ella Gdyczynski*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A25
Run Date	07-Jun-22 04:16
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<2.0	2.0	U		150
PCB-077	0.0001	22.16	<2.0	2.0	M,U	1.1	150
PCB-123	0.00003	NotFnd	<1.5	1.5	U		150
PCB-118	0.00003	23.28	20.2	1.4	M,J		150
PCB-114	0.00003	NotFnd	<1.4	1.4	U		150
PCB-105	0.00003	23.92	9.58	1.4	J,B		150
PCB-126	0.1	NotFnd	<1.5	1.5	U		150
PCB-167	0.00003	NotFnd	<1.4	1.4	U		150
PCB-156/157	0.00003	27.02	<2.6	1.6	J,R	2.6	300
PCB-169	0.03	NotFnd	<1.4	1.4	U		150
PCB-189	0.00003	NotFnd	<0.84	0.84	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.82	57	10-145
13C12-PCB-077	12000	22.13	58	10-145
13C12-PCB-123	12000	23.10	60	10-145
13C12-PCB-118	12000	23.27	61	10-145
13C12-PCB-114	12000	23.57	62	10-145
13C12-PCB-105	12000	23.92	64	10-145
13C12-PCB-126	12000	25.53	64	10-145
13C12-PCB-167	12000	26.40	63	10-145
13C12-PCB-156/157	24000	27.02	66	10-145
13C12-PCB-169	12000	28.69	70	10-145
13C12-PCB-189	12000	29.94	76	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.85	81	70-130
13C12-PCB-095	12000	19.12	73	70-130
13C12-PCB-153	12000	24.18	79	70-130
Cleanup Standards				
13C12-PCB-028	12000	16.03	61	5-145
13C12-PCB-111	12000	22.04	65	10-145
13C12-PCB-178	12000	25.07	98	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.000893
Mid Point PCB TEQ	0.0974
Upper Bound PCB TEQ	0.194

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a		
ALS Sample ID	WG3730529-1	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	sample	*Ella Gdyczynski*
Analysis Type	Blank	Percent Moisture	n/a		--e-signature--
Sample Matrix	QC	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A21
Run Date	07-Jun-22 01:27
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<2.1	2.1	U		150
PCB-077	0.0001	22.15	2.67	2.1	M,J		150
PCB-123	0.00003	NotFnd	<2.3	2.3	U		150
PCB-118	0.00003	23.28	<6.8	2.1	M,J,R	6.8	150
PCB-114	0.00003	23.58	<2.7	2.2	M,J,R	2.7	150
PCB-105	0.00003	23.93	6.82	2.1	M,J		150
PCB-126	0.1	NotFnd	<2.2	2.2	U		150
PCB-167	0.00003	26.40	<2.0	1.5	J,R	2.0	150
PCB-156/157	0.00003	27.05	<3.4	1.8	M,J,R	3.4	300
PCB-169	0.03	NotFnd	<1.6	1.6	U		150
PCB-189	0.00003	29.96	<1.3	1.3	M,U	1.2	150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.83	44	10-145
13C12-PCB-077	12000	22.14	45	10-145
13C12-PCB-123	12000	23.10	46	10-145
13C12-PCB-118	12000	23.28	47	10-145
13C12-PCB-114	12000	23.58	48	10-145
13C12-PCB-105	12000	23.93	49	10-145
13C12-PCB-126	12000	25.53	50	10-145
13C12-PCB-167	12000	26.40	51	10-145
13C12-PCB-156/157	24000	27.04	52	10-145
13C12-PCB-169	12000	28.70	56	10-145
13C12-PCB-189	12000	29.94	61	10-145

Cleanup Standards				
13C12-PCB-028	12000	16.03	48	5-145
13C12-PCB-111	12000	22.04	54	10-145
13C12-PCB-178	12000	25.07	77	10-145

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.000472
Mid Point PCB TEQ	0.135
Upper Bound PCB TEQ	0.270

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identifed. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a		
ALS Sample ID	WG3730529-2	Extraction Date	27-May-22		Approved:
Analysis Method	EPA 1668C	Sample Size	1	n/a	*Ella Gdyczynski*
Analysis Type	LCS	Percent Moisture	n/a		--e-signature--
Sample Matrix	QC	Split Ratio	6		15-Jun-2022

Run Information	**Run 1**
Filename	5-220606A19
Run Date	07-Jun-22 00:03
Final Volume	25 ul
Dilution Factor	1
Analysis Units	% Rec
Instrument - Column	HRMS-5 SPB OCTYL 260141-05

Target Analytes	**pg**	**Ret. Time**	**% Rec**	**Limits**	**Flags**
PCB-081	6000	21.85	99	60-135	
PCB-077	6000	22.15	97	60-135	
PCB-123	6000	23.12	101	60-135	
PCB-118	6000	23.29	99	60-135	
PCB-114	6000	23.59	103	60-135	
PCB-105	6000	23.94	96	60-135	
PCB-126	6000	25.54	101	60-135	
PCB-167	6000	26.41	90	60-135	
PCB-156/157	12000	27.05	89	60-135	
PCB-169	6000	28.72	90	60-135	
PCB-189	6000	29.97	104	60-135	
Extraction Standards		**Time**	**% Rec**	**Limits**	
13C12-PCB-081	12000	21.83	37	40-145	
13C12-PCB-077	12000	22.14	37	40-145	
13C12-PCB-123	12000	23.11	40	40-145	
13C12-PCB-118	12000	23.28	41	40-145	
13C12-PCB-114	12000	23.58	41	40-145	
13C12-PCB-105	12000	23.93	41	40-145	
13C12-PCB-126	12000	25.53	41	40-145	
13C12-PCB-167	12000	26.40	46	40-145	
13C12-PCB-156/157	24000	27.04	47	40-145	
13C12-PCB-169	12000	28.70	51	40-145	
13C12-PCB-189	12000	29.96	56	40-145	
Cleanup Standards					
13C12-PCB-028	12000	16.03	42	15-145	
13C12-PCB-111	12000	22.05	47	40-145	
13C12-PCB-178	12000	25.07	66	40-145	

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd
ALS WO#:	L2708349 Revision 2		Mississauga, ON L5J 2Y4
Date of Report	8-Jul-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 COVANTA

COMMENTS: **CB by LRGC/MS - Isotope dilution**
REVISED REPORT: Re-Analysis of the archived raw extract to include and obtain chlorobenzene data
REVISED REPORT: Include flags in the footnotes

Certified by:
Ron McLeod, Ph.D.
Technical Director

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Media Blank		Method Blank		22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET		22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET		22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET		22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET	
ALS Sample ID	WG3730529-1		WG3730529-4		L2708349-1		L2708349-2		L2708349-3		L2708349-4	
Sample Size	1		1		1		1		1		1	
Sample units	sample		sample		sample		sample		sample		sample	
Moisture Content	n/a		n/a		n/a		n/a		n/a		n/a	
Matrix	QC		QC		Stack		Stack		Stack		Stack	
Sampling Date	n/a		n/a		18-May-22		18-May-22		19-May-22		19-May-22	
Extraction Date	27-May-22		27-May-22		27-May-22		27-May-22		27-May-22		27-May-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
Chlorobenzene	215	R	216	R	230		302		399		n/a	
1,3-Dichlorobenzene	<12	U	<12	U	42.1		50.9		52.5		<12	U
1,4-Dichlorobenzene	13.1		12.9		67.6		62.7		60.9		20.4	R
1,2-Dichlorobenzene	<12	U	<12	U	37.8		53.8		48.1		<12	U
1,3,5-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
1,2,4-Trichlorobenzene	<12	U	<12	U	13.4		15.1		13.7		<12	U
1,2,3-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
1,2,3,4-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Pentachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Hexachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Field Sampling Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	NS		NS		87		76		56		72	
Extraction Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
13C6-Chlorobenzene	42		45		11		18		28		n/r	
13C6-1,4-Dichlorobenzene	81		75		23		29		42		82	
13C6-1,2,3-Trichlorobenzene	90		84		30		36		51		94	
13C6-1,2,3,4-Tetrachlorobenzene	106		98		30		35		47		36	
13C6-Pentachlorobenzene	116		109		34		38		52		41	
13C6-Hexachlorobenzene	124		122		36		43		57		44	

U	Indicates that this compound was not detected above the LOD.		
M	Indicates that a peak has been manually integrated.	n/a	Data not available due to absence of corresponding IS recovery
NS	Indicates that the compound was not added to the sample	n/r	Not recovered
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.		

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET		22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET		22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET		22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET		Laboratory Control Sample	
ALS Sample ID	L2708349-5		L2708349-6		L2708349-7		L2708349-8		WG3730529-2	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		n/a	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	Stack		Stack		Stack		Stack		QC	
Sampling Date	18-May-22		18-May-22		19-May-22		19-May-22		n/a	
Extraction Date	27-May-22		27-May-22		27-May-22		27-May-22		27-May-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**% Recovery**	
Chlorobenzene	361	R	214		246		n/a		92	
1,3-Dichlorobenzene	60.5		59.6		66.5		<12	U	106	
1,4-Dichlorobenzene	72.4		66.3		93.7		19.8	R	108	M
1,2-Dichlorobenzene	59.2		58.6		65.4		<12	U	112	
1,3,5-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	100	
1,2,4-Trichlorobenzene	17.3		18.3		21.4		<12	U	96	
1,2,3-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	98	
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	116	
1,2,3,4-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	116	
Pentachlorobenzene	<12	U	<12	U	<12	U	<12	U	116	
Hexachlorobenzene	<12	U	<12	U	<12	U	<12	U	114	
Field Sampling Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	49		52		69		69		NS	
Extraction Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
13C6-Chlorobenzene	39		34		20		n/r		31	
13C6-1,4-Dichlorobenzene	54		53		34		81		42	
13C6-1,2,3-Trichlorobenzene	67		64		42		91		54	
13C6-1,2,3,4-Tetrachlorobenzene	52		50		38		38		53	
13C6-Pentachlorobenzene	60		57		41		42		59	
13C6-Hexachlorobenzene	65		61		45		45		62	

U	Indicates that this compound was not detected above the LDD.	n/a	Data not available due to absence of corresponding IS recovery
M	Indicates that a peak has been manually integrated.	n/r	Not recovered
NS	Indicates that the compound was not added to the sample		
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.		

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Media Blank**	Sampling Date	n/a
ALS Sample ID	WG3730529-1	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-006.D
Run Date	7/7/2022 14:04
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.78	215	R
1,3-Dichlorobenzene	6.75	<12	U
1,4-Dichlorobenzene	6.83	13.1	
1,2-Dichlorobenzene	7.12	<12	U
1,3,5-Trichlorobenzene	8.31	<12	U
1,2,4-Trichlorobenzene	8.82	<12	U
1,2,3-Trichlorobenzene	9.16	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.65	<12	U
1,2,3,4-Tetrachlorobenzene	10.65	<12	U
Pentachlorobenzene	12.09	<12	U
Hexachlorobenzene	13.77	<12	U

Field Sampling Standards	**ng spiked**
1-Bromo-2,3-Dichlorobenzene	0

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	4.55	42
13C6-1,4-Dichlorobenzene	300	6.83	81
13C6-1,2,3-Trichlorobenzene	300	9.22	90
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	106
13C6-Pentachlorobenzene	600	12.26	116
13C6-Hexachlorobenzene	600	13.90	124

U	Indicates that this compound was not detected above the MDL.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3730529-4	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-007.D
Run Date	7/7/2022 14:27
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.78	216	R
1,3-Dichlorobenzene	NotFnd	<12	U
1,4-Dichlorobenzene	6.83	12.9	
1,2-Dichlorobenzene	NotFnd	<12	U
1,3,5-Trichlorobenzene	NotFnd	<12	U
1,2,4-Trichlorobenzene	NotFnd	<12	U
1,2,3-Trichlorobenzene	NotFnd	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	NotFnd	<12	U
1,2,3,4-Tetrachlorobenzene	NotFnd	<12	U
Pentachlorobenzene	NotFnd	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**
1-Bromo-2,3-Dichlorobenzene	0

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	4.54	45
13C6-1,4-Dichlorobenzene	300	6.83	75
13C6-1,2,3-Trichlorobenzene	300	9.22	84
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	98
13C6-Pentachlorobenzene	600	12.26	109
13C6-Hexachlorobenzene	600	13.90	122

U	Indicates that this compound was not detected above the MDL.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-1	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-008.D
Run Date	7/7/2022 14:50
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.54	230	
1,3-Dichlorobenzene	6.74	42.1	
1,4-Dichlorobenzene	6.81	67.6	
1,2-Dichlorobenzene	7.11	37.8	
1,3,5-Trichlorobenzene	8.29	<12	U
1,2,4-Trichlorobenzene	8.81	13.4	
1,2,3-Trichlorobenzene	9.21	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.43	<12	U
1,2,3,4-Tetrachlorobenzene	10.93	<12	U
Pentachlorobenzene	12.09	<12	U
Hexachlorobenzene	13.60	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**
1-Bromo-2,3-Dichlorobenzene	600	10.23	87

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	4.54	11
13C6-1,4-Dichlorobenzene	300	6.81	23
13C6-1,2,3-Trichlorobenzene	300	9.21	30
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	30
13C6-Pentachlorobenzene	600	12.26	34
13C6-Hexachlorobenzene	600	13.89	36

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-2	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-009.D
Run Date	7/7/2022 15:13
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.54	302	
1,3-Dichlorobenzene	6.74	50.9	
1,4-Dichlorobenzene	6.81	62.7	
1,2-Dichlorobenzene	7.11	53.8	
1,3,5-Trichlorobenzene	8.29	<12	U
1,2,4-Trichlorobenzene	8.81	15.1	
1,2,3-Trichlorobenzene	9.21	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.42	<12	U
1,2,3,4-Tetrachlorobenzene	10.93	<12	U
Pentachlorobenzene	12.26	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	600	10.23	76	

Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	4.54	18	M
13C6-1,4-Dichlorobenzene	300	6.81	29	
13C6-1,2,3-Trichlorobenzene	300	9.21	36	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	35	
13C6-Pentachlorobenzene	600	12.26	38	
13C6-Hexachlorobenzene	600	13.90	43	

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-3	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-010.D
Run Date	7/7/2022 15:36
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.54	399	
1,3-Dichlorobenzene	6.74	52.5	
1,4-Dichlorobenzene	6.82	60.9	
1,2-Dichlorobenzene	7.11	48.1	
1,3,5-Trichlorobenzene	8.29	<12	U
1,2,4-Trichlorobenzene	8.81	13.7	
1,2,3-Trichlorobenzene	9.22	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.43	<12	U
1,2,3,4-Tetrachlorobenzene	10.93	<12	U
Pentachlorobenzene	12.26	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	600	10.23	56	

Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	4.53	28	M
13C6-1,4-Dichlorobenzene	300	6.82	42	
13C6-1,2,3-Trichlorobenzene	300	9.21	51	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	47	
13C6-Pentachlorobenzene	600	12.26	52	
13C6-Hexachlorobenzene	600	13.90	57	

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-4	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-011.D
Run Date	7/7/2022 15:59
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.77	n/a	
1,3-Dichlorobenzene	6.78	<12	U
1,4-Dichlorobenzene	6.85	20.4	R
1,2-Dichlorobenzene	7.14	<12	U
1,3,5-Trichlorobenzene	NotFnd	<12	U
1,2,4-Trichlorobenzene	NotFnd	<12	U
1,2,3-Trichlorobenzene	NotFnd	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	NotFnd	<12	U
1,2,3,4-Tetrachlorobenzene	NotFnd	<12	U
Pentachlorobenzene	NotFnd	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**
1-Bromo-2,3-Dichlorobenzene	600	10.23	72

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	NotFnd	n/r
13C6-1,4-Dichlorobenzene	300	6.85	82
13C6-1,2,3-Trichlorobenzene	300	9.22	94
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	36
13C6-Pentachlorobenzene	600	12.26	41
13C6-Hexachlorobenzene	600	13.90	44

U	Indicates that this compound was not detected above the MDL.
n/a	Data not available due to absence of corresponding IS recovery
n/r	Not recovered
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-5	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-012.D
Run Date	7/7/2022 16:22
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.79	361	R
1,3-Dichlorobenzene	6.74	60.5	
1,4-Dichlorobenzene	6.83	72.4	
1,2-Dichlorobenzene	7.12	59.2	
1,3,5-Trichlorobenzene	8.30	<12	U
1,2,4-Trichlorobenzene	8.81	17.3	
1,2,3-Trichlorobenzene	9.22	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.44	<12	U
1,2,3,4-Tetrachlorobenzene	10.93	<12	U
Pentachlorobenzene	12.26	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	600	10.23	49	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	4.54	39	M
13C6-1,4-Dichlorobenzene	300	6.82	54	
13C6-1,2,3-Trichlorobenzene	300	9.22	67	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	52	
13C6-Pentachlorobenzene	600	12.26	60	
13C6-Hexachlorobenzene	600	13.90	65	

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-6	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-013.D
Run Date	7/7/2022 16:45
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.53	214	
1,3-Dichlorobenzene	6.74	59.6	
1,4-Dichlorobenzene	6.82	66.3	
1,2-Dichlorobenzene	7.11	58.6	
1,3,5-Trichlorobenzene	8.29	<12	U
1,2,4-Trichlorobenzene	8.81	18.3	
1,2,3-Trichlorobenzene	9.22	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.43	<12	U
1,2,3,4-Tetrachlorobenzene	10.93	<12	U
Pentachlorobenzene	NotFnd	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	600	10.23	52	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	4.53	34	M
13C6-1,4-Dichlorobenzene	300	6.82	53	
13C6-1,2,3-Trichlorobenzene	300	9.22	64	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	50	
13C6-Pentachlorobenzene	600	12.26	57	
13C6-Hexachlorobenzene	600	13.90	61	

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-7	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-014.D
Run Date	7/7/2022 17:08
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.54	246	
1,3-Dichlorobenzene	6.74	66.5	
1,4-Dichlorobenzene	6.82	93.7	
1,2-Dichlorobenzene	7.11	65.4	
1,3,5-Trichlorobenzene	8.29	<12	U
1,2,4-Trichlorobenzene	8.81	21.4	
1,2,3-Trichlorobenzene	9.22	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	10.43	<12	U
1,2,3,4-Tetrachlorobenzene	10.93	<12	U
Pentachlorobenzene	NotFnd	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	600	10.23	69	

Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	4.54	20	M
13C6-1,4-Dichlorobenzene	300	6.82	34	
13C6-1,2,3-Trichlorobenzene	300	9.21	42	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	38	
13C6-Pentachlorobenzene	600	12.26	41	
13C6-Hexachlorobenzene	600	13.90	45	

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-8	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-015.D
Run Date	7/7/2022 17:31
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	NotFnd	n/a	
1,3-Dichlorobenzene	6.80	<12	U
1,4-Dichlorobenzene	6.87	19.8	R
1,2-Dichlorobenzene	7.16	<12	U
1,3,5-Trichlorobenzene	NotFnd	<12	U
1,2,4-Trichlorobenzene	NotFnd	<12	U
1,2,3-Trichlorobenzene	NotFnd	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	NotFnd	<12	U
1,2,3,4-Tetrachlorobenzene	10.52	<12	U
Pentachlorobenzene	NotFnd	<12	U
Hexachlorobenzene	NotFnd	<12	U

Field Sampling Standards	**ng spiked**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	600	10.23	69	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	NotFnd	n/r	M
13C6-1,4-Dichlorobenzene	300	6.87	81	
13C6-1,2,3-Trichlorobenzene	300	9.22	91	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	38	
13C6-Pentachlorobenzene	600	12.26	42	
13C6-Hexachlorobenzene	600	13.90	45	

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
n/a	Data not available due to absence of corresponding IS recovery
n/r	Not recovered
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3730529-2	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Peter Nguyen
--e-signature--
08-Jul-2022

Run Information	**Run 1**
Filename	220707-004B.D
Run Date	7/7/2022 13:18
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US2327244H

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**
Chlorobenzene	600	4.80	92	
1,3-Dichlorobenzene	600	6.79	106	
1,4-Dichlorobenzene	600	6.87	108	M
1,2-Dichlorobenzene	600	7.15	112	
1,3,5-Trichlorobenzene	600	8.31	100	
1,2,4-Trichlorobenzene	600	8.82	96	
1,2,3-Trichlorobenzene	600	9.22	98	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	1200	10.44	116	
1,2,3,4-Tetrachlorobenzene	600	10.93	116	
Pentachlorobenzene	600	12.26	116	
Hexachlorobenzene	600	13.90	114	
Field Sampling Standards	**ng spiked**			
1-Bromo-2,3-Dichlorobenzene	0			
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	4.54	31	M
13C6-1,4-Dichlorobenzene	300	6.87	42	
13C6-1,2,3-Trichlorobenzene	300	9.22	54	
13C6-1,2,3,4-Tetrachlorobenzene	600	10.93	53	
13C6-Pentachlorobenzene	600	12.26	59	
13C6-Hexachlorobenzene	600	13.90	62	

M Indicates that a peak has been manually integrated.

ALS Environmental

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2708349		Mississauga, ON L5J 2Y4
Date of Report	21-Jun-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **Chlorophenols as acetate derivatives by SIM GC/MS**

Not all phenols were fully derivatized to acetates. In some cases, the rersponses of the underivatized phenols were used for quantification.

For some samples, as well as QC, the recoveries of the late-eluting labelled standards were below the method control limits. For the sample 22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET, the recoveries of most of the labelled standards were below the method control limits.

For the laboratory control sample (LCS), the recovery of the target analyte 2,3-Dichlorophenol was somewhat below the method control limit. The recoveries of select target analytes are above the method control limits.

No target analytes have been detected in the samples above the stated detection limits.

Certified by: Steve Kennedy
Technical Supervisor

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET		22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET		22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET		22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET	
ALS Sample ID	WG3730529-1		L2708349-1		L2708349-2		L2708349-3		L2708349-4	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		sample	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	QC		Stack		Stack		Stack		Stack	
Sampling Date	n/a		18-May-22		18-May-22		19-May-22		19-May-22	
Extraction Date	27-May-22		27-May-22		27-May-22		27-May-22		27-May-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
2-Chlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
3-Chlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
4-Chlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,6-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,4/2,5-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
3,5-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,3-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
3,4-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,4,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,3,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,3,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,4,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,3,4-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
3,4,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,3,4,5-Tetrachlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
Pentachlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
13C6-4-Chlorophenol (ES)	67		49		46		53		93	
13C6-2,4-Dichlorophenol (ES)	57		57		64		64		59	
13C6-2,4,5-Trichlorophenol (ES)	45		40		48		49		64	
13C6-2,3,4,5-Tetrachlorophenol (ES)	33		43		54		57		44	
13C6-Pentachlorophenol (ES)	5	M	28	M	45		55		27	M

U Indicates that this compound was not detected above the LOR.

M Indicates that a peak has been manually integrated.

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET		22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET		22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET		22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET		Laboratory Control Sample	
ALS Sample ID	L2708349-5		L2708349-6		L2708349-7		L2708349-8		WG3730529-2	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		n/a	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	Stack		Stack		Stack		Stack		QC	
Sampling Date	18-May-22		18-May-22		19-May-22		19-May-22		n/a	
Extraction Date	27-May-22		27-May-22		27-May-22		27-May-22		27-May-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**% Recovery**	
2-Chlorophenol	<60	U	<60	U	<60	U	<60	U	95	
3-Chlorophenol	<60	U	<60	U	<60	U	<60	U		
4-Chlorophenol	<60	U	<60	U	<60	U	<60	U		
2,6-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	76	
2,4/2,5-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	120	
3,5-Dichlorophenol	<60	U	<60	U	<60	U	<60	U		
2,3-Dichlorophenol	<60	U	<60	U	<60	U	<60	U	54	M
3,4-Dichlorophenol	<60	U	<60	U	<60	U	<60	U		
2,4,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	74	
2,3,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U		
2,3,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U		
2,4,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	119	
2,3,4-Trichlorophenol	<60	U	<60	U	<60	U	<60	U		
3,4,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U		
2,3,5,6/2,3,4,6-Tetrachlorophenol	<60	U	<60	U	<60	U	<60	U	126	M
2,3,4,5-Tetrachlorophenol	<60	U	<60	U	<60	U	<60	U	115	
Pentachlorophenol	<60	U	<60	U	<60	U	<60	U	128	M
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
13C6-4-Chlorophenol (ES)	55		47		35		25	M	77	
13C6-2,4-Dichlorophenol (ES)	61		44		39		14		72	
13C6-2,4,5-Trichlorophenol (ES)	49		31		27		12		50	
13C6-2,3,4,5-Tetrachlorophenol (ES)	50		22		19		4		34	
13C6-Pentachlorophenol (ES)	28		30	M	26	M	4	M	16	M

U Indicates that this compound was not detected above the LOR.

M Indicates that a peak has been manually integrated.

ALS Life Sciences

Sample Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3730529-1	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061705.D
Run Date	6/17/2022 17:01
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**		
13C6-4-Chlorophenol (ES)	1200	8.41	67		20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	57		20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	45		20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	33		20-150
13C6-Pentachlorophenol (ES)	1200	13.62	5	M	20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-1	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061709.D
Run Date	6/17/2022 18:37
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**		
13C6-4-Chlorophenol (ES)	1200	8.42	49		20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	57		20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	40		20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	43		20-150
13C6-Pentachlorophenol (ES)	1200	13.62	28	M	20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-2	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061710.D
Run Date	6/17/2022 19:01
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**	
13C6-4-Chlorophenol (ES)	1200	8.41	46	20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	64	20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	48	20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	54	20-150
13C6-Pentachlorophenol (ES)	1200	13.62	45	20-150

U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-3	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061711.D
Run Date	6/17/2022 19:25
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**	
13C6-4-Chlorophenol (ES)	1200	8.41	53	20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	64	20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	49	20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	57	20-150
13C6-Pentachlorophenol (ES)	1200	13.62	55	20-150

U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-4	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061707.D
Run Date	6/17/2022 17:49
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**	
13C6-4-Chlorophenol (ES)	1200	8.46	93	20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.60	59	20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.05	64	20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	44	20-150
13C6-Pentachlorophenol (ES)	1200	13.18	27 M	20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-5	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061712.D
Run Date	6/17/2022 19:49
Final Volume	1 mL
Dilution Factor	1
Analysis Units	n/a
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**	
13C6-4-Chlorophenol (ES)	1200	8.41	55	20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	61	20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	49	20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	50	20-150
13C6-Pentachlorophenol (ES)	1200	13.62	28	20-150

U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-6	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061713.D
Run Date	6/17/2022 20:13
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**		
13C6-4-Chlorophenol (ES)	1200	8.42	47		20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	44		20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	31		20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	22		20-150
13C6-Pentachlorophenol (ES)	1200	13.18	30	M	20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-7	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061714.D
Run Date	6/17/2022 20:37
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**		
13C6-4-Chlorophenol (ES)	1200	8.41	35		20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	39		20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	27		20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	19		20-150
13C6-Pentachlorophenol (ES)	1200	13.18	26	M	20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-221S8-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-8	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061708.D
Run Date	6/17/2022 18:13
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	NotFnd	<60	U
3-Chlorophenol	NotFnd	<60	U
4-Chlorophenol	NotFnd	<60	U
2,6-Dichlorophenol	NotFnd	<60	U
2,4/2,5-Dichlorophenol	NotFnd	<60	U
3,5-Dichlorophenol	NotFnd	<60	U
2,3-Dichlorophenol	NotFnd	<60	U
3,4-Dichlorophenol	NotFnd	<60	U
2,4,6-Trichlorophenol	NotFnd	<60	U
2,3,6-Trichlorophenol	NotFnd	<60	U
2,3,5-Trichlorophenol	NotFnd	<60	U
2,4,5-Trichlorophenol	NotFnd	<60	U
2,3,4-Trichlorophenol	NotFnd	<60	U
3,4,5-Trichlorophenol	NotFnd	<60	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	NotFnd	<60	U
2,3,4,5-Tetrachlorophenol	NotFnd	<60	U
Pentachlorophenol	NotFnd	<60	U

Extraction Standards			**% Rec**		
13C6-4-Chlorophenol (ES)	1200	8.44	25	M	20-150
13C6-2,4-Dichlorophenol (ES)	1200	9.59	14		20-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.05	12		20-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	4		20-150
13C6-Pentachlorophenol (ES)	1200	13.18	4	M	20-150

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the LOR.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3730529-2	Extraction Date	27-May-22
Analysis Method	SIM GC/MS		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Andrew Reid
--e-signature--
21-Jun-2022

Run Information	**Run 1**
Filename	22061703.D
Run Date	6/17/2022 16:13
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-2
Column	HP-5MS US1389162H

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**	
2-Chlorophenol	1200	8.07	95		211-124
3-Chlorophenol					
4-Chlorophenol					
2,6-Dichlorophenol	1200	9.38	76		10-110
2,4/2,5-Dichlorophenol	1200	9.58	120		35-98
3,5-Dichlorophenol					
2,3-Dichlorophenol	1200	9.91	54	M	63-141
3,4-Dichlorophenol					
2,4,6-Trichlorophenol	1200	10.51	74		10-102
2,3,6-Trichlorophenol					
2,3,5-Trichlorophenol					
2,4,5-Trichlorophenol	1200	11.04	119		45-95
2,3,4-Trichlorophenol					
3,4,5-Trichlorophenol					
2,3,5,6/2,3,4,6-Tetrachlorophenol	2400	11.48	126	M	30-109
2,3,4,5-Tetrachlorophenol	1200	12.65	115		44-103
Pentachlorophenol	1200	13.18	128	M	32-121
Extraction Standards			**% Rec**		
13C6-4-Chlorophenol (ES)	1200	8.41	77		50-150
13C6-2,4-Dichlorophenol (ES)	1200	9.58	72		50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	11.04	50		50-150
13C6-2,3,4,5-Tetrachlorophenol (E	1200	12.65	34		50-150
13C6-Pentachlorophenol (ES)	1200	13.18	16	M	50-150

M Indicates that a peak has been manually integrated.

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2708349		Mississauga, ON L5J 2Y4
Date of Report	20-Jun-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **PAH by CARB method 429 (LR option)- Isotope dilution**

Poor extraction standard recoveries have been observed for the field run samples (not including the blanks and lab QC samples) indicating a potential low bias to the analytical results. Field spike recoveries from the PCDD/F portion of the train indicates a low bias on the field samples as much as a factor in the range of 2.5 to 3.0.

Certified by:

Ron McLeod, Ph.D.
Technical Director

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Media Blank		22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET		22-22158-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET		22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET		22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET	
ALS Sample ID	WG3730S29-1		L2708349-1		L2708349-2		L2708349-3		L2708349-4	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		sample	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	QC		Stack		Stack		Stack		Stack	
Sampling Date	n/a		18-May-22		18-May-22		19-May-22		19-May-22	
Extraction Date	27-May-22		27-May-22		27-May-22		27-May-22		27-May-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
Naphthalene	169		149	M,B	7900		314	M,B	386	B
2-Methylnaphthalene	<12	U	27.0		798		41.2		58.9	
1-Methylnaphthalene	<12	U	17.0	M,R	329		23.0	M,R	28.4	
Acenaphthylene	<12	U	<12	U	17.7	R	<12	U	<12	U
Acenaphthene	<12	U	<12	U	19.5		<12	U	<12	U
Fluorene	<12	U	<12	U	15.3		<12	U	<12	U
Phenanthrene	<12	U	64.5		76.5		45.1		25.7	
Anthracene	<12	U	<12	U	<12	U	<12	U	<12	U
Fluoranthene	<12	U	25.4		36.3	M	<12	U	<12	U
Pyrene	<12	U	33.3	M	62.5	M	16.2	M	<12	U
Benzo(a)Anthracene	<12	U	<12	U	<12	U	<12	U	<12	U
Chrysene/Triphenylene	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(b)Fluoranthene	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(k)Fluoranthene	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(e)Pyrene	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(a)Pyrene	<12	U	<12	U	<12	U	<12	U	<12	U
Perylene	<12	U	<12	U	<12	U	<12	U	<12	U
Indeno(1,2,3-cd)Pyrene	<12	U	17.8	M	<12	U	<12	U	<12	U
Dibenzo(a,h/a,c)Anthracene	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(g,h,i)Perylene	<12	U	17.5		20.2		<12	U	<12	U
Additional Analytes										
Tetralin	261		201	B	242	B	195	M,B	208	M,B
2-Chloronaphthalene	<12	U	<12	U	<12	U	<12	U	<12	U
Biphenyl	<12	U	17.6		60.8		44.6		<12	U
o-Terphenyl	<12	U	<12	U	<12	U	<12	U	<12	U
1-Methylphenanthrene	229	R	18.8	RB	17.7	M,R,B	13.4	RB	175	RB
9-Methylphenanthrene	79.0	R	<12	U	<12	U	<12	U	<12	U
2-methylanthracene	198	R	<12	U	<12	U	<12	U	<12	U
9,10-dimethylanthracene	<12	U	<12	U	<12	U	<12	U	<12	U
m-terphenyl	<12	U	<12	U	<12	U	<12	U	<12	U
p-terphenyl	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(a)fluorene	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(b)fluorene	<12	U	<12	U	<12	U	<12	U	<12	U
7,12-Dimethylbenzo(a)anthracene	<12	U	<12	U	<12	U	<12	U	<12	U
3-Methylcholanthrene	<60	U	<60	U	<60	U	<60	U	<60	U
Picene	<60	U	<60	U	<60	U	<60	U	<60	U
Dibenzo(a,e)pyrene	<60	U	<60	U	<60	U	<60	U	<60	U
Coronene	<60	U	<60	U	<60	U	<60	U	<60	U
Field Sampling Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	NS		31.5		36.6		36.5		94.2	
Fluorene D10	NS		33.6		47.5		38.8	M	92.2	
Terphenyl D14(Surr.)	NS		32.7		39.6		38.4		98.6	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Naphthalene D8	109.9		27.3		29.9		37.8		87.3	
2-Methylnaphthalene-D10	125.0		29.2		35.1		41.5		102.4	
Acenaphthylene D8	120.9		29.9		35.7		41.9		101.1	
Phenanthrene D10	127.1		29.1		36.2		40.6		96.5	
Anthracene-D10	122.6		29.3		36.2		40.7		92.1	
Fluoranthene D10	138.7		34.0		42.7		47.9		111.9	
Benz(a)Anthracene-D12	162.8		33.3		44.7		50.9		143.2	
Chrysene D12	124.4		30.9		40.5		46.7		108.0	
Benzo(b)Fluoranthene-D12	138.3		33.8		43.1		47.7		123.8	
Benzo(k)Fluoranthene-D12	120.6		27.4		35.5		39.1		105.7	
Benzo(a)Pyrene D12	139.1		34.5		41.2		45.7		116.8	
Perylene D12	140.7		30.1		39.3		44.5		126.6	
Indeno(1,2,3,cd)Pyrene-D12	153.1		35.9		44.9		48.8		131.0	
Dibenz(a,h)Anthracene-D14	150.0		33.1		41.8		50.9	M	126.1	
Benzo(g,h,i)Perylene D12	136.0		34.8		43.2		51.8	M	114.8	

U	Indicates that this compound was not detected above the LOD.
M	Indicates that a peak has been manually integrated.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
NS	Indicates that the compound was not added to the sample

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET		22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET		22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET		22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET		Laboratory Control Sample	
ALS Sample ID	L2708349-5		L2708349-6		L2708349-7		L2708349-8		WG3730529-2	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		n/a	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	Stack		Stack		Stack		Stack		QC	
Sampling Date	18-May-22		18-May-22		19-May-22		19-May-22		n/a	
Extraction Date	27-May-22		27-May-22		27-May-22		27-May-22		27-May-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**%**	
Naphthalene	348	B	318	B	395	B	197	M,B	127.9	M,B
2-Methylnaphthalene	46.1		43.6		53.6		19.7	M,R	104.6	
1-Methylnaphthalene	24.1	M,R	22.9	R	29.5	M,R	12.5		107.1	
Acenaphthylene	<12	U	<12	U	<12	U	<12	U	107.3	
Acenaphthene	<12	U	<12	U	<12	U	<12	U	95.3	
Fluorene	<12	U	<12	U	<12	U	<12	U	99.6	
Phenanthrene	45.0		44.5		56.6		<12	U	107.2	
Anthracene	<12	U	<12	U	<12	U	<12	U	103.8	
Fluoranthene	<12	U	<12	U	13.9		<12	U	100.7	
Pyrene	<12	U	<12	U	14.8	M	<12	U	100.2	
Benzo(a)Anthracene	<12	U	<12	U	<12	U	<12	U	91.7	
Chrysene/Triphenylene	<12	U	<12	U	<12	U	<12	U	106.8	
Benzo(b)Fluoranthene	<12	U	<12	U	<12	U	<12	U	99.4	
Benzo(k)Fluoranthene	<12	U	<12	U	<12	U	<12	U	107.6	R
Benzo(e)Pyrene	<12	U	<12	U	<12	U	<12	U	103.7	
Benzo(a)Pyrene	<12	U	<12	U	<12	U	<12	U	96.7	
Perylene	<12	U	<12	U	<12	U	<12	U	87.5	
Indeno(1,2,3-cd)Pyrene	<12	U	<12	U	12.4	M	<12	U	97.2	
Dibenzo(a,h/a,c)Anthracene	<12	U	<12	U	<12	U	<12	U	91.7	
Benzo(g,h,i)Perylene	<12	U	<12	U	<12	U	<12	U	97.3	
Additional Analytes										
Tetralin	185	B	158	M,B	213	B	183	M,B	NS	
2-Chloronaphthalene	<12	U	<12	U	<12	U	<12	U	NS	
Biphenyl	13.9	M	13.4	M	20.6		<12	U	NS	
o-Terphenyl	<12	U	<12	U	<12	U	<12	U	NS	
1-Methylphenanthrene	17.4	RB	16.3	RB	21.5	RB	212	RB	NS	
9-Methylphenanthrene	<12	U	<12	U	<12	U	<12	U	NS	
2-methylanthracene	<12	U	<12	U	<12	U	<12	U	NS	
9,10-dimethylanthracene	<12	U	<12	U	<12	U	<12	U	NS	
m-terphenyl	<12	U	<12	U	<12	U	<12	U	NS	
p-terphenyl	<12	U	<12	U	<12	U	<12	U	NS	
Benzo(a)fluorene	<12	U	<12	U	<12	U	<12	U	NS	
Benzo(b)fluorene	<12	U	<12	U	<12	U	<12	U	NS	
7,12-Dimethylbenzo(a)anthracene	<12	U	<12	U	<12	U	<12	U	NS	
3-Methylcholanthrene	<60	U	<60	U	<60	U	<60	U	NS	
Picene	<60	U	<60	U	<60	U	<60	U	NS	
Dibenzo(a,e)pyrene	<60	U	<60	U	<60	U	<60	U	NS	
Coronene	<60	U	<60	U	<60	U	<60	U	NS	
Field Sampling Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	38.7		37.0		45.4		93.8		NS	
Fluorene D10	53.9		49.2		61.4		87.9		NS	
Terphenyl D14(Surr.)	41.6		38.2		47.8		103.7		NS	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Naphthalene D8	45.3		50.1		32.0		87.7		98.4	
2-Methylnaphthalene-D10	50.7		54.4		34.8		101.7		110.3	
Acenaphthylene D8	52.8		56.1		35.2		96.8		105.2	
Phenanthrene D10	50.1		53.8		33.5		98.1		106.8	
Anthracene-D10	52.0		55.3		33.6		92.7		104.2	
Fluoranthene D10	59.6		64.0		39.5		113.5		123.0	
Benz(a)Anthracene-D12	64.6		66.1		40.0		142.3		152.4	
Chrysene D12	54.4		57.1		37.1		109.8		128.0	
Benzo(b)Fluoranthene-D12	60.1		64.9		39.3		120.8		124.5	
Benzo(k)Fluoranthene-D12	49.9		52.7		32.9		106.8		112.4	
Benzo(a)Pyrene D12	56.8		59.6		39.3		109.4		122.6	
Perylene D12	58.8		62.2		38.0		118.4		123.2	
Indeno(1,2,3,cd)Pyrene-D12	65.3		67.4		42.7		140.5		138.3	
Dibenz(a,h)Anthracene-D14	61.8		64.1		46.5	M	135.8		140.1	
Benzo(g,h,i)Perylene D12	61.2		65.8		46.8	M	124.4		131.5	

U	Indicates that this compound was not detected above the LOD.
M	Indicates that a peak has been manually integrated.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
NS	Indicates that the compound was not added to the sample

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Media Blank**	Sampling Date	n/a
ALS Sample ID	WG3730529-1	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-055.D
Run Date	6/2/2022 20:07
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	169	
2-Methylnaphthalene	3.49	<12	U
1-Methylnaphthalene	3.61	<12	U
Acenaphthylene	4.67	<12	U
Acenaphthene	4.99	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	<12	U
Anthracene	8.28	<12	U
Fluoranthene	11.60	<12	U
Pyrene	12.25	<12	U
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	20.36	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	24.28	<12	U
Dibenzo(a,h/a,c)Anthracene	24.50	<12	U
Benzo(g,h,i)Perylene	25.33	<12	U
Additional Analytes			
Tetralin	2.76	261	
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.05	<12	U
o-Terphenyl	NotFnd	<12	U
1-Methylphenanthrene	9.75	229	R
9-Methylphenanthrene	9.75	79.0	R
2-methylanthracene	9.75	198	R
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	NotFnd	<12	U
p-terphenyl	NotFnd	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	109.9	50-150
2-Methylnaphthalene-D10	600	3.46	125.0	50-150
Acenaphthylene D8	600	4.65	120.9	50-150
Phenanthrene D10	600	8.11	127.1	50-150
Anthracene-D10	600	8.25	122.6	50-150
Fluoranthene D10	600	11.55	138.7	50-150
Benz(a)Anthracene-D12	600	16.10	162.8	50-150
Chrysene D12	600	16.22	124.4	50-150
Benzo(b)Fluoranthene-D12	600	19.45	138.3	50-150
Benzo(k)Fluoranthene-D12	600	19.53	120.6	50-150
Benzo(a)Pyrene D12	600	20.33	139.1	50-150
Perylene D12	600	20.57	140.7	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	153.1	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	150.0	50-150
Benzo(g,h,i)Perylene D12	600	25.22	136.0	50-150

U	Indicates that this compound was not detected above the MDL.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
NS	Indicates that the compound was not added to the sample

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(1 THRU 5) TEST#1 #1 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-1	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-058.D
Run Date	6/2/2022 22:02
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	149	M B
2-Methylnaphthalene	3.49	27.0	
1-Methylnaphthalene	3.61	17.0	M R
Acenaphthylene	4.67	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	64.5	
Anthracene	8.28	<12	U
Fluoranthene	11.60	25.4	
Pyrene	12.25	33.3	M
Benzo(a)Anthracene	16.17	<12	U
Chrysene/Triphenylene	16.29	<12	U
Benzo(b)Fluoranthene	19.51	<12	U
Benzo(k)Fluoranthene	19.58	<12	U
Benzo(e)Pyrene	20.26	<12	U
Benzo(a)Pyrene	20.39	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	24.29	17.8	M
Dibenzo(a,h/a,c)Anthracene	24.50	<12	U
Benzo(g,h,i)Perylene	25.34	17.5	
Additional Analytes			
Tetralin	2.75	201	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.05	17.6	
o-Terphenyl	NotFnd	<12	U
1-Methylphenanthrene	9.74	18.8	R B
9-Methylphenanthrene	9.86	<12	U
2-methylanthracene	9.93	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	NotFnd	<12	U
p-terphenyl	NotFnd	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	31.5
Fluorene D10	600	5.87	33.6
Terphenyl D14(Surr.)	600	13.05	32.7

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	27.3	50-150
2-Methylnaphthalene-D10	600	3.46	29.2	50-150
Acenaphthylene D8	600	4.65	29.9	50-150
Phenanthrene D10	600	8.11	29.1	50-150
Anthracene-D10	600	8.24	29.3	50-150
Fluoranthene D10	600	11.55	34.0	50-150
Benz(a)Anthracene-D12	600	16.10	33.3	50-150
Chrysene D12	600	16.21	30.9	50-150
Benzo(b)Fluoranthene-D12	600	19.45	33.8	50-150
Benzo(k)Fluoranthene-D12	600	19.53	27.4	50-150
Benzo(a)Pyrene D12	600	20.33	34.5	50-150
Perylene D12	600	20.57	30.1	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	35.9	50-150
Dibenz(a,h)Anthracene-D14	600	24.37	33.1	50-150
Benzo(g,h,i)Perylene D12	600	25.22	34.8	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-2215S8-SVOC-(6 THRU 10) TEST#2 #1 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-2	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-059.D
Run Date	6/2/2022 22:40
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	7900	
2-Methylnaphthalene	3.49	798	
1-Methylnaphthalene	3.61	329	
Acenaphthylene	4.67	17.7	R
Acenaphthene	4.98	19.5	
Fluorene	5.93	15.3	
Phenanthrene	8.17	76.5	
Anthracene	8.29	<12	U
Fluoranthene	11.60	36.3	M
Pyrene	12.25	62.5	M
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	19.51	<12	U
Benzo(k)Fluoranthene	19.58	<12	U
Benzo(e)Pyrene	20.26	<12	U
Benzo(a)Pyrene	20.38	<12	U
Perylene	20.67	<12	U
Indeno(1,2,3-cd)Pyrene	24.27	<12	U
Dibenzo(a,h/a,c)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	25.33	20.2	
Additional Analytes			
Tetralin	2.75	242	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.04	60.8	
o-Terphenyl	9.45	<12	U
1-Methylphenanthrene	9.74	17.7	M R B
9-Methylphenanthrene	9.86	<12	U
2-methylanthracene	9.93	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.63	<12	U
p-terphenyl	13.12	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	36.6
Fluorene D10	600	5.87	47.5
Terphenyl D14(Surr.)	600	13.0S	39.6

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	29.9	50-150
2-Methylnaphthalene-D10	600	3.45	35.1	50-150
Acenaphthylene D8	600	4.65	35.7	50-150
Phenanthrene D10	600	8.11	36.2	50-150
Anthracene-D10	600	8.24	36.2	50-150
Fluoranthene D10	600	11.55	42.7	50-150
Benz(a)Anthracene-D12	600	16.10	44.7	50-150
Chrysene D12	600	16.22	40.5	50-150
Benzo(b)Fluoranthene-D12	600	19.44	43.1	50-150
Benzo(k)Fluoranthene-D12	600	19.53	35.5	50-150
Benzo(a)Pyrene D12	600	20.32	41.2	50-150
Perylene D12	600	20.57	39.3	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	44.9	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	41.8	50-150
Benzo(g,h,i)Perylene D12	600	25.22	43.2	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(11 THRU 15) TEST#3 #1 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-3	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-060.D
Run Date	6/2/2022 23:18
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	314	M B
2-Methylnaphthalene	3.49	41.2	
1-Methylnaphthalene	3.61	23.0	M R
Acenaphthylene	4.67	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	45.1	
Anthracene	8.29	<12	U
Fluoranthene	11.60	<12	U
Pyrene	12.25	16.2	M
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h/a,c)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	NotFnd	<12	U
Additional Analytes			
Tetralin	2.75	195	M B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.04	44.6	
o-Terphenyl	9.46	<12	U
1-Methylphenanthrene	9.74	13.4	R B
9-Methylphenanthrene	9.86	<12	U
2-methylanthracene	9.93	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.63	<12	U
p-terphenyl	13.12	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	36.5
Fluorene D10	600	5.87	38.8 M
Terphenyl D14(Surr.)	600	13.05	38.4

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	37.8	50-150
2-Methylnaphthalene-D10	600	3.45	41.5	50-150
Acenaphthylene D8	600	4.65	41.9	50-150
Phenanthrene D10	600	8.11	40.6	50-150
Anthracene-D10	600	8.24	40.7	50-150
Fluoranthene D10	600	11.55	47.9	50-150
Benz(a)Anthracene-D12	600	16.10	50.9	50-150
Chrysene D12	600	16.21	46.7	50-150
Benzo(b)Fluoranthene-D12	600	19.45	47.7	50-150
Benzo(k)Fluoranthene-D12	600	19.53	39.1	50-150
Benzo(a)Pyrene D12	600	20.32	45.7	50-150
Perylene D12	600	20.57	44.5	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	48.8	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	50.9 M	50-150
Benzo(g,h,i)Perylene D12	600	25.22	51.8 M	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(16 THRU 20) BLANK1 #1 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-4	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-061.D
Run Date	6/2/2022 23:56
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	386	B
2-Methylnaphthalene	3.49	58.9	
1-Methylnaphthalene	3.61	28.4	
Acenaphthylene	4.67	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	25.7	
Anthracene	8.28	<12	U
Fluoranthene	11.60	<12	U
Pyrene	12.25	<12	U
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	20.37	<12	U
Perylene	20.67	<12	U
Indeno(1,2,3-cd)Pyrene	24.27	<12	U
Dibenzo(a,h/a,c)Anthracene	24.48	<12	U
Benzo(g,h,i)Perylene	25.33	<12	U
Additional Analytes			
Tetralin	2.76	208 M	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.05	<12	U
o-Terphenyl	NotFnd	<12	U
1-Methylphenanthrene	9.74	175	R B
9-Methylphenanthrene	NotFnd	<12	U
2-methylanthracene	NotFnd	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	NotFnd	<12	U
p-terphenyl	NotFnd	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	94.2
Fluorene D10	600	5.87	92.2
Terphenyl D14(Surr.)	600	13.05	98.6

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	87.3	50-150
2-Methylnaphthalene-D10	600	3.46	102.4	50-150
Acenaphthylene D8	600	4.65	101.1	50-150
Phenanthrene D10	600	8.11	96.5	50-150
Anthracene-D10	600	8.24	92.1	50-150
Fluoranthene D10	600	11.55	111.9	50-150
Benz(a)Anthracene-D12	600	16.10	143.2	50-150
Chrysene D12	600	16.21	108.0	50-150
Benzo(b)Fluoranthene-D12	600	19.44	123.8	50-150
Benzo(k)Fluoranthene-D12	600	19.53	105.7	50-150
Benzo(a)Pyrene D12	600	20.32	116.8	50-150
Perylene D12	600	20.57	126.6	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	131.0	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	126.1	50-150
Benzo(g,h,i)Perylene D12	600	25.21	114.8	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(21 THRU 25) TEST#1 #2 APC OUTLET**		Sampling Date	18-May-22	
ALS Sample ID	L2708349-5		Extraction Date	27-May-22	
Analysis Method	PAH by CARB 429				
Analysis Type	sample				
Sample Matrix	Stack				
Sample Size	1	sample			
Percent Moisture	n/a				
Split Ratio	6		Workgroup	WG3730529	

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-062.D
Run Date	6/3/2022 0:34
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	348	B
2-Methylnaphthalene	3.49	46.1	
1-Methylnaphthalene	3.61	24.1	M R
Acenaphthylene	4.67	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	45.0	
Anthracene	8.28	<12	U
Fluoranthene	11.60	<12	U
Pyrene	12.25	<12	U
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h/a,c)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	25.34	<12	U
Additional Analytes			
Tetralin	2.75	185	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.04	13.9	M
o-Terphenyl	9.46	<12	U
1-Methylphenanthrene	9.74	17.4	R B
9-Methylphenanthrene	9.86	<12	U
2-methylanthracene	9.93	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.63	<12	U
p-terphenyl	13.12	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	38.7
Fluorene D10	600	5.87	53.9
Terphenyl D14(Surr.)	600	13.05	41.6

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	45.3	50-150
2-Methylnaphthalene-D10	600	3.45	50.7	50-150
Acenaphthylene D8	600	4.65	52.8	50-150
Phenanthrene D10	600	8.11	50.1	50-150
Anthracene-D10	600	8.24	52.0	50-150
Fluoranthene D10	600	11.55	59.6	50-150
Benz(a)Anthracene-D12	600	16.10	64.6	50-150
Chrysene D12	600	16.21	54.4	50-150
Benzo(b)Fluoranthene-D12	600	19.44	60.1	50-150
Benzo(k)Fluoranthene-D12	600	19.53	49.9	50-150
Benzo(a)Pyrene D12	600	20.32	56.8	50-150
Perylene D12	600	20.57	58.8	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	65.3	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	61.8	50-150
Benzo(g,h,i)Perylene D12	600	25.21	61.2	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(26 THRU 30) TEST#2 #2 APC OUTLET**	Sampling Date	18-May-22
ALS Sample ID	L2708349-6	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-063.D
Run Date	6/3/2022 1:12
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	318	B
2-Methylnaphthalene	3.49	43.6	
1-Methylnaphthalene	3.61	22.9	R
Acenaphthylene	4.68	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	44.5	
Anthracene	8.28	<12	U
Fluoranthene	11.60	<12	U
Pyrene	12.25	<12	U
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h/a,c)Anthracene	24.48	<12	U
Benzo(g,h,I)Perylene	25.32	<12	U
Additional Analytes			
Tetralin	2.75	158 M	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.04	13.4 M	
o-Terphenyl	9.46	<12	U
1-Methylphenanthrene	9.74	16.3	R B
9-Methylphenanthrene	9.86	<12	U
2-methylanthracene	9.93	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.63	<12	U
p-terphenyl	13.11	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	37
Fluorene D10	600	5.87	49.2
Terphenyl D14(Surr.)	600	13.05	38.2

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	50.1	50-150
2-Methylnaphthalene-D10	600	3.46	54.4	50-150
Acenaphthylene D8	600	4.65	56.1	50-150
Phenanthrene D10	600	8.11	53.8	50-150
Anthracene-D10	600	8.24	55.3	50-150
Fluoranthene D10	600	11.55	64.0	50-150
Benz(a)Anthracene-D12	600	16.10	66.1	50-150
Chrysene D12	600	16.21	57.1	50-150
Benzo(b)Fluoranthene-D12	600	19.45	64.9	50-150
Benzo(k)Fluoranthene-D12	600	19.53	52.7	50-150
Benzo(a)Pyrene D12	600	20.33	59.6	50-150
Perylene D12	600	20.56	62.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	67.4	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	64.1	50-150
Benzo(g,h,i)Perylene D12	600	25.22	65.8	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(31 THRU 35) TEST#3 #2 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-7	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-064.D
Run Date	6/3/2022 1:50
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	395	B
2-Methylnaphthalene	3.49	53.6	
1-Methylnaphthalene	3.61	29.5	M R
Acenaphthylene	4.67	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.93	<12	U
Phenanthrene	8.17	56.6	
Anthracene	8.29	<12	U
Fluoranthene	11.60	13.9	
Pyrene	12.25	14.8	M
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	24.27	12.4	M
Dibenzo(a,h/a,c)Anthracene	24.50	<12	U
Benzo(g,h,i)Perylene	25.33	<12	U
Additional Analytes			
Tetralin	2.75	213	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.05	20.6	
o-Terphenyl	NotFnd	<12	U
1-Methylphenanthrene	9.74	21.5	R B
9-Methylphenanthrene	9.86	<12	U
2-methylanthracene	9.93	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.63	<12	U
p-terphenyl	NotFnd	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.57	45.4
Fluorene D10	600	5.87	61.4
Terphenyl D14(Surr.)	600	13.05	47.8

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	32.0	50-150
2-Methylnaphthalene-D10	600	3.46	34.8	50-150
Acenaphthylene D8	600	4.65	35.2	50-150
Phenanthrene D10	600	8.11	33.5	50-150
Anthracene-D10	600	8.24	33.6	50-150
Fluoranthene D10	600	11.55	39.5	50-150
Benz(a)Anthracene-D12	600	16.10	40.0	50-150
Chrysene D12	600	16.21	37.1	50-150
Benzo(b)Fluoranthene-D12	600	19.44	39.3	50-150
Benzo(k)Fluoranthene-D12	600	19.53	32.9	50-150
Benzo(a)Pyrene D12	600	20.33	39.3	50-150
Perylene D12	600	20.57	38.0	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.20	42.7	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	46.5 M	50-150
Benzo(g,h,i)Perylene D12	600	25.22	46.8 M	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-SVOC-(36 THRU 40) BLANK2 #2 APC OUTLET**	Sampling Date	19-May-22
ALS Sample ID	L2708349-8	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-057.D
Run Date	6/2/2022 21:23
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US1509936H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	197	M B
2-Methylnaphthalene	3.49	19.7	M R
1-Methylnaphthalene	3.61	12.5	
Acenaphthylene	4.67	<12	U
Acenaphthene	4.98	<12	U
Fluorene	5.91	<12	U
Phenanthrene	8.17	<12	U
Anthracene	8.28	<12	U
Fluoranthene	11.60	<12	U
Pyrene	12.25	<12	U
Benzo(a)Anthracene	NotFnd	<12	U
Chrysene/Triphenylene	NotFnd	<12	U
Benzo(b)Fluoranthene	NotFnd	<12	U
Benzo(k)Fluoranthene	NotFnd	<12	U
Benzo(e)Pyrene	NotFnd	<12	U
Benzo(a)Pyrene	20.37	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h/a,c)Anthracene	24.51	<12	U
Benzo(g,h,i)Perylene	NotFnd	<12	U
Additional Analytes			
Tetralin	2.76	183	M B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	4.05	<12	U
o-Terphenyl	NotFnd	<12	U
1-Methylphenanthrene	9.74	212	R B
9-Methylphenanthrene	NotFnd	<12	U
2-methylanthracene	NotFnd	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	NotFnd	<12	U
p-terphenyl	NotFnd	<12	U
Benzo(a)fluorene	NotFnd	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracen	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	NotFnd	<60	U
Coronene	NotFnd	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**	
1-Methylnaphthalene-D10	600	3.57	93.8	
Fluorene D10	600	5.87	87.9	
Terphenyl D14(Surr.)	600	13.05	103.7	
Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	87.7	50-150
2-Methylnaphthalene-D10	600	3.46	101.7	50-150
Acenaphthylene D8	600	4.65	96.8	50-150
Phenanthrene D10	600	8.11	98.1	50-150
Anthracene-D10	600	8.24	92.7	50-150
Fluoranthene D10	600	11.55	113.5	50-150
Benz(a)Anthracene-D12	600	16.10	142.3	50-150
Chrysene D12	600	16.21	109.8	50-150
Benzo(b)Fluoranthene-D12	600	19.44	120.8	50-150
Benzo(k)Fluoranthene-D12	600	19.53	106.8	50-150
Benzo(a)Pyrene D12	600	20.33	109.4	50-150
Perylene D12	600	20.57	118.4	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	140.5	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	135.8	50-150
Benzo(g,h,i)Perylene D12	600	25.22	124.4	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3730529-2	Extraction Date	27-May-22
Analysis Method	PAH by CARB 429		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3730529

Approved:
Peter Nguyen
--e-signature--
08-Jun-2022

Run Information	**Run 1**
Filename	PAH220601-053.D
Run Date	6/2/2022 18:51
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5M5 US1509936H

Target Analytes	**ug spiked**	**Ret. Time**	**%**	**Flags**	**Limits**
Naphthalene	600	2.88	127.9	M B	50-150
2-Methylnaphthalene	600	3.49	104.6		50-150
1-Methylnaphthalene	600	3.61	107.1		50-150
Acenaphthylene	600	4.67	107.3		50-150
Acenaphthene	600	4.98	95.3		50-150
Fluorene	600	5.93	99.6		50-150
Phenanthrene	600	8.17	107.2		50-150
Anthracene	600	8.29	103.8		50-150
Fluoranthene	600	11.60	100.7		50-150
Pyrene	600	12.25	100.2		50-150
Benzo(a)Anthracene	600	16.17	91.7		50-150
Chrysene/Triphenylene	600	16.29	106.8		50-150
Benzo(b)Fluoranthene	600	19.51	99.4		50-150
Benzo(k)Fluoranthene	600	19.58	107.6	R	50-150
Benzo(e)Pyrene	600	20.26	103.7		50-150
Benzo(a)Pyrene	600	20.39	96.7		50-150
Perylene	600	20.64	87.5		50-150
Indeno(1,2,3-cd)Pyrene	600	24.27	97.2		50-150
Dibenzo(a,h/a,c)Anthracene	600	24.49	91.7		50-150
Benzo(g,h,i)Perylene	600	25.33	97.3		50-150

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	98.4	30-150
2-Methylnaphthalene-D10	600	3.45	110.3	30-150
Acenaphthylene D8	600	4.65	105.2	30-150
Phenanthrene D10	600	8.11	106.8	50-150
Anthracene-D10	600	8.24	104.2	50-150
Fluoranthene D10	600	11.55	123.0	50-150
Benz(a)Anthracene-D12	600	16.10	152.4	50-150
Chrysene D12	600	16.21	128.0	50-150
Benzo(b)Fluoranthene-D12	600	19.44	124.5	50-150
Benzo(k)Fluoranthene-D12	600	19.53	112.4	50-150
Benzo(a)Pyrene D12	600	20.32	122.6	30-150
Perylene D12	600	20.57	123.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	24.19	138.3	50-150
Dibenz(a,h)Anthracene-D14	600	24.36	140.1	50-150
Benzo(g,h,i)Perylene D12	600	25.21	131.5	50-150

M	Indicates that a peak has been manually integrated.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
NS	Indicates that the compound was not added to the sample

APPENDIX 16

Acid Gas Recovery Data Sheets
(8 pages)

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	MAY 17, 22
Test No.:	1
Test Location:	U1

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	646.4
Initial Wt:	745.8
Final Wt:	866.5
1 Gain:	120.7
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	678.0
Initial Wt:	778.0
Final Wt:	800.0
2 Gain:	22.0
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	480.5
Final Wt:	483.5
3 Gain:	3.0
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	286.0
With Imp. 1,2,3 Soln:	627.5
After Rinse:	702.0
Total TS3:	416.0

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	~~917.7~~ 917.5
Final Wt:	928.7
4 Gain:	11.2

Box ID:

CWTR = 1+2+3:	145.7
WCBDA= 4:	11.2 ✓

SAMPLE ID: 22-22158-M26A- 1

Train Loaded By:

Train Recovered By:

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	MAY 17, 22
Test No.:	2
Test Location:	U 1

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	666.8
Initial Wt:	767.0
Final Wt:	890.0
1 Gain:	123.0
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	650.2
Initial Wt:	755.0
Final Wt:	780.5
2 Gain:	25.5
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	595.9
Final Wt:	599.0
3 Gain:	3.1
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	256.0
With Imp. 1,2,3 Soln:	645.0
After Rinse:	754.5
Total TS3:	498.5

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	953.7
Final Wt:	964.3
4 Gain:	10.6

Box ID:

CWTR = 1+2+3:	151.6 ✓
WCBDA= 4:	10.6

SAMPLE ID: 22-22158-M26A- 2

Train Loaded By:

Train Recovered By: DT

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	May 17/22
Test No.:	3
Test Location:	U1

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	646.5
Initial Wt:	746.0
Final Wt:	884.3
1 Gain:	138.3
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	678.0
Initial Wt:	778.5
Final Wt:	805.0
2 Gain:	26.5
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	480.5
Final Wt:	484.0
3 Gain:	3.5
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	285.0
With Imp. 1,2,3 Soln:	648.8
After Rinse:	753.3
Total TS3:	468.3

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	728.7
Final Wt:	940.0
4 Gain:	11.3

Box ID:

CWTR = 1+2+3:	168.3 ✓
WCBDA= 4:	11.3

SAMPLE ID: 22-22158-M26A- 3

Train Loaded By:

Train Recovered By:

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	MAY 16, 22
Test No.:	1
Test Location:	U 2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	664.7
Initial Wt:	766.4
Final Wt:	854.0
1 Gain:	~~87.3~~ 87.6
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	648.5
Initial Wt:	751.0
Final Wt:	790.2
2 Gain:	39.2
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	593.2
Final Wt:	599.4
3 Gain:	6.2
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.5
With Imp. 1,2,3 Soln:	814.0
After Rinse:	705.5
Total TS3:	

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	1024.0
Final Wt:	1038.6
4 Gain:	14.6

Box ID:

CWTR = 1+2+3:	~~132.7~~ 133.0
WCBDA= 4:	14.6

SAMPLE ID: 22-22158-M26A- 4

Train Loaded By: DT

Train Recovered By: DT

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	MAY 16, 22
Test No.:	2
Test Location:	U 2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	646.4
Initial Wt:	759.0
Final Wt:	868.3
1 Gain:	109.3
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	678.0
Initial Wt:	667.0
Final Wt:	690.1
2 Gain:	23.1
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	480.4
Final Wt:	484.4
3 Gain:	4.0
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	285.0
With Imp. 1,2,3 Soln:	619.7
After Rinse:	690.4
Total TS3:	

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	928.0
Final Wt:	939.7
4 Gain:	11.7

Box ID:

CWTR = 1+2+3:	136.4 ✓
WCBDA= 4:	11.7

SAMPLE ID: 22-22158-M26A- 5

Train Loaded By:

Train Recovered By: BT

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	MAY 16, 22
Test No.:	3
Test Location:	U2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	664.7
Initial Wt:	764.4
Final Wt:	887.7
1 Gain:	123.3
Colour:	clear

Impinger #2 0.1 N H_2SO4	
Empty Wt:	648.5
Initial Wt:	748.1
Final Wt:	781.4
2 Gain:	33.3
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	593.2
Final Wt:	599.2
3 Gain:	6.0
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	285.0
With Imp. 1,2,3 Soln:	642.3
After Rinse:	765.5
Total TS3:	480.5

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	935.5
Final Wt:	953.9
4 Gain:	18.4

Box ID:

CWTR = 1+2+3:	162.6 ✓
WCBDA= 4:	18.4

SAMPLE ID: 22-22158-M26A- 1

Train Loaded By:

Train Recovered By: BT

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22158
Date:	MAY 17, 22
Test No.:	BLANK 1
Test Location:	—

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	
Initial Wt:	
Final Wt:	
1 Gain:	
Colour:	

Impinger #2 0.1 N H_2SO4	
Empty Wt:	
Initial Wt:	
Final Wt:	
2 Gain:	
Colour:	

Impinger #3 EMPTY	
Empty Wt:	
Final Wt:	
3 Gain:	
Colour:	

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.0
With Imp. 1,2,3 Soln:	484.0
After Rinse:	585.5
Total TS3:	301.5

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	
Final Wt:	
4 Gain:	

Box ID:

CWTR = 1+2+3:	
WCBDA= 4:	

SAMPLE ID: 22-22158-M26A- BLANK 1

Train Loaded By:

Train Recovered By: DT

ORTECH Consulting Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC

Project No.: 22158

Date: MAY 17/22

Test No.: BLANK 2

Test Location:

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO4	
Empty Wt:	
Initial Wt:	
Final Wt:	
1 Gain:	
Colour:	

Impinger #2 0.1 N H_2SO4	
Empty Wt:	
Initial Wt:	
Final Wt:	
2 Gain:	
Colour:	

Impinger #3 EMPTY	
Empty Wt:	
Final Wt:	
3 Gain:	
Colour:	

CONTAINER TS3 WEIGHTS	
Empty Wt:	286.0
With Imp. 1,2,3 Soln:	486.0
After Rinse:	586.5
Total TS3:	300.5

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	
Final Wt:	
4 Gain:	

Box ID:

CWTR = 1+2+3:

WCBDA= 4:

SAMPLE ID: 22-22158-M26A-BLANK 2

Train Loaded By:

Train Recovered By: BT

APPENDIX 17

VOST Analytical Reports
(4 pages)

ALS Environmental

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708341 Revision 1		Mississauga, ON L5J2Y4
Date of Report	28-Jun-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **VOCs via SW846 Method 5041A/8260C**
REVISED REPORT: To include chlorobenzene data

Ketone data by VOST analyses are estimated values only

Field and Trip blanks show the presence of significant levels of VOCs especially for dichloromethane (methylene chloride) and toluene. For selected targets including dichloromethane and toluene are at simiilar levels in the trip/field blanks as in the field samples. Dichloromethane and toluene generally exceed the instrument calibration range of 2ug per target. These E-flagged values are estimated.

Low internal standard recoveries were observed on sample L2708341-2 due to high levels of intrained water in the traps. For samples L2708341-1 and -6, the tubes broke before desorption. The media was repacked for desorption.

Samples were analyzed 1 to 2 days over the recommended 14 day hold time. No significant impact to data quality is anticipated for these minor exceedences.

Certified by: _____
Ron McLeod, Ph.D.
Technical Director

ALS Environmental

Sample Analysis Summary Report

Sample Name	22-22158-VOST-5A,B TEST#1 #1 APC OUTLET		22-22158-VOST-6A,B TEST#2 #1 APC OUTLET		22-22158-VOST-4A,B TEST#3 #1 APC OUTLET		22-22158-VOST-3A,B TEST#4 #1 APC OUTLET		22-22158-VOST-10A,B FIELD BLANK #1 APC		22-22158-VOST-12A,B TEST#1 #2 APC OUTLET	
ALS Sample ID	L2708341-1		L2708341-2		L2708341-3		L2708341-4		L2708341-5		L2708341-6	
Sample units	sample		sample		sample		sample		sample		sample	
Matrix	VOST		VOST		VOST		VOST		VOST		VOST	
Sampling Date	18-May-22		18-May-22		18-May-22		18-May-22		18-May-22		18-May-22	
Extraction Date	2-Jun-22		3-Jun-22		3-Jun-22		3-Jun-22		2-Jun-22		2-Jun-22	
Target Analytes	**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**	
Dichlorodifluoromethane	0.07		0.205		0.203		0.16		0.32		0.094	
Vinyl Chloride	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U	0.023	
Bromomethane	0.287		<0.09	U	0.157		0.635		0.431		0.186	
Trichlorofluoromethane	0.039		0.043		0.072		0.091		0.269	M	0.065	
1,1-Dichloroethene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Acetone	0.437		0.208	M	0.267		0.367		0.845		0.413	
Methylene Chloride	20.6	M,E	38.8	M,E	10.8	E	8.09	E	24.4	M,E	1.50	
trans,1,2-Dichloroethene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	0.01	M	0.012	M
2-Butanone	0.848		0.442		0.107		0.243		1.114		0.147	
Chloroform	0.058		0.041		0.055		0.061		0.013		0.051	
1,1,1-Trichloroethane	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Carbon Tetrachloride	0.028		0.024		0.026		0.062		0.017		0.03	
Benzene	0.099		0.126		0.13		0.428		0.112		0.112	
1,2-Dichloroethane	0.014		0.011		0.011		0.025		<0.01	U	<0.01	U
Trichloroethene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
1,2-Dichloropropane	0.031		0.039	M	0.023		0.049		0.03		<0.01	U
Bromodichloromethane	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Toluene	7.17	M,E	13.8	M,E	3.86	E	4.22	E	6.93	M,E	0.759	
1,1,2-Trichloroethane	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
Tetrachloroethene	0.012		0.011		0.011		0.023		<0.01	U	0.015	
Chlorodibromomethane	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Ethylene Dibromide	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
Chlorobenzene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Ethylbenzene	0.042		0.06		0.077		0.298		0.046		0.019	M
M&P-Xylene	0.18		0.219		0.334		1.508		0.187		0.068	M
O-Xylene	0.06		0.065		0.101		0.49		0.062		0.017	M
Styrene	0.029		0.043		0.046		0.139		0.033		<0.02	U
Bromoform	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Isopropylbenzene	<0.02	U	<0.02	U	<0.02	U	0.053	M	<0.02	U	<0.02	U
1,3,5-Trimethylbenzene	0.025		0.028		0.036		0.133		0.025		<0.02	U
Trichlorotrifluoroethane	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
1,3-Butadiene	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
Field Standard	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
d10-Ethylbenzene(SPK)	80.8		109.4		155.1		182		86.3		177.1	
Surrogate Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
d4-1,2-Dichloroethane(SURR)	80.1		68.2		87.5		84.1		79.3		82.8	
d8-Toluene(SURR)	123.1		115.6		107.2		106.6		125.4		125	
4-Bromofluorobenzene(SURR)	120		133.1		124.8		130.6		113.4		117.6	
Internal Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Bromochloromethane	57.5		33.5	L	52.3		52.2		61		45.3	L
1,4-Difluorobenzene	99.3		43.5	L	99.9		97.5		106.6		108.9	
d5-Chlorobenzene	115.2		40.6	L	107.3		106.3		113.2		120.3	

U Indicates that this compound was not detected above the RL.

M Indicates that a peak has been manually integrated.

L Indicates this value is below the control limit.

E Indicates Estimated value. Instrument response exceeds instrument calibration range of 1.0 ug.

ALS Environmental

Sample Analysis Summary Report

Sample Name	22-2215B-VOST-13A,B TEST#2 #2 APC OUTLET		22-22158-VOST-14A,B TEST#3 #2 APC OUTLET		22-22158-VOST-15A,B TEST#4 #2 APC OUTLET		22-22158-VOST-9A,B FIELD BLANK #2 APC		22-22158-VOST-16A,B TRIP BLANK	
ALS Sample ID	L2708341-7		L2708341-8		L2708341-9		L2708341-10		L2708341-11	
Sample units	sample		sample		sample		sample		sample	
Matrix	VOST		VOST		VOST		VOST		VOST	
Sampling Date	18-May-22		18-May-22		18-May-22		18-May-22		19-May-22	
Extraction Date	3-Jun-22		6-Jun-22		3-Jun-22		2-Jun-22		2-Jun-22	
Target Analytes	**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**	
Dichlorodifluoromethane	0.046		0.222		0.025		0.121		0.029	
Vinyl Chloride	<0.02	U	0.024	M	<0.02	U	<0.02	U	<0.02	U
Bromomethane	0.312		3.102	E	0.27		0.173		<0.09	U
Trichlorofluoromethane	<0.02	U	0.059		<0.02	U	<0.02	U	<0.02	U
1,1-Dichloroethene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Acetone	0.151		1.182		0.131	M	0.496		0.518	
Methylene Chloride	15.4	M,E	5.05	E	13.1	M,E	16.9	M,E	13.3	M,E
trans,1,2-Dichloroethene	<0.01	U	0.014		<0.01	U	<0.01	U	<0.01	U
2-Butanone	0.404		0.581		0.481		0.871		0.644	
Chloroform	0.041		0.045		0.045		<0.01	U	<0.01	U
1,1,1-Trichloroethane	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Carbon Tetrachloride	0.015		0.031		0.018		0.013		0.015	
Benzene	0.072		0.246		0.076		0.102		0.105	
1,2-Dichloroethane	<0.01	U	0.027		<0.01	U	<0.01	U	<0.01	U
Trichloroethene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
1,2-Dichloropropane	<0.01	U	<0.01	U	0.028		0.033		0.038	
Bromodichloromethane	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Toluene	4.657	M,E	2.169		6.272	M,E	6.781	M,E	7.738	M,E
1,1,2-Trichloroethane	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
Tetrachloroethene	<0.01	U	0.013		<0.01	U	<0.01	U	<0.01	U
Chlorodibromomethane	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Ethylene Dibromide	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
Chlorobenzene	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Ethylbenzene	0.03		0.114		0.039		0.042		0.05	
M&P-Xylene	0.119		0.499		0.15		0.163		0.197	
O-Xylene	0.043		0.147		0.054		0.053		0.068	
Styrene	0.02		0.064		0.024		0.033		0.042	
Bromoform	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U
Isopropylbenzene	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
1,3,5-Trimethylbenzene	<0.02	U	0.045		0.024		0.023		0.028	
Trichlorotrifluoroethane	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
1,3-Butadiene	<0.02	U	<0.02	U	<0.02	U	<0.02	U	<0.02	U
Field Standard	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
d10-Ethylbenzene(SPK)	62.5		156.1		85.4		95.7		105.3	
Surrogate Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
d4-1,2-Dichloroethane(SURR)	80.9		64.1		83.1		81.7		79	
d8-Toluene(SURR)	103		114.2		100.1		123.7		122	
4-Bromofluorobenzene(SURR)	120.1		128.7		120.9		114.7		121.3	
Internal Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Bromochloromethane	84.7		68.5		83.8		93.4		110.8	
1,4-Difluorobenzene	137.8		150.4		114.4		107.6		87.6	
d5-Chlorobenzene	154.8		159.5		129		119.4		97.1	

U Indicates that this compound was not detected above the RL.

M Indicates that a peak has been manually integrated.

L Indicates this value is below the control limit.

E Indicates Estimated value. Instrument response exceeds instrument calibration range of 1.0 ug.

ALS Environmental

Sample Analysis Summary Report

Sample Name	Method Blank		Laboratory Control Sample	
ALS Sample ID	WG3734532-4		WG3734532-5	
Sample units	sample		n/a	
Matrix	QC		QC	
Sampling Date	n/a		n/a	
Extraction Date	2-Jun-22		2-Jun-22	
Target Analytes	**% Rec**		**% Rec**	
Dichlorodifluoromethane	<0.02	U	126.1	
Vinyl Chloride	<0.02	U	102.8	
Trichlorofluoromethane	<0.02	U	57.9	
1,1-Dichloroethene	<0.01	U	68.9	
Methylene Chloride	<0.1	U	65.3	M
trans,1,2-Dichloroethene	<0.01	U	71.7	
1,1,1-Trichloroethane	<0.01	U	68.8	
Benzene	<0.05	U	99.5	
1,2-Dichloroethane	<0.01	U	105.4	
Trichloroethene	<0.01	U	107.5	
1,2-Dichloropropane	<0.01	U	105.2	
Toluene	<0.05	U	124.7	
1,1,2-Trichloroethane	<0.02	U	126.9	
Tetrachloroethene	<0.01	U	123.3	
Ethylene Dibromide	<0.02	U	117.4	
Chlorobenzene	<0.01	U	123.5	
Ethylbenzene	<0.01	U	126.1	
M&P-Xylene	<0.03	U	129.2	
O-Xylene	<0.01	U	127.6	
Styrene	<0.02	U	127.1	
1,3,5-Trimethylbenzene	<0.02	U	133	
Trichlorotrifluoroethane	<0.02	U		
1,3-Butadiene	<0.02	U		
Field Standard	**% Rec**		**% Rec**	
d10-Ethylbenzene(SPK)	116.8		109.8	
Surrogate Standards	**% Rec**		**% Rec**	
d4-1,2-Dichloroethane(SURR)	85.7	M	91.8	
d8-Toluene(SURR)	127.7		131.9	
4-Bromofluorobenzene(SURR)	96.3		114	
Internal Standards	**% Rec**		**% Rec**	
Bromochloromethane	12.7	L	80.7	
1,4-Difluorobenzene	26.9	ML	111.2	
d5-Chlorobenzene	30.2	L	113.1	

U Indicates that this compound was not detected above the RL.
M Indicates that a peak has been manually integrated.

L Indicates this value is below the control limit.

APPENDIX 18

Aldehydes Recovery Data Sheet
(1 page)

ORTECH Consulting Inc. - Recovery & Sample Log
NCASI Method ISS/FP-A105.01

Client: Covanata DYEC
Job/Report Number: 22158
Received By: Chris Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO #: 22158-J2843

L2708367-COFC

Test Number	Test Location	ORTECH Sample ID 22-22158-	Date Sampled	ID of BHA Sample Bottle	Empty Weight BHA Sample Bottle (g)	Initial Weight Sample Bottle + BHA (g)	Final Weight of BHA Sample Bottle (g)	Weight of Sample Bottle BHA & H2O (g)	Weight of Sample Bottle BHA & H2O & Hexane (g)
1	APC Outlet #1	ALD-1	May 18, 2022	ALD-1	109.7	160.0	162.5	172	172.1
2	APC Outlet #1	ALD-2	"	ALD-2	113.9	164.3	166.1	170.9	174.6
3	APC Outlet #1	ALD-4	"	ALD-4	109.3	158.3	164.8	169.5	174.4
Blank 1	APC Outlet #1	Blank 1	"	ALD-3	112.5	161.4	163.4	163.4	171.0
1	APC Outlet #2	ALD-5	May 18, 2022	ALD-5	110.1	158.8	161.2	168.8	175.5
2	APC Outlet #2	ALD-6	May 18, 2022	ALD-6	109.6	160.2	162.7	166.6	173.2
3	APC Outlet #2	ALD-7	"	ALD-7	108.7	161.1	163.1	169.6	175.7
Blank 2	APC Outlet #2	Blank 2	"	ALD-8	111.2	163.4	163.1	169.6	173.2
				ALD-9	109.1	161.6			
	Field BHA&Spike		na	na	na	na	na	na	na
	BHA Blank		na	na	na	na	na	na	na
				ALD-10	110.1	161.0			

Analyze each sample for Acetaldehyde, Formaldehyde, Acrolein.

Relinquished by: _____ Date: May 20/22

Relinquished to: AARAV BHUTA Date: 20-MAY-2022 11:30 9.9°C

APPENDIX 19

Aldehydes Analytical Reports
(14 pages)

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2708367		Mississauga, ON L5J 2Y4
Date of Report	13-Jun-22		Canada
Date of Sample Receipt	20-May-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **Aldehydes as benzyloxime derivatives by SIM GC/MS**

Certified by:

Ron McLeod, PhD
Laboratory Manager and Technical Director

ALS Environmental

Sample Analysis Summary Report

Sample Name	Method Blank		22-22158-ALD-1 TEST#1 APC OUTLET #1		22-22158-ALD-2 TEST#2 APC OUTLET #1		22-22158-ALD-4 TEST#3 APC OUTLET #1		22-22158-ALD-3 BLANK1 APC OUTLET #1		22-22158-ALD-5 TEST#1 APC OUTLET #2	
ALS Sample ID	WG3730546-1		L2708367-1		L2708367-2		L2708367-3		L2708367-4		L2708367-5	
Sample Size	1		1		1		1		1		1	
Sample units	Sample		Train		Train		Train		Train		Train	
Moisture Content	n/a		n/a		n/a		n/a		n/a		n/a	
Matrix	QC		Stack		Stack		Stack		Stack		Stack	
Sampling Date	n/a		18-May-22		18-May-22		18-May-22		18-May-22		18-May-22	
Extraction Date	7-Jun-22		7-Jun-22		7-Jun-22		7-Jun-22		7-Jun-22		7-Jun-22	
Target Analytes	**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**		**ug/sample**	
Formaldehyde	0.36		0.82		0.59		0.52		0.57		1.17	
Acetaldehyde	<0.1	U	1.27		1.09		1.09		<0.1	U	1.26	
Acrolein	<0.1	U	<0.1	U	<0.1	U	<0.1	U	<0.1	U	<0.1	U

U Indicates that this compound was not detected above the LOD.

ALS Environmental

Sample Analysis Summary Report

Sample Name	22-22158-ALD-6 TEST#2 APC OUTLET #2		22-22158-ALD-7 TEST#3 APC OUTLET #2		22-22158-ALD-8 BLANK2 APC OUTLET #2		Laboratory Control Sample (5ug)	Laboratory Control Sample (1ug)
ALS Sample ID	L2708367-6		L2708367-7		L2708367-8		WG3730546-2	WG3730546-4
Sample Size	1		1		1		1	1
Sample units	Train		Train		Train		n/a	n/a
Moisture Content	n/a		n/a		n/a		n/a	n/a
Matrix	Stack		Stack		Stack		QC	QC
Sampling Date	18-May-22		18-May-22		18-May-22		n/a	n/a
Extraction Date	7-Jun-22		7-Jun-22		7-Jun-22		7-Jun-22	7-Jun-22
Target Analytes	**ug/sample**		**ug/sample**		**ug/sample**		**% Rec**	**% Rec**
Formaldehyde	0.56		0.60		0.96		108	56
Acetaldehyde	1.19		2.30		<0.1	U	98	145
Acrolein	<0.1	U	<0.1	U	<0.1	U	61	26

U Indicates that this compound was not detected above the LOD.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3730546-1	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061006.D
Run Date	6/10/2022 18:11
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.21	0.36		
Acetaldehyde (B)	NotFnd	<0.1	U	
Acetaldehyde (A)	NotFnd	<0.1	U	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.36
Acetaldehyde	<0.1
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-1 TEST#1 APC OUTLET #1**	Sampling Date	18-May-22
ALS Sample ID	L2708367-1	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061009.D
Run Date	6/10/2022 20:12
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	0.82		
Acetaldehyde (B)	14.30	0.48		
Acetaldehyde (A)	14.65	0.79		
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.82
Acetaldehyde	1.27
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-2 TEST#2 APC OUTLET #1**	Sampling Date	18-May-22
ALS Sample ID	L2708367-2	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061010.D
Run Date	6/10/2022 20:52
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	0.59		
Acetaldehyde (B)	14.32	0.42		
Acetaldehyde (A)	14.66	0.67		
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.59
Acetaldehyde	1.09
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-4 TEST#3 APC OUTLET #1**	Sampling Date	18-May-22
ALS Sample ID	L2708367-3	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061011.D
Run Date	6/10/2022 21:32
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	0.52		
Acetaldehyde (B)	14.33	0.42		
Acetaldehyde (A)	14.67	0.67		
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.52
Acetaldehyde	1.09
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-3 BLANK1 APC OUTLET #1**	Sampling Date	18-May-22
ALS Sample ID	L2708367-4	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061007.D
Run Date	6/10/2022 18:51
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	0.57		
Acetaldehyde (B)	NotFnd	<0.1	U	
Acetaldehyde (A)	NotFnd	<0.1	U	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.57
Acetaldehyde	<0.1
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-5 TEST#1 APC OUTLET #2**	Sampling Date	18-May-22
ALS Sample ID	L2708367-5	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061012.D
Run Date	6/10/2022 22:12
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	1.17		
Acetaldehyde (B)	14.35	0.5		
Acetaldehyde (A)	14.69	0.76		
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	1.17
Acetaldehyde	1.26
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-6 TEST#2 APC OUTLET #2**	Sampling Date	18-May-22
ALS Sample ID	L2708367-6	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061013.D
Run Date	6/10/2022 22:53
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	0.56		
Acetaldehyde (B)	14.33	0.47		
Acetaldehyde (A)	14.67	0.72		
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.56
Acetaldehyde	1.19
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-7 TEST#3 APC OUTLET #2**	Sampling Date	18-May-22
ALS Sample ID	L2708367-7	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061014.D
Run Date	6/10/2022 23:33
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.19	0.6		
Acetaldehyde (B)	14.33	0.88		
Acetaldehyde (A)	14.67	1.42		
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.6
Acetaldehyde	2.3
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**22-22158-ALD-8 BLANK2 APC OUTLET #2**	Sampling Date	18-May-22
ALS Sample ID	L2708367-8	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061008.D
Run Date	6/10/2022 19:31
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/sample**	**Flags**	**Limits**
Formaldehyde	9.20	0.96		
Acetaldehyde (B)	NotFnd	<0.1	U	
Acetaldehyde (A)	NotFnd	<0.1	U	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/sample**
Formaldehyde	0.96
Acetaldehyde	<0.1
Acrolein	<0.1

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3730546-2	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061004.D
Run Date	6/10/2022 16:50
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**ug spiked**	**Ret. Time**	**% Rec**	**Flags**	**Limits**
Formaldehyde	5	9.20	108		
Acetaldehyde (B)	5	14.35	47		
Acetaldehyde (A)	5	14.69	51		
Acrolein (A)	5	18.86	33		
Acrolein (B)	5	19.95	28		
Total Aldehydes					
Formaldehyde			108		70-130
Acetaldehyde			98		70-130
Acrolein			61		70-130

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3730546-4	Extraction Date	7-Jun-22
Analysis Method	SIM GC/MS		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
13-Jun-2022

Run Information	**Run 1**
Filename	22061003.D
Run Date	6/10/2022 16:10
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/sample
Instrument	MSD-2
Column	Rtx-200 1610862

Target Analytes	**ug spiked**	**Ret. Time**	**% Rec**	**Flags**	**Limits**
Formaldehyde	1	9.21	56		
Acetaldehyde (B)	1	14.36	56		
Acetaldehyde (A)	1	14.70	89		
Acrolein (A)	1	18.86	14		
Acrolein (B)	1	19.96	12		
Total Aldehydes					
Formaldehyde			56		70-130
Acetaldehyde			145		70-130
Acrolein			26		70-130

APPENDIX 20

SVOC and VOST Proof Data
(14 pages)

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2697472		Mississauga, ON L5J 2Y4
Date of Report	20-May-22		Canada
Date of Sample Receipt	7-Apr-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **CB by LRGC/MS - Isotope dilution**

Certified by:

Bradley Reimer
GC/MS Laboratory Senior Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		GLASSWARE PROOF	
ALS Sample ID	WG3716865-1		L2697472-54	
Sample Size	1		1	
Sample units	sample		sample	
Moisture Content	n/a		n/a	
Matrix	QC		Media Prep	
Sampling Date	n/a		n/a	
Extraction Date	n/a		n/a	
Target Analytes	**ng/sample**		**ng/sample**	
Chlorobenzene	<8	U	<8	U
1,3-Dichlorobenzene	<8	U	<8	U
1,4-Dichlorobenzene	8		<8	U
1,2-Dichlorobenzene	<8	U	<8	U
1,3,5-Trichlorobenzene	<8	U	<8	U
1,2,4-Trichlorobenzene	<8	U	<8	U
1,2,3-Trichlorobenzene	<8	U	<8	U
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<8	U	<8	U
1,2,3,4-Tetrachlorobenzene	<8	U	<8	U
Pentachlorobenzene	<8	U	<8	U
Hexachlorobenzene	<8	U	<8	U
Field Sampling Standards	**%Rec**		**%Rec**	
1-Bromo-2,3-Dichlorobenzene	104		92	
Extraction Standards	**%Rec**		**%Rec**	
13C6-Chlorobenzene	28		35	
13C6-1,4-Dichlorobenzene	37		44	
13C6-1,2,3-Trichlorobenzene	39		49	
13C6-1,2,3,4-Tetrachlorobenzene	95		113	
13C6-Pentachlorobenzene	98		121	
13C6-Hexachlorobenzene	95		125	

U	Indicates that this compound was not detected above the LOD.
M	Indicates that a peak has been manually integrated.

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2697472		Mississauga, ON L5J 2Y4
Date of Report	20-May-22		Canada
Date of Sample Receipt	7-Apr-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **Chlorophenols as acetate derivatives by SIM GC/MS**

Certified by:

Bradley Reimer
GC/MS Laboratory Senior Technical Specialist

ALS Environmental

Sample Analysis Summary Report

Sample Name	Method Blank		GLASSWARE PROOF	
ALS Sample ID	WG3716865-1		L2697472-54	
Sample Size	1		1	
Sample units	sample		sample	
Moisture Content	n/a		n/a	
Matrix	QC		QC	
Sampling Date	n/a		n/a	
Extraction Date	25-Apr-22		25-Apr-22	
Target Analytes	**ng/sample**		**ng/sample**	
2-Chlorophenol	<40	U	<40	U
3-Chlorophenol	<40	U	<40	U
4-Chlorophenol	<40	U	<40	U
2,6-Dichlorophenol	<40	U	<40	U
2,4/2,5-Dichlorophenol	<40	U	<40	U
3,5-Dichlorophenol	<40	U	<40	U
2,3-Dichlorophenol	<40	U	<40	U
3,4-Dichlorophenol	<40	U	<40	U
2,4,6-Trichlorophenol	<40	U	<40	U
2,3,6-Trichlorophenol	<40	U	<40	U
2,3,5-Trichlorophenol	<40	U	<40	U
2,4,5-Trichlorophenol	<40	U	<40	U
2,3,4-Trichlorophenol	<40	U	<40	U
3,4,5-Trichlorophenol	<40	U	<40	U
2,3,5,6/2,3,4,6-Tetrachlorophenol	<40	U	<40	U
2,3,4,5-Tetrachlorophenol	<40	U	<40	U
Pentachlorophenol	<40	U	<40	U
Extraction Standards	**% Rec**		**% Rec**	
13C6-4-Chlorophenol (ES)	81		95	
13C6-2,4-Dichlorophenol (ES)	80		96	
13C6-2,4,5-Trichlorophenol (ES)	50		66	
13C6-2,3,4,5-Tetrachlorophenol (ES)	41		59	
13C6-Pentachlorophenol (ES)	31	M	43	

U	Indicates that this compound was not detected above the LOR.
M	Indicates that a peak has been manually integrated.

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2697472		Mississauga, ON L5J 2Y4
Date of Report	12-May-22		Canada
Date of Sample Receipt	7-Apr-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **PCDD/F by EPA M23**

Certified by:

Bradley Reimer
GC/MS Laboratory Senior Technical Specialist

ALS Life sciences

Sample Analysis summary Report

Sample Name	GLASSWARE PROOF
ALS Sample ID	L2697472-54
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	Media prep
Sampling Date	n/a
Extraction Date	23-Apr-22
Target Analytes	**pg**
2,3,7,8-TCDD	<2.8
1,2,3,7,8-PeCDD	<2.0
1,2,3,4,7,8-HxCDD	1.79
1,2,3,6,7,8-HxCDD	<1.2
1,2,3,7,8,9-HxCDD	<2.7
1,2,3,4,6,7,8-HpCDD	4.17
OCDD	<17
2,3,7,8-TCDF	<1.9
1,2,3,7,8-PeCDF	<2.8
2,3,4,7,8-PeCDF	<2.6
1,2,3,4,7,8-HxCDF	1.57
1,2,3,6,7,8-HxCDF	<1.3
2,3,4,6,7,8-HxCDF	<1.4
1,2,3,7,8,9-HxCDF	<1.8
1,2,3,4,6,7,8-HpCDF	<2.1
1,2,3,4,7,8,9-HpCDF	<1.3
OCDF	<11
Field Spike Standards	**% Rec**
37Cl4-2,3,7,8-TCDD	NS
13C12-1,2,3,4,7,8-HxCDD	NS
13C12-2,3,4,7,8-PeCDF	NS
13C12-1,2,3,4,7,8-HxCDF	NS
13C12-1,2,3,4,7,8,9-HpCDF	NS
Extraction Standards	
13C12-2,3,7,8-TCDD	66
13C12-1,2,3,7,8-PeCDD	58
13C12-1,2,3,6,7,8-HxCDD	62
13C12-1,2,3,4,6,7,8-HpCDD	56
13C12-OCDD	44
13C12-2,3,7,8-TCDF	64
13C12-1,2,3,7,8-PeCDF	59
13C12-1,2,3,6,7,8-HxCDF	61
13C12-1,2,3,4,6,7,8-HpCDF	61
Cleanup Standard	
13C12-1,2,3,7,8,9-HxCDF	NS
Homologue Group Totals	**pg**
Total-TCDD	<2.8
Total-PeCDD	<2.0
Total-HxCDD	1.79
Total-HpCDD	4.17
Total-TCDF	6.95
Total-PeCDF	<2.8
Total-HxCDF	<1.7
Total-HpCDF	<1.1
Toxic Equivalency - (WHO 2005)	
Lower Bound PCDD/F TEQ (WHO 2005)	0.378
Mid Point PCDD/F TEQ (WHO 2005)	3.99
Upper Bound PCDD/F TEQ (WHO 2005)	7.11

ALS Life sciences

Quality Control Summary Report

Sample Name	Method Blank
ALS Sample ID	WG3716865-1
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	23-Apr-22
Target Analytes	**pg**
2,3,7,8-TCDD	<2.4
1,2,3,7,8-PeCDD	<2.1
1,2,3,4,7,8-HxCDD	<2.3
1,2,3,6,7,8-HxCDD	<1.9
1,2,3,7,8,9-HxCDD	<2.0
1,2,3,4,6,7,8-HpCDD	<4.2
OCDD	23.8
2,3,7,8-TCDF	<1.7
1,2,3,7,8-PeCDF	2.21
2,3,4,7,8-PeCDF	1.47
1,2,3,4,7,8-HxCDF	1.90
1,2,3,6,7,8-HxCDF	1.65
2,3,4,6,7,8-HxCDF	3.14
1,2,3,7,8,9-HxCDF	2.10
1,2,3,4,6,7,8-HpCDF	<2.9
1,2,3,4,7,8,9-HpCDF	<0.81
OCDF	12.6
Field Spike Standards	**% Rec**
37Cl4-2,3,7,8-TCDD	NS
13C12-1,2,3,4,7,8-HxCDD	NS
13C12-2,3,4,7,8-PeCDF	NS
13C12-1,2,3,4,7,8-HxCDF	NS
13C12-1,2,3,4,7,8,9-HpCDF	NS
Extraction Standards	
13C12-2,3,7,8-TCDD	54
13C12-1,2,3,7,8-PeCDD	44
13C12-1,2,3,6,7,8-HxCDD	58
13C12-1,2,3,4,6,7,8-HpCDD	58
13C12-OCDD	49
13C12-2,3,7,8-TCDF	54
13C12-1,2,3,7,8-PeCDF	46
13C12-1,2,3,6,7,8-HxCDF	57
13C12-1,2,3,4,6,7,8-HpCDF	64
Cleanup Standard	
13C12-1,2,3,7,8,9-HxCDF	NS
Homologue Group Totals	**pg**
Total-TCDD	<2.4
Total-PeCDD	<2.1
Total-HxCDD	12.6
Total-HpCDD	<1.1
Total-TCDF	<1.7
Total-PeCDF	3.68
Total-HxCDF	8.79
Total-HpCDF	<0.81
Toxic Equivalency - (WHO 2005)	
Lower Bound PCDD/F TEQ (WHO 2005)	1.40
Mid Point PCDD/F TEQ (WHO 2005)	4.22
Upper Bound PCDD/F TEQ (WHO 2005)	6.77

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2697472		Mississauga, ON L5J 2Y4
Date of Report	2-May-22		Canada
Date of Sample Receipt	7-Apr-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **PAH by CARB method 429 (LR option)- Isotope dilution**

Certified by: L. Wrona

Lynne Wrona
Project Manager

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		GLASSWARE PROOF	
ALS Sample ID	WG3716865-1		L2697472-54	
Sample Size	1		1	
Sample units	sample		sample	
Moisture Content	n/a		n/a	
Matrix	QC		Media Prep	
Sampling Date	n/a		n/a	
Extraction Date	25-Apr-22		25-Apr-22	
Target Analytes	**ng/sample**		**ng/sample**	
Naphthalene	11.2	R	27.4	R,B
2-Methylnaphthalene	<8.0	U	<8.0	U
1-Methylnaphthalene	<8.0	U	<8.0	U
Acenaphthylene	<8.0	U	<8.0	U
Acenaphthene	<8.0	U	<8.0	U
Fluorene	<8.0	U	<8.0	U
Phenanthrene	<8.0	U	<8.0	U
Anthracene	<8.0	U	<8.0	U
Fluoranthene	<8.0	U	<8.0	U
Pyrene	<8.0	U	<8.0	U
Benzo(a)Anthracene	<8.0	U	<8.0	U
Chrysene	<8.0	U	<8.0	U
Benzo(b)Fluoranthene	<8.0	U	<8.0	U
Benzo(k)Fluoranthene	<8.0	U	<8.0	U
Benzo(e)Pyrene	<8.0	U	<8.0	U
Benzo(a)Pyrene	<8.0	U	<8.0	U
Perylene	<8.0	U	<8.0	U
Indeno(1,2,3-cd)Pyrene	<8.0	U	<8.0	U
Dibenzo(a,h)Anthracene	<8.0	U	<8.0	U
Benzo(g,h,i)Perylene	<8.0	U	<8.0	U
Field Sampling Standards	**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	NS		NS	
Fluorene D10	NS		NS	
Terphenyl D14(Surr.)	NS		NS	
Extraction Standards	**% Rec**		**% Rec**	
Naphthalene D8	118.4		122.4	
2-Methylnaphthalene-D10	116.3		124.2	
Acenaphthylene D8	100.2		109.5	
Phenanthrene D10	124.5		130.5	
Anthracene-D10	107.6		115.2	
Fluoranthene D10	116.5		122.2	
Benz(a)Anthracene-D12	80.4		122.7	
Chrysene D12	92.1		135.7	
Benzo(b)Fluoranthene-D12	111.8		103.8	
Benzo(k)Fluoranthene-D12	109.6		106.9	
Benzo(a)Pyrene D12	110.6		111.5	
Perylene D12	105.6		105.8	
Indeno(1,2,3,cd)Pyrene-D12	101		80.5	
Dibenz(a,h)Anthracene-D14	95.9		77.9	M
Benzo(g,h,i)Perylene D12	89.4		85.9	M

U	Indicates that this compound was not detected above the LOD.
M	Indicates that a peak has been manually integrated.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
NS	Indicates that the compound was not added to the sample

ALS Life Sciences
1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	Ortech Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2697472		Mississauga, ON L5J 2Y4
Date of Report	16-May-22		Canada
Date of Sample Receipt	7-Apr-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **PCB Congeners by EPA 1668C**

PCB Congener Group Totals and Total PCB are a sum of detected values, including EMPC values, consistent with USEPA CLP SOW CBC1.2

Certified by:

Bradley Reimer
GC/MS Laboratory Senior Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	GLASSWARE PROOF
ALS Sample ID	L2697472-54
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	Media prep
Sampling Date	n/a
Extraction Date	25-Apr-22

Target Analytes	pg
PCB-081	<1.9
PCB-077	<2.1
PCB-123	<2.0
PCB-118	<9.4
PCB-114	<1.9
PCB-105	7.91
PCB-126	<2.1
PCB-167	<1.4
PCB-156/157	<2.0
PCB-169	<1.6
PCB-189	<1.4
Extraction Standards	**% Rec**
13C12-PCB-081	59
13C12-PCB-077	56
13C12-PCB-123	55
13C12-PCB-118	54
13C12-PCB-114	58
13C12-PCB-105	59
13C12-PCB-126	59
13C12-PCB-167	76
13C12-PCB-156/157	74
13C12-PCB-169	83
13C12-PCB-189	67

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	0.000237
Mid Point PCB TEQ	0.130
Upper Bound PCB TEQ	0.260

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank
ALS Sample ID	WG3716865-1
Sample Size	1
Sample size units	Blank
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	25-Apr-22

Target Analytes	pg
PCB-081	<2.0
PCB-077	<2.1
PCB-123	<2.1
PCB-118	<2.4
PCB-114	<2.1
PCB-105	<2.0
PCB-126	<2.2
PCB-167	<1.2
PCB-156/157	<1.4
PCB-169	<1.3
PCB-189	<1.3
Extraction Standards	**% Rec**
13C12-PCB-081	42
13C12-PCB-077	42
13C12-PCB-123	42
13C12-PCB-118	41
13C12-PCB-114	41
13C12-PCB-105	43
13C12-PCB-126	44
13C12-PCB-167	53
13C12-PCB-156/157	60
13C12-PCB-169	58
13C12-PCB-189	48

Toxic Equivalency - (WHO 2005)	
Lower Bound PCB TEQ	0.00
Mid Point PCB TEQ	0.130
Upper Bound PCB TEQ	0.260

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Lynne Wrona	**Client Name:**	ORTECH Environmental
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2697472		Mississauga, ON L5J 2Y4
Date of Report	10-May-22		Canada
Date of Sample Receipt	7-Apr-22	**Client Contact:**	Chris Belore
		Client Project ID:	22158 Covanta

COMMENTS: **VOCs via SW846 Method 5041A/8260C**

Ketone data by VOST analyses are estimated values only

Certified by:

Ron McLeod, PhD
Director, Air Toxics & Special Chemistries, Life Sciences

ALS Environmental

Sample Analysis Summary Report

Sample Name	Method Blank		VOST PROOF	
ALS Sample ID	WG3724458-1		L2697472-75	
Sample units	sample		sample	
Matrix	QC		Media Prep	
Sampling Date	n/a		n/a	
Extraction Date	6-May-22		6-May-22	
Target Analytes	**ug/sample**		**ug/sample**	
Dichlorodifluoromethane	<0.02	U	<0.02	U
Vinyl Chloride	<0.02	U	<0.02	U
Bromomethane	<0.09	U	<0.09	U
Trichlorofluoromethane	<0.02	U	<0.02	U
1,1-Dichloroethene	<0.01	U	<0.01	U
Acetone	<0.1	U	<0.1	U
Methylene Chloride	<0.1	U	<0.1	U
trans,1,2-Dichloroethene	<0.01	U	<0.01	U
2-Butanone	<0.01	U	<0.01	U
Chloroform	<0.01	U	<0.01	U
1,1,1-Trichloroethane	<0.01	U	<0.01	U
Carbon Tetrachloride	<0.01	U	<0.01	U
Benzene	<0.05	U	<0.05	U
1,2-Dichloroethane	<0.01	U	<0.01	U
Trichloroethene	<0.01	U	<0.01	U
1,2-Dichloropropane	<0.01	U	<0.01	U
Bromodichloromethane	<0.01	U	<0.01	U
Toluene	<0.05	U	<0.05	U
1,1,2-Trichloroethane	<0.02	U	<0.02	U
Tetrachloroethene	<0.01	U	<0.01	U
Chlorodibromomethane	<0.01	U	<0.01	U
Ethylene Dibromide	<0.02	U	<0.02	U
Ethylbenzene	<0.01	U	<0.01	U
M&P-Xylene	<0.03	U	<0.03	U
O-Xylene	<0.01	U	<0.01	U
Styrene	<0.02	U	<0.02	U
Bromoform	<0.01	U	<0.01	U
Isopropylbenzene	<0.02	U	<0.02	U
1,3,5-Trimethylbenzene	<0.02	U	<0.02	U
1,3-Butadiene	<0.02	U	<0.02	U
Trichlorotrifluoroethane	<0.02	U	<0.02	U
Ethyl Acetate	<0.1	U	<0.1	U
Field Standard	**% Rec**		**% Rec**	
d10-Ethylbenzene(SPK)	104.1		114.2	
Surrogate Standards	**% Rec**		**% Rec**	
d4-1,2-Dichloroethane(SURR)	78.4		90.6	
d8-Toluene(SURR)	105.5		109.1	
4-Bromofluorobenzene(SURR)	109.8		108.2	
Internal Standards	**% Rec**		**% Rec**	
Bromochloromethane	111.1		97	
1,4-Difluorobenzene	111.4		104.4	
d5-Chlorobenzene	115.7		94	

U Indicates that this compound was not detected above the RL.

APPENDIX 21

ORTECH Equipment Calibration Data
(28 pages)

ORTECH Consulting Inc.
Pitot Tube Calibration

Date	February 8, 2022
Probe/Pitot ID	15A
Mil Number	B03775
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Consulting Inc.
Calibrated By	Dan Turton
Signature	
Reviewed/Accepted By	DOUG

$$Cp = Cpstd * \sqrt{\frac{Pstd}{Ps}}$$

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	7.32	0.130	0.180	0.848	0.0045
(0.25")	9.52	0.220	0.310	0.841	0.0029
	11.66	0.330	0.460	0.845	0.0017
	13.54	0.445	0.620	0.845	0.0019
	15.72	0.600	0.850	0.838	0.0051
			Mean	0.843	0.0032
Without Nozzle	7.46	0.135	0.190	0.841	0.0052
	9.41	0.215	0.300	0.845	0.0016
	11.48	0.320	0.440	0.851	0.0047
	13.77	0.460	0.640	0.846	0.0003
	15.92	0.615	0.850	0.849	0.0025
			Mean	0.846	0.0028

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 Ontario 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 Consulting Inc.
Pitot Tube Calibration

Date	February 8, 2022
Probe/Pitot ID	15D
MII Number	B03778
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Consulting Inc.
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	7.60	0.140	0.195	0.845	0.0016
(0.25")	9.41	0.215	0.300	0.845	0.0024
	11.48	0.320	0.440	0.851	0.0039
	13.62	0.450	0.630	0.843	0.0038
	16.24	0.640	0.880	0.851	0.0039
			Mean	0.847	0.0031
Without Nozzle	7.46	0.135	0.190	0.841	0.0050
	9.41	0.215	0.300	0.845	0.0014
	11.39	0.315	0.435	0.849	0.0030
	13.47	0.440	0.610	0.847	0.0014
	16.37	0.650	0.900	0.848	0.0019
			Mean	0.846	0.0025

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 Ontario 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 Consulting Inc.
Pitot Tube Calibration

Date	February 8, 2022
Probe/Pitot ID	15E
MII Number	COE 20113
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Consulting Inc.
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	7.60	0.140	0.195	0.845	0.0000
(0.25")	9.30	0.210	0.295	0.842	0.0036
	11.39	0.315	0.440	0.844	0.0012
	13.47	0.440	0.620	0.841	0.0048
	15.46	0.580	0.790	0.855	0.0095
			Mean	0.845	0.0038
Without Nozzle	7.60	0.140	0.190	0.856	0.0074
	9.30	0.210	0.290	0.849	0.0000
	11.30	0.310	0.430	0.847	0.0019
	13.47	0.440	0.610	0.847	0.0017
	15.19	0.560	0.780	0.845	0.0037
			Mean	0.849	0.0029

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 Ontario 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 Consulting Inc.
Pitot Tube Calibration

Date	February 8, 2022
Probe/Pitot ID	PM 10 2.5
MII Number	COE 20132
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	93-T62-SP-012

Calibration Facility	ORTECH Consulting Inc.
Calibrated By	Dan Turton
Signature	
Reviewed/Accepted By	

$$Cp = Cpstd * \sqrt{\frac{Pstd}{Ps}}$$

Nozzle Size inches	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
NA	7.03	0.120	0.165	0.851	0.0035
	8.85	0.190	0.260	0.853	0.0014
	10.74	0.280	0.380	0.856	0.0021
	12.68	0.390	0.530	0.856	0.0015
	14.35	0.500	0.680	0.856	0.0012
			Mean	0.854	0.0020

Note: Pitots must always be used in the orientation that they are calibrated in.

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 Ontario 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

Dry Gas Meter Calibration Using Calibrated Critical Orifice

Meter Console Information	
Meter Number	Team 1
Meter MII Number	COE 20094
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	29.83	in Hg
Theoretical Critical Vacuum	14.1	in Hg
System Leak Check	<0.001 @ 25" Hg	
Calibration Date	January 26, 2022	
Calibration Technician	David Utley	
Reviewed and Accepted By		

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

Calibration Data										
Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Avg. DGM Temp Initial	Avg. DGM Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Q)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F			°F	°F	in Hg
20.0	0.30	6.900	13.160	66.0	67.0	UR-40	0.2352	65.0	66.5	22.5
14.0	0.60	13.900	20.055	67.0	66.5	UR-48	0.3308	66.5	67.0	21.5
15.0	1.20	20.500	29.520	66.5	67.5	UR-55	0.4520	67.0	67.0	20.0
15.0	2.00	30.100	41.810	67.5	68.0	UR-63	0.5874	67.0	67.0	18.0
17.0	3.80	43.100	61.330	68.0	71.0	UR-73	0,8107	67.0	69.0	15.0

Results								
Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	DH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(DY)	($Q_{m(std)(corr)}$)	(DH@)	(DDH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
6.264	0.313	6.120	0.306	0.977	0.001	0.306	1.802	-0.077
6.160	0.440	6.019	0.430	0.977	0.001	0.430	1.826	-0.053
9.037	0.602	8.810	0.587	0.975	-0.002	0.587	1.957	0.078
11.738	0.783	11.449	0.763	0.975	-0.001	0.763	1.931	0.052
18.293	1.076	17.891	1.052	0.978	0.002	1.052	1.930	0.051
			DGMCF	0.977			1.879	DH@ Average

Individual values of DGM calibration factor (Y) must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value (Y) 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
Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Omega DP118
MII	COE 20094
Date	Jan. 25, 2022
Calibrated By	Blair McIntyre
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32		0.0
70	69		1.4
100	99		1.0
200	201		-0.5
250	252		-0.8
300	302		-0.7
400	400		0.0
500	500		0.0
600	601		-0.2
700	701		-0.1
800	800		0.0
900	900		0.0
1000	1002		-0.2
1100	1102		-0.2
1200	1201		-0.1
1250	1252		-0.2

$$\% \text{ Difference} = \frac{(\text{calibrator} - \text{after adjustment reading})}{\text{calibrator}} \times 100$$

Acceptance Criteria:
'Trendicator display must read within ± 1.5%, and ± 3 degrees F of the standard value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use.
(Ontario Source Testing Code, June 2010, Part C: Method ON-2, 7.5 Appendix 2E)

ORTECH

Dry Gas Meter Calibration Using Calibrated Critical Orifice

Meter Console Information	
Meter Number	Team 2
Meter MII Number	COE 20092
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	29.65	in Hg
Theoretical Critical Vacuum	14.0	in Hg
System Leak Check	0.00cfm @ 24"Hg	
Calibration Date	January 18, 2022	
Calibration Technician	Blair McIntyre	
Reviewed and Accepted By		

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

Calibration Data										
Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Avg. DGM Temp Initial	Avg. DGM Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Q)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F			°F	°F	in Hg
10.0	0.28	31.210	34.300	67.5	68.0	UR-40	0.2352	68.9	68.9	21.5
10.0	0.57	34.300	38.640	68.0	68.0	UR-48	0.3308	68.9	68.9	20.5
10.0	1.15	62.615	68.525	69.5	70.0	UR-55	0.4520	68.9	68.9	19.5
10.0	1.95	44.540	52.170	68.5	69.5	UR-63	0.5874	68.8	68.8	18.0
10.0	3.70	52.170	62.615	69.5	69.5	UR-73	0.8107	69.8	69.8	15.5

Results								
Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	DH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(DY)	($Q_{m(std)(corr)}$)	(DH@)	(DDH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
3.066	0.307	3.032	0.303	0.989	-0.006	0.303	1.713	-0.110
4.307	0.431	4.265	0.426	0.990	-0.005	0.426	1.763	-0.060
5.854	0.585	5.827	0.583	0.995	0.000	0.583	1.905	0.082
7.583	0.758	7.574	0.757	0.999	0.004	0.757	1.912	0.089
10.416	1.042	10.443	1.044	1.003	0.007	1.044	1.908	0.085
			DGMCF	0.995			1.823	DH@ Average

Individual values of DGM calibration factor (Y) must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value (Y) 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

Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Omega DP118
MII	COE 20092
Date	Jan 18, 2022
Calibrated By	Blair McIntyre
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32		0.0
70	71		-1.4
100	100		0.0
200	201		-0.5
250	251		-0.4
300	301		-0.3
400	401		-0.3
500	501		-0.2
600	601		-0.2
700	701		-0.1
800	801		-0.1
900	901		-0.1
1000	1001		-0.1
1100	1101		-0.1
1200	1201		-0.1
1250	1251		-0.1

$$\% \text{ Difference} = \frac{(\text{calibrator} - \text{after adjustment reading})}{\text{calibrator}} \times 100$$

Acceptance Criteria:

'Trendicator display must read within ± 1.5%, and ± 3 degrees F of the standard value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use.

(Ontario Source Testing Code, June 2010, Part C: Method ON-2, 7.5 Appendix 2E)

ORTECH

Manometer Calibration Data

Date	Jan. 18, 2022	Calibrated By	Blair McIntyre
Manometer Number	Team 2	Signature	
Manometer MII Number	COE 20092	Reviewed/Accepted By	
Calibrated Against	Omega		
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 %
	0.330		0.340	2.9
0-1.0	0.660		0.677	2.5
	0.990		1.004	1.4
	3.30		3.35	1.5
1.0-10.0	6.60		6.58	-0.3
	9.90		9.93	0.3

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

Dry Gas Meter Calibration Using Calibrated Critical Orifice

Meter Console Information	
Meter Number	Team 4
Meter MII Number	COE 20090
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	30.03	in Hg
Theoretical Critical Vacuum	14.2	in Hg
System Leak Check	<0.001 @ 27	
Calibration Date	January 26, 2022	
Calibration Technician	David Utley	
Reviewed and Accepted By		

Factors/Conversions		
Std Temp	528	^{o}R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

Calibration Data

Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice DH	Volume Initial	Volume Final	Avg. DGM Temp Initial	Avg. DGM Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Q)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	^{o}F	^{o}F			^{o}F	^{o}F	in Hg
10.0	0.28	23.800	26.840	69.0	69.5	UR-40	0.2352	68.0	69.0	24.5
10.0	0.59	27.300	31.580	69.5	70.0	UR-48	0.3308	68.0	69.0	23.5
10.0	1.15	32.300	38.140	70.5	71.5	UR-55	0.4520	70.0	70.0	22.0
12.0	2.00	38.900	48.030	71.5	73.0	UR-63	0.5874	72.0	70.0	20.5
10.0	3.70	48.800	59.260	73.0	76.0	UR-73	0.8107	70.0	70.0	17.5

Results

Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	DH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(DY)	($Q_{m(std)(corr)}$)	(DH@)	(DDH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
3.046	0.305	3.072	0.307	1.009	0.000	0.307	1.669	-0.138
4.288	0.429	4.321	0.432	1.008	0.000	0.432	1.777	-0.029
5.845	0.584	5.896	0.590	1.009	0.001	0.590	1.861	0.054
9.135	0.761	9.186	0.765	1.006	-0.003	0.765	1.920	0.113
10.465	1.046	10.575	1.057	1.011	0.002	1.057	1.861	0.054
			DGMCF	1.008			1.807	DH@ Average

Individual values of DGM calibration factor (Y) must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value (Y) 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
Trendicator Calibration

Calibration Procedure	03 - J005
Trendicator Type	Omega DP118
MII	COE 20094
Date	January 26, 2022
Calibrated By	David Utley
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32		0.0
70	70		0.0
100	100		0.0
200	200		0.0
250	251		-0.4
300	300		0.0
400	399		0.3
500	499		0.2
600	600		0.0
700	700		0.0
800	800		0.0
900	900		0.0
1000	1000		0.0
1100	1100		0.0
1200	1200		0.0
1250	1251		-0.1

$$\% \text{ Difference} = \frac{(\text{calibrator} - \text{after adjustment reading})}{\text{calibrator}} \times 100$$

Acceptance Criteria:

'Trendicator display must read within ± 1.5%, and ± 3 degrees F of the standard value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use.

(Ontario Source Testing Code, June 2010, Part C: Method ON-2, 7.5 Appendix 2E)

ORTECH
Manometer Calibration Data

Date	January 26, 2022	Calibrated By	David Utley
Manometer Number	Team 4	Signature	
Manometer MII Number	COE 20094	Reviewed/Accepted By	
Calibrated Against	HHP-100A		
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 %
	0.235		0.240	2.1
0-1.0	0.560		0.565	0.9
	0.925		0.930	0.5
	2.40		2.40	0.0
1.0-10.0	4.65		4.70	1.1
	7.30		7.32	0.3

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer} - \text{Instrument Reading})}{\text{Ref. Manometer}} \times 100$$

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	M05498
Date	May 10, 2022
Barometric Pressure	30.60
System Leak Check	LI DL 0 @ 22" Hg

MII NUMBERS	
DGM	M05498
Gasometer	A01463
Barometer	COE 20028

Calibrated By	Blair McIntyre
Signature	
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

$$DGMCF = \frac{Vstd\ ft^3}{Vdgm\ ft^3} \quad \frac{Tdgm\ ^\circ F+460}{Tstd\ ^\circ F+460} \quad \frac{Pbar\ (\text{"Hg})}{(Pbar\ \text{"Hg}+DGMPressure/13.6)}$$

Gasometer Reading cm			Gasometer Volume	Gasometer Temperature	DGM Reading L		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration	Time	Flow Rate
Initial	Final	cm	ft^3	°C	Initial	Final	ft^3	°C	in. H_2O	°C	Factor	min.	lpm
57.80	51.90	5.90	0.278	19.0	93.67	101.89	0.290	24.0	1.0	24.0	0.970	15	0.5
46.00	40.30	5.70	0.268	19.0	110.19	118.15	0.281	26.0	1.0	26.0	0.974	15	0.5
34.20	28.60	5.60	0.263	19.0	126.41	134.25	0.277	29.0	1.0	29.0	0.982	15	0.5

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	
0.5 Lpm	0.975

Revision June 5, 2007

ORTECH Environmental
Trendicator Calibration

Calibration Procedure	**03-J005**
Trendicator Type	**Nutech**
MII	**M05498**
Date	**May 10, 2022**
Calibrated By	**Blair McIntyre**
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	Tredicator Display Value		Percent Difference
	Before Adjustment (°C)	After Adjustment (°C)	(%)
0	0		0.0
20	20		0.0
50	50		0.0
100	101		-1.0
150	151		-0.7
200	200		0.0
300	300		0.0
400	400		0.0
500	500		0.0
600	600		0.0

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading})}{\text{micromite}} \times 100$$

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

Dry Gas Meter Calibration Data

Calibration Procedure	03-J004
Meter Number	Vost 5
Date	May 9, 2022
Barometric Pressure	29.97
System Leak Check	0 lpm @ 20"Hg

MII NUMBERS	
DGM	COE 20018
Gasometer	A01463
Barometer	COE 20028

Calibrated By	BM
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 L		DGM Volume	DGM Average Temperature	DGM Pressure	DGM Outlet	DGM Calibration	Time	Flow Rate
Initial	Final	cm	ft^3	°C	Initial	Final	ft^3	°C	in. H_2O	°C	Factor	min.	lpm
64.80	58.90	5.90	0.278	19.0	91.90	99.55	0.270	22.0	1.0	22.0	1.035	15	0.5
58.90	52.80	6.10	0.287	19.0	99.55	107.65	0.286	23.0	1.0	23.0	1.014	15	0.5
46.70	40.70	6.00	0.282	19.0	115.50	123.45	0.281	24.0	1.0	24.0	1.020	15	0.5

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

0.5Lpm	1.023

Revision June 5, 2007

ORTECH
Trendicator Calibration

Calibration Procedure	**03-J005**
Trendicator Type	**Jenco 765**
MII	**COE 20018**
Date	**May 9, 2022**
Calibrated By	**BM**
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	Tredicator Display Value		Percent Difference
	Before Adjustment (°C)	After Adjustment (°C)	(%)
0	0	0	0.0
20	20	20	0.0
50	49	50	0.0
100	100	100	0.0
150	149	150	0.0
200	198	199	0.5
300	298	299	0.3
400	398	400	0.0
500	498	500	0.0
600	598	600	0.0

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading}) \times 100}{\text{micromite}}$$

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)

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 16, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 2 - Quench INLET	Test	1

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.017	C				
High	89.4	A2	90.9	B2						
Mid	44.7	A4	45	B4			45.5	D4	-1.0	E4
Low	22.35	A3	22.8	B3			22.7	D3	0.3	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	22.8	23.0	-0.2

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	30		30
Run 2	30		30
Run 3	30		30
Average	**30**		**30**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 16, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 2 - Quench INLET	Test	2

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.017	C				
High	89.4	A2	90.9	B2						
Mid	44.7	A4	45	B4			45.5	D4	-1.0	E4
Low	22.35	A3	22.8	B3			22.7	D3	0.3	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	23.0	23.0	0.0

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	30		30
Run 2	30		30
Run 3	30		30
Average	**30**		**30**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 16, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 2 - Quench INLET	Test	3

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)	Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.017				
High	89.4	A2	90.9	B2	C				
Mid	44.7	A4	45	B4		45.5	D4	-1.0	E4
Low	22.35	A3	22.8	B3		22.7	D3	0.3	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	23	23.0	0.0

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	30		30
Run 2	30		30
Run 3	30		30
Average	**30**		**30**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 16, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 2 - APC Outlet	Test	1

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.000	C				
High	89.4	A2	89.4	B2						
Mid	44.7	A4	44	B4			44.7	D4	-1.6	E4
Low	22.35	A3	23.07	B3			22.4	D3	3.2	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	23.07	23.0	0.1

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	30		30
Run 2	30		30
Run 3	30		30
Average	**30**		**30**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 16, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 2 - APC Outlet	Test	2

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)	Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.000				
High	89.4	A2	89.4	B2	C				
Mid	44.7	A4	44	B4		44.7	D4	-1.6	E4
Low	22.35	A3	23.07	B3		22.4	D3	3.2	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	23	23.0	0.0

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	30		30
Run 2	30		30
Run 3	30		30
Average	**30**		**30**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 16, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 2 - APC Outlet	Test	3

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.000	C				
High	89.4	A2	89.4	B2						
Mid	44.7	A4	44	B4			44.7	D4	-1.6	E4
Low	22.35	A3	23.07	B3			22.4	D3	3.2	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	23	23.0	0.0

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	30		30
Run 2	30		30
Run 3	30		30
Average	**30**		**30**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 17, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 1 - Quench Inlet	Test	1

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.007	C				
High	89.4	A2	90.05	B2						
Mid	44.7	A4	45.27	B4			45.0	D4	0.5	E4
Low	22.35	A3	22.12	B3			22.5	D3	-1.8	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0	0
Mid	22.12	22.9	-0.8

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	60		60
Run 2	60		60
Run 3	60		60
Average	**60**		**60**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 17, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 1 - Quench Inlet	Test	2

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.007	C				
High	89.4	A2	90.05	B2						
Mid	44.7	A4	45.27	B4			45.0	D4	0.5	E4
Low	22.35	A3	22.12	B3			22.5	D3	-1.8	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0	0.4	-0.4
Mid	22.9	23.5	-0.6

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	60		60
Run 2	60		60
Run 3	60		60
Average	**60**		**60**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 17, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 1 - Quench Inlet	Test	3

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0	B1	1.007	C				
High	89.4	A2	90.05	B2						
Mid	44.7	A4	45.27	B4			45.0	D4	0.5	E4
Low	22.35	A3	22.12	B3			22.5	D3	-1.8	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0.4	0	0.4
Mid	23.5	23.8	-0.3

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	60		60
Run 2	60		60
Run 3	60		60
Average	**60**		**60**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 17, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 1 - APC OUTLET	Test	1

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)	Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0.2	B1	1.009				
High	89.4	A2	90.38	B2	C				
Mid	44.7	A4	46.55	B4		45.1	D4	3.3	E4
Low	22.35	A3	22.3	B3		22.5	D3	-1.1	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0.2	0.3	-0.1
Mid	22.3	21.4	0.9

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	60		60
Run 2	60		60
Run 3	60		60
Average	**60**		**60**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 17, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 1 - APC OUTLET	Test	2

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0.2	B1	1.009	C				
High	89.4	A2	90.38	B2						
Mid	44.7	A4	46.55	B4			45.1	D4	3.3	E4
Low	22.35	A3	22.3	B3			22.5	D3	-1.1	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0.3	0.1	0.2
Mid	21.4	23.8	-2.4

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	60		60
Run 2	60		60
Run 3	60		60
Average	**60**		**60**

Total Hydrocarbon Reference Method 25A Calibration Data Sheet
Method 25A:SOP Number 95-T62-SP001

Project Number:	22158	Date:	May 17, 2022
Company:	COVANTA	Operator:	J. Grollman
Location:	DYEC	Analyzer ID	VIG
Test Location:	Unit 1 - APC OUTLET	Test	3

THC Full Scale Setting	**100**
Zero Gas (ppm)	<0.1 ppm
Low Gas Value (ppm)	20-35 % full scale setting
Mid Gas Value (ppm)	45-55 % full scale setting
High Gas Value (ppm)	80-90 % full scale setting

Perform analyzer calibration as per manufacturers instructions.
Calculate the linearity factor "C" based on the zero and high gas values. Based on the calculated linearity, predict the analyzer response for low and mid values (D3 and D4). Calculate calibration error with the low and mid (B3 and B4) gasses.

	Cal.Gas Value (A)		Initial Analyzer Response (B)		Linearity (B2-B1)/(A2-A1)		Predicted Response (A X C)		Calibration Error % ((B)-(D)/AX100	
Zero	0	A1	0.2	B1	1.009	C				
High	89.4	A2	90.38	B2						
Mid	44.7	A4	46.55	B4			45.1	D4	3.3	E4
Low	22.35	A3	22.3	B3			22.5	D3	-1.1	E3

Criteria +/-5%

Note: If the calibration Error (E3 and E4) are greater than 5%, repeat the procedure until values are acceptable.

Perform test. At the completion of the test or hourly; Calculate the calibration drift as a percent of full scale value.
Introduce the zero and mid level gases at the probe and record data as the system final response.

	System Initial Response (F)	System Final Response (G)	Calibration Drift (G-F)/span*100
Zero	0.1	0	0.1
Mid	23.8	24.0	-0.2

Criteria 3%

Calculate systen response time by introducing zero gas to the probe, record time to reach 95% of calibration gas value.
Repeat with upscale gas. Perform three runs and calculate average of the runs.

	Zero Response Time (seconds)		Upscale Response Time (seconds)
Run 1	60		60
Run 2	60		60
Run 3	60		60
Average	**60**		**60**

APPENDIX 22

Particulate and Metals Test Emission Calculations
(24 pages)

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	1 - Particulate & Metals
Date:	May 17, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.843
DGM CORRECTION FACTOR		0.977
NOZZLE DIAMETER		6.34 mm
DRY REF GAS VOLUME SAMPLED		3.550 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		135.8 °C
AVERAGE GAS MOISTURE BY VOLUME		15.1 %
AVERAGE GAS VELOCITY		17.44 m/s
BAROMETRIC PRESSURE (Station)		99.865 Kpa
STATIC PRESSURE		-2.614 Kpa
ABSOLUTE GAS PRESSURE		97.250 Kpa
OXYGEN CONCENTRATION		8.31 %
CARBON DIOXIDE CONCENTRATION		10.90 %
CARBON MONOXIDE CONCENTRATION		13.3 ppm

FLOWRATE

ACTUAL GAS FLOWRATE		25.77 m^3/s
DRY REF GAS FLOWRATE		15.32 Rm^3/s
DRY ADJ GAS FLOWRATE		19.48 Rm^3/s
WET REF GAS FLOWRATE		18.04 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	2.8 mg
	-FILTER	2.1 mg
	-TOTAL	4.9 mg
DRY REF GAS VOLUME SAMPLED		3.550 m^3
PARTICULATE CONC. - ACTUAL		0.820 mg/m^3
PARTICULATE CONC. - DRY REF		1.380 mg/m^3
PARTICULATE CONC. - DRY ADJ		1.085 mg/m^3
PARTICULATE CONC. - WET REF		1.172 mg/m^3
PARTICULATE EMISSION RATE		0.021141 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 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 17, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.1		
DGMCF	0.977	**Probe (mg)**	2.8		
Barometric Pressure	29.49 "Hg	**CWTR (g)**	441.6		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	21.3		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.45 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%	8.31
CO2%	10.90
COppm	13.3

Measured H2O
15.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures				ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
				Stack °F	Imp. Out °F	DGM Out °F	DGM In °F					
1	0	25.33	0.83	276	60	68	64	2	4.0		18.99	
	2.5	27.42	0.85	287	53	68	64	1.9	3.5		19.36	**109.4**
	5	29.29	0.88	289	51	68	64	2	3.5		19.73	**97.5**
2	7.5	31.21	0.86	288	50	66	64	2	3.5		19.49	**98.5**
	10	33.13	0.85	288	49	63	62	2	3.5		19.37	**99.8**
	12.5	35.03	0.84	288	48	68	64	2	3.5		19.26	**99.8**
3	15	36.93	0.82	288	47	68	64	1.9	3.5		19.03	**99.7**
	17.5	38.80	0.81	289	47	69	64	1.9	3.5		18.93	**99.3**
	20	40.78	0.85	288	47	69	65	1.9	3.5		19.37	**105.7**
4	22.5	42.60	0.78	289	47	71	65	2	3.5		18.57	**94.7**
	25	44.44	0.78	289	47	70	65	1.8	3.5		18.57	**99.9**
	27.5	46.29	0.79	289	46	72	65	1.8	3.5		18.69	**100.5**
5	30	48.11	0.74	288	47	71	65	1.8	3.5		18.08	**98.0**
	32.5	49.97	0.72	287	47	71	65	1.8	3.5		17.82	**103.5**
	35	51.79	0.71	288	47	72	65	1.7	3.5		17.71	**102.6**
6	37.5	53.48	0.65	287	47	71	65	1.5	3.5		16.93	**95.9**
	40	55.22	0.64	287	47	71	65	1.6	3.5		16.80	**103.2**
	42.5	56.88	0.64	286	47	73	65	1.4	3.5		16.79	**99.2**
7	45	58.64	0.68	284	45	72	65	1.7	3.5		17.28	**104.9**
	47.5	60.34	0.67	285	46	72	65	1.5	3.5		17.17	**98.3**
	50	62.03	0.68	285	42	66	62	1.5	3.5		17.29	**98.5**
8	52.5	63.76	0.68	284	44	72	65	1.6	3.5		17.28	**100.9**
	55	65.50	0.69	283	46	75	67	1.6	3.5		17.40	**100.6**
	57.5	67.25	0.69	285	45	75	67	1.6	3.5		17.42	**99.9**
9	60	68.95	0.69	284	45	74	67	1.6	3.5		17.41	**97.2**
	62.5	70.83	0.7	283	46	73	66	1.8	3.5		17.52	**107.5**
	65	72.67	0.74	283	45	74	67	1.8	3.5		18.02	**104.7**
10	67.5	74.50	0.73	283	45	75	67	1.7	3.5		17.90	**101.0**
	70	76.31	0.74	283	46	76	67	1.7	3.5		18.02	**100.5**
	72.5	78.14	0.71	284	46	76	68	1.7	3.5		17.66	**100.8**
11	75	79.90	0.64	256	46	74	68	1.5	3.5		16.45	**99.0**
	77.5	81.67	0.62	251	46	75	68	1.7	3.5		16.13	**103.0**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 17, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.1		
DGMCF	0.977	**Probe (mg)**	2.8		
Barometric Pressure	29.49 "Hg	**CWTR (g)**	441.6		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	21.3		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.45 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%	8.31
CO2%	10.90
COppm	13.3

Measured H2O
15.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures				ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
				Stack °F	Imp. Out °F	DGM Out °F	DGM In °F					
	80	83.43	0.61	251	46	75	68	1.6	3.5		16.00	**103.6**
12	82.5	85.10	0.61	236	47	74	68	1.5	3.5		15.83	**99.1**
	85	86.77	0.61	237	47	75	68	1.5	3.5		15.84	**98.1**
	87.5	88.47	0.61	237	46	76	69	1.5	3.5		15.84	**99.9**
	90	90.17								0.45		**99.7**
1	0	90.62	0.84	260	53	75	68	2	4.0		18.90	
	2.5	92.67	0.84	278	47	72	68	2	4.0		19.13	**104.4**
	5	94.56	0.84	284	45	74	69	1.9	4.0		19.21	**97.8**
2	7.5	96.46	0.87	285	45	72	69	1.9	4.0		19.56	**98.4**
	10	98.39	0.89	285	44	72	70	2	4.0		19.79	**98.4**
	12.5	100.47	0.88	285	45	73	69	2.1	4.0		19.67	**104.8**
3	15	102.31	0.84	285	44	74	68	2	4.0		19.22	**93.3**
	17.5	104.31	0.85	287	50	74	69	2.1	4.0		19.36	**103.7**
	20	106.30	0.83	287	48	74	69	2.1	4.0		19.13	**102.7**
4	22.5	108.25	0.68	288	46	75	69	1.9	4.0		17.33	**101.8**
	25	110.09	0.67	287	46	74	69	1.7	4.0		17.19	**106.1**
	27.5	111.84	0.67	287	44	75	68	1.5	4.0		17.19	**101.6**
5	30	113.50	0.64	285	44	74	69	1.4	4.0		16.78	**96.3**
	32.5	115.17	0.64	287	44	74	69	1.4	4.0		16.80	**99.0**
	35	116.84	0.64	287	45	74	63	1.5	4.0		16.80	**99.1**
6	37.5	118.51	0.63	283	42	73	67	1.4	3.0		16.62	**99.7**
	40	120.15	0.62	284	41	72	65	1.4	3.0		16.50	**98.1**
	42.5	121.82	0.63	285	43	73	69	1.5	3.0		16.65	**101.1**
7	45	123.50	0.61	287	45	75	70	1.5	3.0		16.40	**100.5**
	47.5	125.17	0.66	287	45	76	70	1.5	3.0		17.06	**101.4**
	50	126.84	0.66	287	46	76	70	1.5	3.0		17.06	**97.4**
8	52.5	128.50	0.66	286	45	78	68	1.6	3.0		17.05	**96.8**
	55	130.34	0.66	284	44	76	69	1.6	3.0		17.03	**107.2**
	57.5	132.02	0.67	285	44	75	69	1.5	3.0		17.17	**97.9**
9	60	133.68	0.68	286	46	76	70	1.5	3.0		17.31	**96.1**
	62.5	135.40	0.68	284	46	76	70	1.5	3.0		17.28	**98.7**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 17, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.1		
DGMCF	0.977	**Probe (mg)**	2.8		
Barometric Pressure	29.49 "Hg	**CWTR (g)**	441.6		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	21.3		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.45 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%	8.31
CO2%	10.90
COppm	13.3

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 %
	65	137.13	0.69	284	46	76	70	1.6	3.0		17.41	**99.2**
10	67.5	138.85	0.65	283	45	76	70	1.6	3.5		16.89	**97.9**
	70	140.61	0.64	284	46	77	70	1.7	3.5		16.77	**103.2**
	72.5	142.39	0.64	282	46	76	70	1.6	3.5		16.74	**105.1**
11	75	144.08	0.58	267	46	76	70	1.5	3.5		15.78	**99.8**
	77.5	145.79	0.58	265	47	77	71	1.5	3.5		15.76	**104.9**
	80	147.48	0.57	264	48	77	70	1.5	3.5		15.61	**103.4**
12	82.5	149.17	0.45	189	47	79	70	1.5	3.5		13.13	**104.3**
	85	150.78	0.43	174	47	76	71	1.3	3.5		12.69	**105.7**
	87.5	152.38	0.45	173	47	75	68	1.1	3.5		12.97	**106.3**
	90	153.71										**86.6**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	2 - Particulate & Metals
Date:	May 17, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.843
DGM CORRECTION FACTOR		0.977
NOZZLE DIAMETER		6.34 mm
DRY REF GAS VOLUME SAMPLED		3.536 m^3
AVGERGE ISOKINETICITY		101.9 %
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		135.6 °C
AVERAGE GAS MOISTURE BY VOLUME		16.2 %
AVERAGE GAS VELOCITY		17.36 m/s
BAROMETRIC PRESSURE (Station)		100.034 Kpa
STATIC PRESSURE		-2.614 Kpa
ABSOLUTE GAS PRESSURE		97.419 Kpa
OXYGEN CONCENTRATION		8.4 %
CARBON DIOXIDE CONCENTRATION		10.85 %
CARBON MONOXIDE CONCENTRATION		11.9 ppm

FLOWRATE

ACTUAL GAS FLOWRATE		25.65 m^3/s
DRY REF GAS FLOWRATE		15.08 Rm^3/s
DRY ADJ GAS FLOWRATE		19.04 Rm^3/s
WET REF GAS FLOWRATE		17.99 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0.9 mg
	-FILTER	2.1 mg
	-TOTAL	3 mg
DRY REF GAS VOLUME SAMPLED		3.536 m^3
PARTICULATE CONC. - ACTUAL		0.499 mg/m^3
PARTICULATE CONC. - DRY REF		0.848 mg/m^3
PARTICULATE CONC. - DRY ADJ		0.672 mg/m^3
PARTICULATE CONC. - WET REF		0.711 mg/m^3
PARTICULATE EMISSION RATE		0.012793 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 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 17, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.1		
DGMCF	0.977	**Probe (mg)**	0.9		
Barometric Pressure	29.54 "Hg	**CWTR (g)**	478.5		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	22.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.47 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%	8.4
CO2%	10.85
COppm	11.9

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	54.21	0.82	274	58	75	72	2	4.0		18.88	
	2.5	56.21	0.81	285	58	74	72	2	4.0		18.90	**104.9**
	5	58.18	0.81	286	56	74	72	2	4.0		18.92	**104.9**
2	7.5	60.06	0.81	286	53	73	72	1.8	4.0		18.92	**100.1**
	10	61.92	0.85	286	51	47	72	1.8	4.0		19.38	**99.1**
	12.5	63.77	0.85	287	50	75	72	1.8	4.0		19.39	**98.6**
3	15	65.68	0.84	286	54	74	72	2	4.0		19.26	**99.2**
	17.5	67.60	0.84	287	51	76	72	2	4.0		19.28	**100.4**
	20	69.53	0.82	287	50	75	72	2	4.0		19.05	**100.8**
4	22.5	71.44	0.74	286	49	76	72	1.9	4.0		18.08	**101.1**
	25	73.37	0.75	288	51	77	72	1.9	4.0		18.23	**107.3**
	27.5	75.29	0.76	288	50	77	72	1.8	4.0		18.35	**106.1**
5	30	77.05	0.67	287	50	77	72	1.6	4.0		17.22	**96.6**
	32.5	78.84	0.64	288	50	77	72	1.7	4.0		16.84	**104.5**
	35	80.62	0.66	288	50	78	71	1.6	4.0		17.10	**106.4**
6	37.5	82.35	0.6	286	49	79	72	1.5	4.0		16.28	**101.8**
	40	84.07	0.61	288	49	78	69	1.5	4.0		16.44	**105.8**
	42.5	85.78	0.6	286	49	76	70	1.5	4.0		16.28	**104.9**
7	45	87.44	0.64	286	50	79	72	1.4	4.0		16.82	**102.6**
	47.5	89.11	0.64	287	50	77	72	1.4	4.0		16.83	**99.5**
	50	90.81	0.65	287	50	78	72	1.5	4.0		16.96	**101.5**
8	52.5	92.51	0.68	287	49	79	72	1.5	4.0		17.34	**100.6**
	55	94.19	0.68	287	50	81	73	1.5	4.0		17.34	**97.1**
	57.5	95.94	0.69	287	49	81	73	1.6	4.0		17.47	**100.9**
9	60	97.68	0.67	285	52	78	72	1.6	4.0		17.19	**99.6**
	62.5	99.46	0.67	284	51	80	72	1.6	4.0		17.18	**103.7**
	65	101.21	0.68	285	49	80	70	1.6	4.0		17.32	**101.7**
10	67.5	102.97	0.69	285	51	80	72	1.6	4.0		17.45	**101.8**
	70	104.73	0.69	285	49	79	73	1.6	4.0		17.45	**100.8**
	72.5	106.50	0.69	283	52	81	73	1.6	4.0		17.42	**101.4**
11	75	108.30	0.62	269	50	81	74	1.6	4.0		16.36	**102.8**
	77.5	110.08	0.63	269	50	80	73	1.6	4.0		16.49	**106.1**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 17, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.1		
DGMCF	0.977	**Probe (mg)**	0.9		
Barometric Pressure	29.54 "Hg	**CWTR (g)**	478.5		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	22.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.47 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%	8.4
CO2%	10.85
COppm	11.9

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 %
	80	111.75	0.62	271	51	79	73	1.4	4.0		16.38	**99.0**
12	82.5	113.39	0.46	205	51	83	74	1.4	4.0		13.46	**98.1**
	85	115.06	0.48	189	51	80	74	1.5	4.0		13.58	**110.1**
	87.5	116.65	0.49	188	52	79	74	1.3	4.0		13.71	**101.7**
	90	118.23								0.47		**100.0**
1	0	118.70	0.86	282	42	77	74	2.3	5.0		19.44	
	2.5	120.66	0.85	289	50	81	74	2.2	5.0		19.42	**100.6**
	5	122.71	0.86	289	51	79	74	2.1	5.0		19.53	**106.0**
2	7.5	124.72	0.85	289	50	81	74	2	5.0		19.42	**103.5**
	10	126.68	0.87	288	49	79	75	2.1	5.0		19.63	**101.3**
	12.5	128.67	0.88	288	50	75	68	2.1	5.0		19.74	**101.7**
3	15	130.67	0.79	289	51	80	73	1.9	4.5		18.72	**102.7**
	17.5	132.56	0.8	288	50	78	73	1.9	4.5		18.83	**101.4**
	20	134.47	0.79	288	51	80	74	1.9	4.5		18.71	**102.0**
4	22.5	136.39	0.76	288	52	79	74	1.8	4.5		18.35	**102.9**
	25	138.25	0.75	287	50	79	73	1.8	4.5		18.22	**101.7**
	27.5	140.11	0.74	287	53	80	75	1.7	4.5		18.09	**102.4**
5	30	141.93	0.71	288	47	80	78	1.7	4.5		17.73	**100.6**
	32.5	143.75	0.73	288	46	80	75	1.7	4.5		17.98	**102.4**
	35	145.56	0.71	285	47	84	74	1.7	4.5		17.70	**100.8**
6	37.5	147.38	0.64	286	47	83	74	1.5	4.0		16.82	**102.2**
	40	149.08	0.63	288	47	82	81	1.5	4.0		16.71	**100.7**
	42.5	150.79	0.63	287	48	80	75	1.5	4.0		16.69	**101.7**
7	45	152.49	0.64	286	47	80	74	1.5	4.0		16.82	**101.8**
	47.5	154.19	0.69	287	46	81	75	1.6	4.0		17.47	**101.0**
	50	155.95	0.71	286	46	81	75	1.7	4.0		17.71	**100.6**
8	52.5	157.74	0.7	287	46	82	75	1.6	4.0		17.60	**100.8**
	55	159.48	0.71	287	47	83	75	1.7	4.0		17.72	**98.6**
	57.5	161.28	0.69	287	46	81	76	1.6	4.0		17.47	**101.3**
9	60	163.04	0.74	287	47	82	74	1.8	4.5		18.09	**100.5**
	62.5	164.88	0.74	286	46	82	75	1.8	4.5		18.08	**101.6**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 17, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.1		
DGMCF	0.977	**Probe (mg)**	0.9		
Barometric Pressure	29.54 "Hg	**CWTR (g)**	478.5		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	22.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.47 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%	8.4
CO2%	10.85
COppm	11.9

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 %
	65	166.71	0.77	287	46	81	76	1.9	5.0		18.46	**100.9**
10	67.5	168.62	0.74	277	46	82	76	1.8	4.5		17.97	**103.3**
	70	170.47	0.73	277	46	83	76	1.8	4.5		17.85	**101.3**
	72.5	172.31	0.73	277	46	81	76	1.8	4.5		17.85	**101.3**
11	75	174.17	0.61	227	46	82	76	1.6	4.5		15.75	**102.6**
	77.5	175.93	0.63	223	46	82	76	1.6	4.5		15.96	**102.4**
	80	177.68	0.64	227	47	81	76	1.6	4.5		16.14	**99.9**
12	82.5	179.44	0.32	217	47	81	76	1.1	4.5		11.33	**100.1**
	85	180.81	0.31	216	47	82	76	1	4.5		11.14	**109.2**
	87.5	182.10	0.31	215	47	82	75	1	4.5		11.13	**104.3**
	90	183.32										**98.6**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	3 - Particulate & Metals
Date:	May 19, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.995	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.615	m^3
AVGERGE ISOKINETICITY	101.2	%
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	138.2	°C
AVERAGE GAS MOISTURE BY VOLUME	16.6	%
AVERAGE GAS VELOCITY	18.18	m/s
BAROMETRIC PRESSURE (Station)	99.492	Kpa
STATIC PRESSURE	-2.789	Kpa
ABSOLUTE GAS PRESSURE	96.703	Kpa
OXYGEN CONCENTRATION	8.15	%
CARBON DIOXIDE CONCENTRATION	11.02	%
CARBON MONOXIDE CONCENTRATION	16.6	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.86	m^3/s
DRY REF GAS FLOWRATE	15.49	Rm^3/s
DRY ADJ GAS FLOWRATE	19.95	Rm^3/s
WET REF GAS FLOWRATE	18.58	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	2.2	mg
	-FILTER	1.7	mg
	-TOTAL	3.9	mg
DRY REF GAS VOLUME SAMPLED		3.615	m^3
PARTICULATE CONC. - ACTUAL		0.622	mg/m^3
PARTICULATE CONC. - DRY REF		1.079	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.838	mg/m^3
PARTICULATE CONC. - WET REF		0.900	mg/m^3
PARTICULATE EMISSION RATE		0.016713	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 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 19, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	1.7		
DGMCF	0.995	**Probe (mg)**	2.2		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	507.8		
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	21.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.43 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%	8.15
CO2%	11.02
COppm	16.6

Measured H2O
16.6 %

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 %
1	0	89.77	0.79	265	58	62	62	1.8	4.0		18.50	
	2.5	91.53	0.83	281	52	61	62	2	4.0		19.17	**97.5**
	5	93.43	0.82	283	51	61	62	1.9	4.0		19.08	**104.0**
2	7.5	95.30	0.82	283	50	62	62	1.9	4.0		19.08	**103.1**
	10	97.17	0.84	283	50	61	62	1.9	4.0		19.31	**103.0**
	12.5	99.02	0.82	283	51	62	62	1.8	4.0		19.08	**100.8**
3	15	100.81	0.83	283	52	62	62	1.9	4.0		19.20	**98.6**
	17.5	102.66	0.83	284	52	62	62	1.9	4.0		19.21	**101.3**
	20	104.50	0.83	285	53	62	63	1.9	4.0		19.22	**100.8**
4	22.5	106.34	0.76	285	53	62	63	1.7	4.0		18.39	**100.8**
	25	108.09	0.75	285	53	62	62	1.8	4.0		18.27	**100.1**
	27.5	109.90	0.78	285	52	62	63	1.8	4.0		18.63	**104.4**
5	30	111.68	0.7	285	52	62	64	1.5	4.0		17.65	**100.6**
	32.5	113.32	0.72	285	52	62	65	1.7	4.0		17.90	**97.6**
	35	115.06	0.73	284	52	63	64	1.7	4.0		18.01	**102.1**
6	37.5	116.81	0.7	284	52	63	64	1.6	4.0		17.64	**101.9**
	40	118.54	0.7	284	52	63	64	1.6	4.0		17.64	**102.8**
	42.5	120.24	0.71	285	52	63	64	1.6	4.0		17.78	**101.1**
7	45	121.94	0.71	285	52	63	64	1.6	4.0		17.78	**100.4**
	47.5	123.66	0.73	285	52	63	66	1.7	4.0		18.03	**101.6**
	50	125.41	0.75	285	52	63	65	1.7	4.0		18.27	**101.8**
8	52.5	127.16	0.74	285	49	63	68	1.7	4.0		18.15	**100.5**
	55	128.92	0.75	285	47	63	65	1.7	4.0		18.27	**101.5**
	57.5	130.67	0.73	285	46	64	66	1.7	4.0		18.03	**100.5**
9	60	132.42	0.75	285	45	64	66	1.7	4.0		18.27	**101.7**
	62.5	134.17	0.75	285	44	64	66	1.7	4.0		18.27	**100.3**
	65	135.92	0.76	285	44	64	66	1.8	4.0		18.39	**100.3**
10	67.5	137.71	0.73	283	43	64	66	1.7	4.0		18.00	**101.9**
	70	139.46	0.72	284	43	64	66	1.7	4.0		17.89	**101.5**
	72.5	141.22	0.71	284	43	64	67	1.6	4.0		17.77	**102.9**
11	75	142.93	0.68	284	43	64	66	1.6	4.0		17.39	**100.6**
	77.5	144.63	0.69	276	43	64	66	1.6	4.0		17.42	**102.2**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 19, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	1.7		
DGMCF	0.995	**Probe (mg)**	2.2		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	507.8		
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	21.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.43 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%	8.15
CO2%	11.02
COppm	16.6

Measured H2O
16.6 %

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 %
	80	146.32	0.7	276	43	64	67	1.7	4.0		17.54	**100.4**
12	82.5	148.07	0.61	233	43	64	67	1.4	4.0		15.89	**103.1**
	85	149.68	0.64	237	43	65	67	1.5	4.0		16.33	**98.5**
	87.5	151.34	0.67	239	43	65	67	1.7	3.5		16.73	**99.4**
	90	153.08								0.43		**102.0**
1	0	153.51	0.82	284	55	65	66	1.9	4.5		19.09	
	2.5	155.42	0.82	283	43	65	65	1.8	4.5		19.08	**104.6**
	5	157.20	0.84	283	42	65	67	1.9	4.5		19.31	**97.5**
2	7.5	159.05	0.89	284	42	65	65	2	4.5		19.89	**99.9**
	10	160.93	0.88	284	42	65	66	2	4.5		19.78	**98.9**
	12.5	162.82	0.89	284	42	65	67	2.1	4.5		19.89	**99.9**
3	15	164.77	0.85	284	43	65	65	2	4.5		19.44	**102.4**
	17.5	166.67	0.86	285	43	65	66	2	4.5		19.57	**102.3**
	20	168.55	0.86	285	43	65	66	2	4.5		19.57	**100.6**
4	22.5	170.43	0.82	285	43	65	66	1.9	4.5		19.11	**100.6**
	25	172.28	0.81	286	43	65	66	1.9	4.5		19.00	**101.4**
	27.5	174.11	0.8	285	43	65	67	1.9	4.5		18.87	**101.0**
5	30	175.94	0.75	285	43	65	66	1.8	4.5		18.27	**101.4**
	32.5	177.76	0.74	285	43	65	67	1.7	4.5		18.15	**104.2**
	35	179.53	0.75	286	43	65	67	1.7	4.5		18.28	**101.9**
6	37.5	181.28	0.66	286	43	65	67	1.5	4.0		17.15	**100.2**
	40	182.93	0.64	286	43	65	67	1.5	4.0		16.89	**100.6**
	42.5	184.61	0.63	286	43	65	67	1.4	4.0		16.76	**104.1**
7	45	186.19	0.68	287	43	65	66	1.6	4.0		17.42	**98.6**
	47.5	187.89	0.72	287	43	65	67	1.7	4.0		17.93	**102.3**
	50	189.64	0.71	286	43	66	70	1.7	4.0		17.79	**102.3**
8	52.5	191.38	0.76	286	42	66	66	1.8	4.0		18.41	**102.0**
	55	193.17	0.77	286	42	66	67	1.8	4.0		18.53	**101.8**
	57.5	194.98	0.75	286	42	66	67	1.7	4.0		18.28	**102.2**
9	60	196.74	0.71	286	42	66	68	1.6	4.0		17.79	**100.7**
	62.5	198.46	0.73	286	43	66	67	1.7	4.0		18.04	**101.0**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	APC Outlet No. 1
Date:	May 19, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	1.7		
DGMCF	0.995	**Probe (mg)**	2.2		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	507.8		
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	21.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.43 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%	8.15
CO2%	11.02
COppm	16.6

Measured H2O
16.6 %

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 %
	65	200.20	0.72	287	42	68	68	1.7	4.0		17.93	**100.9**
10	67.5	201.94	0.75	284	42	66	68	1.7	4.0		18.26	**101.3**
	70	203.79	0.75	286	41	66	68	1.7	4.0		18.28	**105.6**
	72.5	205.43	0.74	286	41	66	68	1.8	4.0		18.16	**93.7**
11	75	207.23	0.71	286	41	66	68	1.7	4.0		17.79	**103.6**
	77.5	208.99	0.7	282	41	66	68	1.6	4.0		17.62	**103.4**
	80	210.69	0.69	282	41	66	68	1.6	4.0		17.49	**100.3**
12	82.5	212.40	0.61	282	41	66	68	1.4	4.0		16.44	**101.6**
	85	214.02	0.64	236	41	66	68	1.5	4.0		16.31	**102.3**
	87.5	215.66	0.62	236	41	66	67	1.5	4.0		16.06	**97.9**
	90	217.30										**99.6**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	1 - Particulate & Metals
Date:	May 16, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.977	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.638	m^3
AVGERGE ISOKINETICITY	99.4	%
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	137.1	°C
AVERAGE GAS MOISTURE BY VOLUME	13.9	%
AVERAGE GAS VELOCITY	18.03	m/s
BAROMETRIC PRESSURE (Station)	99.289	Kpa
STATIC PRESSURE	-2.614	Kpa
ABSOLUTE GAS PRESSURE	96.674	Kpa
OXYGEN CONCENTRATION	9.35	%
CARBON DIOXIDE CONCENTRATION	9.85	%
CARBON MONOXIDE CONCENTRATION	25.5	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.64	m^3/s
DRY REF GAS FLOWRATE	15.89	Rm^3/s
DRY ADJ GAS FLOWRATE	18.54	Rm^3/s
WET REF GAS FLOWRATE	18.47	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	9.8	mg
	-FILTER	3.1	mg
	-TOTAL	12.9	mg
DRY REF GAS VOLUME SAMPLED		3.638	m^3
PARTICULATE CONC. - ACTUAL		2.116	mg/m^3
PARTICULATE CONC. - DRY REF		3.546	mg/m^3
PARTICULATE CONC. - DRY ADJ		3.039	mg/m^3
PARTICULATE CONC. - WET REF		3.051	mg/m^3
PARTICULATE EMISSION RATE		0.056354	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 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	3.1		
DGMCF	0.977	**Probe (mg)**	9.8		
Barometric Pressure	29.32 "Hg	**CWTR (g)**	410.1		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	23.2		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.54 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%	9.35
CO2%	9.85
COppm	25.5

Measured H2O
13.9 %

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	51.37	0.85	270	67	79	76	2.1	4.0		19.19	
	2.5	53.53	0.87	288	67	77	75	2.1	4.0		19.65	**107.3**
	5	55.53	0.91	288	67	77	75	2.2	3.5		20.10	**99.7**
2	7.5	57.58	0.9	288	66	77	75	2.2	3.5		19.99	**99.9**
	10	59.64	0.9	287	66	77	75	2.1	3.5		19.97	**101.0**
	12.5	61.63	0.92	288	66	78	76	2.1	3.5		20.21	**97.4**
3	15	63.61	0.86	287	67	78	75	2.1	3.5		19.52	**95.8**
	17.5	65.59	0.86	288	67	80	76	2.1	3.5		19.54	**99.1**
	20	67.59	0.87	287	66	79	76	2.1	3.5		19.64	**99.9**
4	22.5	69.58	0.83	288	63	80	76	2	3.5		19.19	**98.8**
	25	71.54	0.84	288	61	80	76	2	3.5		19.31	**99.6**
	27.5	73.59	0.87	289	60	80	75	2	3.5		19.66	**103.6**
5	30	75.53	0.84	288	57	82	76	2	3.5		19.31	**96.4**
	32.5	77.39	0.83	289	56	82	77	2	3.5		19.21	**93.8**
	35	79.34	0.81	289	56	82	77	2	3.5		18.97	**98.9**
6	37.5	81.30	0.74	290	54	83	77	1.8	3.5		18.15	**100.6**
	40	83.17	0.76	290	53	84	77	1.8	3.5		18.39	**100.4**
	42.5	85.03	0.73	290	51	83	77	1.8	3.5		18.02	**98.4**
7	45	86.90	0.83	290	51	83	77	1.9	3.5		19.22	**101.0**
	47.5	88.80	0.81	290	50	84	77	1.9	3.5		18.99	**96.3**
	50	90.69	0.8	289	50	84	78	2	3.5		18.86	**96.9**
8	52.5	92.65	0.81	289	49	84	77	1.9	3.5		18.97	**101.0**
	55	94.56	0.82	289	49	84	77	1.9	3.5		19.09	**97.8**
	57.5	96.49	0.82	289	48	84	78	1.9	3.5		19.09	**98.3**
9	60	98.42	0.82	288	48	83	77	1.9	3.5		19.08	**98.2**
	62.5	100.34	0.82	288	48	84	78	1.9	3.5		19.08	**97.8**
	65	102.27	0.81	288	47	84	78	1.9	3.5		18.96	**98.1**
10	67.5	104.18	0.77	282	47	84	78	1.8	3.5		18.41	**97.7**
	70	106.05	0.78	278	47	83	77	1.8	3.5		18.48	**97.7**
	72.5	107.91	0.78	278	47	84	77	1.9	3.5		18.48	**96.4**
11	75	109.81	0.69	229	47	83	78	1.8	3.5		16.79	**98.5**
	77.5	111.67	0.72	258	46	84	78	1.8	3.5		17.51	**99.0**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	3.1		
DGMCF	0.977	**Probe (mg)**	9.8		
Barometric Pressure	29.32 "Hg	**CWTR (g)**	410.1		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	23.2		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.54 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%	9.35
CO2%	9.85
COppm	25.5

Measured H2O
13.9 %

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 %
	80	113.53	0.74	267	46	85	78	1.8	3.5		17.87	**98.8**
12	82.5	115.38	0.58	235	46	83	78	1.6	3.5		15.47	**97.5**
	85	117.13	0.6	268	45	84	79	1.6	3.5		16.10	**102.0**
	87.5	118.89	0.59	239	46	84	79	1.6	3.5		15.64	**103.0**
	90	120.64								0.54		**101.2**
1	0	121.18	0.99	265	49	81	79	2.4	3.5		20.64	
	2.5	123.24	1	289	45	84	78	2.4	3.5		21.08	**94.1**
	5	125.37	0.94	290	45	82	78	2.3	3.5		20.45	**98.2**
2	7.5	127.49	0.95	291	46	81	79	2.3	4.0		20.57	**101.1**
	10	129.61	0.93	291	45	82	79	2.2	4.0		20.36	**100.6**
	12.5	131.70	0.91	290	47	82	79	2.1	4.0		20.12	**100.1**
3	15	133.72	0.88	290	46	82	79	2.1	4.0		19.79	**97.7**
	17.5	135.76	0.85	290	46	83	79	2	4.0		19.45	**100.4**
	20	137.73	0.82	290	47	83	79	2	3.5		19.10	**98.5**
4	22.5	139.71	0.74	290	47	82	79	1.8	3.5		18.15	**100.8**
	25	141.61	0.74	289	46	83	79	1.7	3.5		18.13	**101.9**
	27.5	143.42	0.73	288	47	82	78	1.7	3.5		18.00	**96.9**
5	30	145.23	0.65	288	47	83	78	1.6	3.5		16.98	**97.6**
	32.5	146.98	0.66	286	47	83	78	1.7	3.5		17.09	**99.9**
	35	148.80	0.65	285	47	83	78	1.7	3.5		16.95	**103.0**
6	37.5	150.58	0.56	284	46	83	78	1.3	3.5		15.72	**101.5**
	40	152.24	0.56	286	47	83	78	1.3	3.5		15.74	**101.8**
	42.5	153.87	0.57	285	46	83	78	1.3	3.5		15.87	**100.1**
7	45	155.50	0.57	285	46	84	79	1.3	3.5		15.87	**99.1**
	47.5	157.08	0.65	284	46	83	78	1.5	3.5		16.94	**95.9**
	50	158.69	0.66	285	46	82	78	1.7	3.5		17.08	**91.7**
8	52.5	160.54	0.69	285	46	84	78	1.7	3.5		17.46	**104.7**
	55	162.35	0.7	287	46	85	78	1.6	3.5		17.61	**100.0**
	57.5	164.18	0.66	284	47	84	78	1.6	3.5		17.07	**100.4**
9	60	165.99	0.63	282	47	84	79	1.6	3.5		16.65	**102.2**
	62.5	167.74	0.6	280	47	84	79	1.5	3.5		16.23	**100.9**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	3.1		
DGMCF	0.977	**Probe (mg)**	9.8		
Barometric Pressure	29.32 "Hg	**CWTR (g)**	410.1		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	23.2		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.54 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%	9.35
CO2%	9.85
COppm	25.5

Measured H2O
13.9 %

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 %
	65	169.45	0.6	280	47	85	78	1.5	3.5		16.23	**100.9**
10	67.5	171.13	0.61	278	47	83	79	1.4	3.5		16.34	**99.1**
	70	172.80	0.59	255	46	83	78	1.4	3.5		15.82	**97.6**
	72.5	174.55	0.61	274	46	84	79	1.4	3.5		16.30	**102.5**
11	75	176.16	0.58	256	47	85	78	1.4	3.5		15.70	**93.8**
	77.5	177.99	0.59	254	47	83	78	1.7	3.5		15.81	**108.0**
	80	179.71	0.6	256	46	83	78	1.5	3.5		15.97	**100.7**
12	82.5	181.42	0.49	226	47	83	79	1.5	3.5		14.12	**99.4**
	85	183.06	0.5	224	45	84	78	1.3	3.5		14.24	**103.2**
	87.5	184.60	0.5	223	46	83	79	1.2	3.5		14.23	**95.7**
	90	186.17										**97.5**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	2 - Particulate & Metals
Date:	May 16, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.977	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.749	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	136.6	°C
AVERAGE GAS MOISTURE BY VOLUME	15.8	%
AVERAGE GAS VELOCITY	18.75	m/s
BAROMETRIC PRESSURE (Station)	99.323	Kpa
STATIC PRESSURE	-2.614	Kpa
ABSOLUTE GAS PRESSURE	96.708	Kpa
OXYGEN CONCENTRATION	8.36	%
CARBON DIOXIDE CONCENTRATION	10.84	%
CARBON MONOXIDE CONCENTRATION	24.1	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.70	m^3/s
DRY REF GAS FLOWRATE	16.19	Rm^3/s
DRY ADJ GAS FLOWRATE	20.51	Rm^3/s
WET REF GAS FLOWRATE	19.24	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0.6	mg
	-FILTER	2.6	mg
	-TOTAL	3.2	mg
DRY REF GAS VOLUME SAMPLED		3.749	m^3
PARTICULATE CONC. - ACTUAL		0.499	mg/m^3
PARTICULATE CONC. - DRY REF		0.854	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.674	mg/m^3
PARTICULATE CONC. - WET REF		0.718	mg/m^3
PARTICULATE EMISSION RATE		0.013818	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 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.6		
DGMCF	0.977	**Probe (mg)**	0.6		
Barometric Pressure	29.33 "Hg	**CWTR (g)**	490.7		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	28.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.51 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%	8.36
CO2%	10.84
COppm	24.1

Measured H2O
15.8 %

				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	6.67	0.99	283	70	81	77	2.3	4.5		20.94	
	2.5	8.81	1	288	68	78	78	2.3	5.0		21.11	**101.2**
	5	10.92	1	290	65	78	77	2.3	5.0		21.14	**99.8**
2	7.5	13.03	1	288	62	77	77	2.3	5.0		21.11	**100.0**
	10	15.13	0.99	288	60	76	76	2.2	5.0		21.01	**99.5**
	12.5	17.21	0.98	287	60	77	76	2.3	5.0		20.89	**99.2**
3	15	19.30	0.93	287	58	78	77	2.3	5.0		20.35	**100.0**
	17.5	21.30	0.91	288	58	80	77	2	5.0		20.14	**98.1**
	20	23.30	0.85	292	59	79	77	2.1	5.0		19.52	**99.0**
4	22.5	25.32	0.83	287	57	79	76	2.1	5.0		19.22	**103.8**
	25	27.31	0.84	287	56	80	76	2	5.0		19.34	**103.3**
	27.5	29.25	0.84	286	54	80	76	1.9	5.0		19.32	**99.9**
5	30	31.18	0.73	285	53	83	76	1.9	4.9		18.00	**99.3**
	32.5	33.10	0.73	285	54	80	75	1.9	4.9		18.00	**105.6**
	35	34.95	0.77	285	53	81	76	1.7	4.9		18.49	**102.2**
6	37.5	36.78	0.66	283	52	80	76	1.7	4.9		17.09	**98.2**
	40	38.50	0.65	285	52	81	76	1.5	4.9		16.99	**99.6**
	42.5	40.20	0.65	283	51	81	76	1.5	4.8		16.96	**99.2**
7	45	41.90	0.73	284	51	81	76	1.5	4.8		17.99	**99.1**
	47.5	43.69	0.71	284	51	81	76	1.7	4.8		17.74	**98.5**
	50	45.54	0.71	284	50	81	75	1.7	4.8		17.74	**103.3**
8	52.5	47.33	0.74	285	50	82	76	1.6	4.8		18.12	**100.0**
	55	49.12	0.74	284	50	82	76	1.6	4.8		18.11	**97.8**
	57.5	51.03	0.74	285	50	81	76	1.8	4.8		18.12	**104.3**
9	60	52.83	0.78	285	50	81	76	1.8	4.8		18.61	**98.5**
	62.5	54.70	0.78	285	49	81	76	1.8	4.8		18.61	**99.7**
	65	56.57	0.78	284	50	82	76	1.8	4.8		18.60	**99.7**
10	67.5	58.42	0.73	278	50	81	76	1.7	4.8		17.92	**98.5**
	70	60.24	0.72	278	50	82	76	1.7	4.8		17.79	**99.8**
	72.5	62.08	0.73	279	50	83	77	1.7	4.8		17.93	**101.5**
11	75	63.97	0.64	249	51	81	76	1.5	4.8		16.44	**103.4**
	77.5	65.66	0.61	241	51	83	76	1.7	4.8		15.96	**97.0**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.6		
DGMCF	0.977	**Probe (mg)**	0.6		
Barometric Pressure	29.33 "Hg	**CWTR (g)**	490.7		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	28.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.51 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%	8.36
CO2%	10.84
COppm	24.1

Measured H2O
15.8 %

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 %
	80	67.35	0.64	260	50	81	76	1.4	4.8		16.57	**98.6**
12	82.5	69.00	0.37	192	51	81	76	1.3	4.8		11.99	**95.4**
	85	70.51	0.4	192	50	82	76	1	4.6		12.47	**109.2**
	87.5	72.03	0.41	195	51	81	77	1.1	4.6		12.65	**105.6**
	90	73.56								0.51		**105.2**
1	0	74.07	0.93	280	50	78	75	2.4	5.0		20.25	
	2.5	76.26	0.92	286	51	81	76	2.3	5.0		20.22	**107.1**
	5	78.38	0.91	285	47	81	75	2.2	5.0		20.10	**104.3**
2	7.5	80.44	0.86	286	47	80	77	2.1	5.0		19.55	**101.9**
	10	82.49	0.91	285	48	80	77	2.2	5.0		20.10	**104.2**
	12.5	84.53	0.94	286	47	79	77	2.2	5.0		20.44	**100.8**
3	15	86.56	0.96	286	48	81	76	2.2	5.0		20.66	**98.8**
	17.5	88.58	0.96	285	48	80	76	2.2	5.0		20.64	**97.2**
	20	90.69	0.96	286	47	80	76	2.1	5.0		20.66	**101.6**
4	22.5	92.64	0.96	287	49	80	76	2.1	5.0		20.67	**93.9**
	25	94.67	0.97	287	48	81	76	2.1	5.0		20.78	**97.8**
	27.5	96.68	0.93	288	48	80	76	2.2	5.0		20.36	**96.3**
5	30	98.76	0.87	288	49	80	76	2.1	5.0		19.69	**102.0**
	32.5	100.79	0.87	289	49	80	76	2.1	5.0		19.70	**102.9**
	35	102.81	0.87	289	49	80	75	2	5.0		19.70	**102.4**
6	37.5	104.78	0.77	289	48	80	76	1.8	4.5		18.54	**99.9**
	40	106.65	0.8	289	48	82	76	1.9	4.5		18.90	**100.7**
	42.5	108.56	0.78	291	50	80	75	1.8	4.5		18.68	**100.7**
7	45	110.46	0.82	290	49	83	76	1.8	4.5		19.14	**101.9**
	47.5	112.35	0.82	290	49	81	76	1.9	4.5		19.14	**98.4**
	50	114.28	0.85	289	48	81	75	2	4.5		19.48	**100.7**
8	52.5	116.22	0.87	290	49	81	76	2	5.0		19.72	**99.5**
	55	118.17	0.85	290	49	81	75	2.1	5.0		19.49	**98.8**
	57.5	120.17	0.82	290	49	84	75	2	5.0		19.14	**102.7**
9	60	122.12	0.82	289	50	82	75	2	5.0		19.13	**101.6**
	62.5	124.07	0.83	289	49	82	75	2	5.0		19.25	**101.7**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	BM

Pitot Factor	0.843	**Filter (mg)**	2.6		
DGMCF	0.977	**Probe (mg)**	0.6		
Barometric Pressure	29.33 "Hg	**CWTR (g)**	490.7		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	28.5		
Nozzle	0.2495 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.51 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%	8.36
CO2%	10.84
COppm	24.1

Measured H2O
15.8 %

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 %
	65	126.04	0.84	288	49	81	76	2	5.0		19.35	**102.1**
10	67.5	127.98	0.82	282	50	82	76	1.9	5.0		19.04	**99.9**
	70	129.89	0.82	284	50	82	76	2	5.0		19.07	**99.0**
	72.5	131.84	0.81	284	49	82	76	1.9	5.0		18.95	**101.3**
11	75	133.78	0.77	256	49	81	76	1.9	5.0		18.12	**101.4**
	77.5	135.68	0.75	256	49	81	76	1.95	5.0		17.89	**100.0**
	80	137.64	0.75	257	51	82	76	1.9	5.0		17.90	**104.5**
12	82.5	139.55	0.76	255	51	81	77	1.9	5.0		17.99	**101.8**
	85	141.46	0.7	243	50	81	77	1.6	5.0		17.12	**101.0**
	87.5	143.25	0.73	242	51	81	77	1.8	5.0		17.47	**97.7**
	90	145.02										**94.6**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	3 - Particulate & Metals
Date:	May 17, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.847
DGM CORRECTION FACTOR	1.008
NOZZLE DIAMETER	6.38 mm
DRY REF GAS VOLUME SAMPLED	4.060 m^3
AVGERGE ISOKINETICITY	101.9 %
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	142.2 °C
AVERAGE GAS MOISTURE BY VOLUME	16.3 %
AVERAGE GAS VELOCITY	19.96 m/s
BAROMETRIC PRESSURE (Station)	100.237 Kpa
STATIC PRESSURE	-2.689 Kpa
ABSOLUTE GAS PRESSURE	97.548 Kpa
OXYGEN CONCENTRATION	8.86 %
CARBON DIOXIDE CONCENTRATION	10.20 %
CARBON MONOXIDE CONCENTRATION	14.5 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	29.49 m^3/s
DRY REF GAS FLOWRATE	17.04 Rm^3/s
DRY ADJ GAS FLOWRATE	20.73 Rm^3/s
WET REF GAS FLOWRATE	20.38 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	2.9 mg
	-FILTER	2.1 mg
	-TOTAL	5 mg
DRY REF GAS VOLUME SAMPLED		4.060 m^3
PARTICULATE CONC. - ACTUAL		0.712 mg/m^3
PARTICULATE CONC. - DRY REF		1.231 mg/m^3
PARTICULATE CONC. - DRY ADJ		1.013 mg/m^3
PARTICULATE CONC. - WET REF		1.030 mg/m^3
PARTICULATE EMISSION RATE		0.020990 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 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 17, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	2.1		
DGMCF	1.008	**Probe (mg)**	2.9		
Barometric Pressure	29.6 "Hg	**CWTR (g)**	559.9		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	23		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.44 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%	8.86
CO2%	10.20
COppm	14.5

Measured H2O
16.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures				ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
				Stack °F	Imp. Out °F	DGM Out °F	DGM In °F					
1	0	867.41	0.81	265	66	68	69	2	5.0		18.76	
	2.5	869.28	0.81	279	66	68	69	2	5.0		18.94	**100.6**
	5	871.11	0.8	280	62	68	73	1.95	5.0		18.83	**99.4**
2	7.5	872.97	0.84	280	63	68	74	2.1	5.5		19.30	**101.3**
	10	874.88	0.84	286	64	69	76	2.1	5.5		19.38	**101.5**
	12.5	876.84	0.89	286	61	69	77	2.1	5.5		19.94	**104.2**
3	15	878.78	0.9	287	64	70	79	2.1	5.5		20.07	**100.1**
	17.5	880.71	0.88	289	63	70	79	2.1	6.0		19.87	**98.9**
	20	882.66	0.88	289	63	71	80	2.1	6.0		19.87	**101.2**
4	22.5	884.64	0.89	289	62	71	81	2.1	6.0		19.98	**102.5**
	25	886.59	0.88	289	62	71	82	2.1	6.0		19.87	**100.3**
	27.5	888.55	0.86	288	61	72	82	2.05	5.5		19.63	**101.3**
5	30	890.48	0.84	288	61	72	82	2	5.5		19.40	**100.7**
	32.5	892.39	0.84	288	61	72	83	2	5.5		19.40	**100.8**
	35	894.32	0.84	288	60	73	83	2	5.5		19.40	**101.8**
6	37.5	896.24	0.84	288	60	73	84	2	5.5		19.40	**101.2**
	40	898.17	0.84	288	60	73	84	2	6.0		19.40	**101.6**
	42.5	900.10	0.84	288	60	73	84	2	6.0		19.40	**101.6**
7	45	902.03	0.7	288	59	74	84	1.7	5.5		17.71	**101.6**
	47.5	903.85	0.68	288	58	74	84	1.7	5.5		17.46	**104.8**
	50	905.59	0.68	287	58	74	85	1.7	5.5		17.44	**101.7**
8	52.5	907.38	0.8	288	57	74	85	1.95	6.0		18.93	**104.4**
	55	909.31	0.83	288	57	74	85	2	6.0		19.29	**103.9**
	57.5	911.26	0.78	288	57	75	86	1.9	6.0		18.70	**103.1**
9	60	913.16	0.9	287	57	75	85	2.15	6.0		20.07	**103.4**
	62.5	915.17	0.89	287	57	75	86	2.15	6.0		19.96	**101.9**
	65	917.19	0.9	287	57	75	86	2.1	6.0		20.07	**102.9**
10	67.5	919.19	0.97	287	57	75	86	2.2	6.0		20.83	**101.3**
	70	921.25	0.97	287	57	75	86	2.2	6.0		20.83	**100.5**
	72.5	923.33	1.05	287	57	75	86	2.45	6.5		21.68	**101.5**
11	75	925.49	1.05	287	57	75	86	2.45	6.5		21.68	**101.4**
	77.5	927.67	1.05	288	57	76	86	2.45	6.5		21.69	**102.3**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 17, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	2.1		
DGMCF	1.008	**Probe (mg)**	2.9		
Barometric Pressure	29.6 "Hg	**CWTR (g)**	559.9		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	23		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.44 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%	8.86
CO2%	10.20
COppm	14.5

Measured H2O
16.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures				ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
				Stack °F	Imp. Out °F	DGM Out °F	DGM In °F					
	80	929.85	1.05	288	57	76	86	2.45	6.5		21.69	**102.3**
12	82.5	932.05	1.05	288	57	76	85	2.45	6.5		21.69	**103.2**
	85	934.22	1.05	289	57	76	85	2.4	6.5		21.71	**101.9**
	87.5	936.38	1.05	288	57	76	85	2.4	6.5		21.69	**101.5**
	90	938.58								0.44		**103.3**
1	0	939.02	0.92	288	62	75	79	2.2	6.0		20.30	
	2.5	941.08	0.97	287	59	75	81	2.3	6.0		20.83	**104.0**
	5	943.14	0.97	288	56	75	82	2.3	6.0		20.85	**101.0**
2	7.5	945.26	0.96	288	54	75	83	2.3	6.0		20.74	**103.9**
	10	947.35	0.95	287	53	75	83	2.2	6.0		20.62	**102.9**
	12.5	949.41	0.95	288	52	75	84	2.2	6.0		20.63	**101.9**
3	15	951.46	0.96	287	52	75	84	2.3	6.0		20.73	**101.4**
	17.5	953.54	0.96	288	51	75	84	2.3	6.0		20.74	**102.3**
	20	955.60	0.96	288	51	75	85	2.3	6.0		20.74	**101.3**
4	22.5	957.69	0.95	288	50	75	85	2.2	6.0		20.63	**102.7**
	25	959.77	0.99	288	50	75	85	2.35	6.5		21.06	**102.7**
	27.5	961.87	1	288	50	75	85	2.35	6.5		21.17	**101.7**
5	30	963.99	0.86	289	50	76	85	2.05	6.0		19.64	**102.1**
	32.5	965.98	0.86	289	50	76	85	2.05	6.0		19.64	**103.2**
	35	967.95	0.86	289	50	76	85	2.05	6.0		19.64	**102.2**
6	37.5	969.91	0.86	289	50	76	85	2.05	6.0		19.64	**101.7**
	40	971.87	0.88	290	50	76	86	2.1	6.0		19.88	**101.7**
	42.5	973.85	0.88	290	49	76	86	2.1	6.0		19.88	**101.5**
7	45	975.84	0.9	290	49	76	86	2.15	6.0		20.11	**102.1**
	47.5	977.87	0.88	290	49	76	86	2.1	6.0		19.88	**103.0**
	50	979.84	0.88	290	49	76	86	2.1	6.0		19.88	**101.0**
8	52.5	981.80	0.9	291	50	76	86	2.1	6.5		20.12	**100.5**
	55	983.77	0.91	291	50	76	86	2.2	6.5		20.23	**100.0**
	57.5	985.80	0.91	292	50	76	86	2.2	6.5		20.25	**102.5**
9	60	987.86	0.88	292	50	76	86	2.1	6.0		19.91	**104.1**
	62.5	989.83	0.88	292	51	76	86	2.1	6.0		19.91	**101.2**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Particulate & Metals	**Test Location:**	APC Outlet No. 2
Date:	May 17, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	2.1		
DGMCF	1.008	**Probe (mg)**	2.9		
Barometric Pressure	29.6 "Hg	**CWTR (g)**	559.9		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	23		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.44 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%	8.86
CO2%	10.20
COppm	14.5

Measured H2O
16.3 %

				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 %
	65	991.80	0.88	292	51	76	86	2.1	6.0		19.91	**101.2**
10	67.5	993.77	0.88	291	51	76	86	2.1	6.0		19.90	**101.2**
	70	995.75	0.87	291	51	76	86	2.1	6.0		19.78	**101.6**
	72.5	997.71	0.87	291	51	76	86	2.1	6.0		19.78	**101.2**
11	75	999.68	0.87	291	51	76	86	2.1	6.0		19.78	**101.7**
	77.5	1001.66	0.82	291	51	76	86	2	6.0		19.21	**102.2**
	80	1003.60	0.83	290	52	76	86	2	6.0		19.31	**103.1**
12	82.5	1005.52	0.81	290	52	76	86	1.95	6.0		19.08	**101.4**
	85	1007.44	0.82	291	52	76	86	2	6.0		19.21	**102.6**
	87.5	1009.38	0.82	290	52	76	86	2	6.0		19.19	**103.1**
	90	1011.29										**101.4**

APPENDIX 23

Particle Size Distribution Test Emission Calculations
(12 pages)

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	May 17, 2022
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	1
Test Location:	APC Outlet No. 1

Project No.: 22081
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.48
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.995
Pitot Factor	0.854
Barometric Pressure (" Hg)	29.61
Static Pressure ("H_2O)	-10.50
Oxygen Content (%)	8.38
Carbon Dioxide Content (%)	10.99
Carbon Monoxide Content (PPM)	10.7
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	9.8 l/min*
Cyclone Qs_{actual}	0.60 ft^3/min	17.1 l/min
Stack Gas Sampling Parameters		
V_{ms}	41.4 Rft^3*	1.173 Rm^3*
Average Cyclone I Cut Diameter		10.01 µm
Average Cyclone IV Cut Diameter		2.28 µm
Average Isokineticity		98.6 %
Stack Gas Physical Parameters		
B_{ws}	18.0 % v/v	
Average m	218.5 (dimensionless)	
M_d	30.09 lbs/lbs mole	
M_w	27.92 lbs/lbs mole	
Average T_s	284 °F	140 °C
Average U_s	59.4 ft/s	18.1 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	56777 ACFM	26.8 m^3/s
Wet Reference Q_s	39520 SCFM*	18.7 Rm^3/s*
Dry Reference Q_s	32424 SCFM*	15.3 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.36 mg/Rm^3*	0.0209 g/s
Total Part. (b)	5.97 mg/Rm^3*	0.091 g/s
PM_{10} Part. (b)	5.37 mg/Rm^3*	0.082 g/s
$PM_{2.5}$ Part. (b)	4.77 mg/Rm^3*	0.073 g/s
Cond. Part.	4.60 mg/Rm^3*	0.070 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)	516.5	677.5	751.7	985.0	
final volume or weight (ml or mg)	698.6	677.5	750.3	993.2	
gain in volume or weight (ml or mg)	182.1	0.0	-1.4	8.2	0.0
				TOTAL	188.9

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.7	0.7	<0.1	<0.1	5.4

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 17, 2022	**Plant:** DYEC	**Test No.:** 1	**Project No.:** 22081
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** APC Outlet No. 1	**Operator:** DU
			8=D

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	Delta P ("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 (%)
2	1	0.00	10.8	62.64	0.75	0.35	281	75	76	0.38	4.0	60.6	9.99	2.27	96.7
	2	10.8	10.5	66.42	0.74	0.35	282	75	76	0.38	4.0	60.2	10.27	2.38	93.6
	3	21.2	10.0	69.94	0.72	0.35	283	75	76	0.38	4.0	59.4	9.83	2.21	101.0
	4	31.3	10.1	73.54	0.65	0.35	283	75	76	0.38	4.0	56.4	9.95	2.26	104.5
	5	41.4	9.6	77.10	0.60	0.35	283	75	76	0.38	4.0	54.2	9.99	2.27	108.2
	6	51.0	9.1	80.45	0.56	0.35	283	76	77	0.38	4.0	52.4	9.90	2.23	113.5
		60.0		83.67											
1	1	0.00	11.01	83.67	0.90	0.35	284	76	77	0.38	4.0	66.5	10.02	2.28	88.1
	2	11.0	10.74	87.52	0.89	0.35	286	76	77	0.38	4.0	66.2	10.01	2.28	88.9
	3	21.7	10.34	91.28	0.84	0.35	285	76	77	0.38	4.0	64.3	10.01	2.28	91.4
	4	32.1	9.93	94.90	0.79	0.35	285	76	77	0.38	4.0	62.3	10.03	2.29	94.0
	5	42.0	9.31	98.37	0.64	0.35	284	76	77	0.38	4.0	56.1	10.01	2.28	104.6
	6	51.3	8.65	101.63	0.60	0.35	284	76	77	0.38	4.0	54.3	10.15	2.34	105.9
		60.0		104.60											
Averages					**0.72**		**284**	**76**		**0.38**		**59.4**	**10.01**	**2.28**	**98.6**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	May 18, 2022
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	2
Test Location:	APC Outlet No. 1

Project No.: 22081
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.48
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.995
Pitot Factor	0.854
Barometric Pressure (" Hg)	29.75
Static Pressure ("H_2O)	-10.80
Oxygen Content (%)	8.26
Carbon Dioxide Content (%)	10.97
Carbon Monoxide Content (PPM)	17.8
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	9.9 l/min*
Cyclone Qs_{actual}	0.59 ft^3/min	16.8 l/min
Stack Gas Sampling Parameters		
V_{ms}	41.8 Rft^3*	1.183 Rm^3*
Average Cyclone I Cut Diameter		10.14 µm
Average Cyclone IV Cut Diameter		2.33 µm
Average Isokineticity		99.2 %
Stack Gas Physical Parameters		
B_{ws}	16.3 % v/v	
Average m	219.5 (dimensionless)	
M_d	30.09 lbs/lbs mole	
M_w	28.11 lbs/lbs mole	
Average T_s	283 °F	139 °C
Average U_s	57.7 ft/s	17.6 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	55189 ACFM	26.0 m^3/s
Wet Reference Q_s	38598 SCFM*	18.2 Rm^3/s*
Dry Reference Q_s	32293 SCFM*	15.2 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.69 mg/Rm^3*	0.0258 g/s
Total Part. (b)	6.17 mg/Rm^3*	0.094 g/s
PM_{10} Part. (b)	5.50 mg/Rm^3*	0.084 g/s
$PM_{2.5}$ Part. (b)	4.99 mg/Rm^3*	0.076 g/s
Cond. Part.	4.48 mg/Rm^3*	0.068 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)	490.5	689.5	756.0	980.5	
final volume or weight (ml or mg)	652.0	689.5	754.7	990.2	
gain in volume or weight (ml or mg)	161.5	0.0	-1.3	9.7	0.0
				TOTAL	169.9

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.8	0.6	<0.1	<0.5	5.3

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 18, 2022	**Plant:** DYEC	**Test No.:** 2	**Project No.:** 22081
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** APC Outlet No. 1	**Operator:** DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	Delta P ("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 (%)
2	1	0.00	10.2	5.05	0.77	0.35	282	63	63	0.38	4.0	61.1	9.98	2.26	96.2
	2	10.2	10.1	8.62	0.73	0.35	282	63	64	0.38	4.0	59.5	10.25	2.37	95.2
	3	20.4	10.0	12.04	0.66	0.35	282	64	65	0.38	4.0	56.5	10.08	2.30	102.5
	4	30.4	9.5	15.50	0.63	0.35	282	64	66	0.38	4.0	55.2	10.06	2.29	105.2
	5	39.9	9.1	18.80	0.57	0.35	283	65	67	0.38	4.0	52.6	10.06	2.29	110.8
	6	49.0	8.8	21.98	0.53	0.35	283	65	67	0.38	4.0	50.7	10.33	2.40	110.7
		57.8		24.94											
1	1	0.00	11.19	24.94	0.85	0.35	283	66	67	0.38	4.0	64.2	9.98	2.26	91.7
	2	11.2	11.13	28.88	0.82	0.35	284	66	68	0.38	4.0	63.1	10.34	2.41	88.9
	3	22.3	10.81	32.61	0.82	0.35	284	66	68	0.38	4.0	63.1	10.04	2.28	92.7
	4	33.1	10.48	36.39	0.75	0.35	284	66	68	0.38	4.0	60.3	10.35	2.41	92.8
	5	43.6	9.43	39.90	0.63	0.35	284	66	68	0.38	4.0	55.3	10.15	2.33	104.2
	6	53.0	9.13	43.15	0.54	0.35	284	67	68	0.38	4.0	51.2	10.06	2.29	114.0
		62.2		46.34											
Averages					**0.69**		**283**	**66**		**0.38**		**57.7**	**10.14**	**2.33**	**99.2**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	May 18, 2022
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	3
Test Location:	APC Outlet No. 1

Project No.: 22081
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.48
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.995
Pitot Factor	0.854
Barometric Pressure (" Hg)	29.60
Static Pressure ("H_2O)	-10.80
Oxygen Content (%)	8.74
Carbon Dioxide Content (%)	10.58
Carbon Monoxide Content (PPM)	15.1
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	9.9 l/min*
Cyclone Qs_{actual}	0.61 ft^3/min	17.3 l/min
Stack Gas Sampling Parameters		
V_{ms}	41.9 Rft^3*	1.186 Rm^3*
Average Cyclone I Cut Diameter		9.97 µm
Average Cyclone IV Cut Diameter		2.27 µm
Average Isokineticity		97.6 %
Stack Gas Physical Parameters		
B_{ws}	17.6 % v/v	
Average m	218.7 (dimensionless)	
M_d	30.04 lbs/lbs mole	
M_w	27.92 lbs/lbs mole	
Average T_s	283 °F	139 °C
Average U_s	60.4 ft/s	18.4 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	57700 ACFM	27.2 m^3/s
Wet Reference Q_s	40145 SCFM*	18.9 Rm^3/s*
Dry Reference Q_s	33061 SCFM*	15.6 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.43 mg/Rm^3*	0.0224 g/s
Total Part. (b)	7.17 mg/Rm^3*	0.112 g/s
PM_{10} Part. (b)	6.83 mg/Rm^3*	0.107 g/s
$PM_{2.5}$ Part. (b)	6.58 mg/Rm^3*	0.103 g/s
Cond. Part.	5.73 mg/Rm^3*	0.089 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)	516.5	677.5	750.3	961.5	
final volume or weight (ml or mg)	692.7	677.5	750.0	972.6	
gain in volume or weight (ml or mg)	176.2	0.0	-0.3	11.1	0.0
				TOTAL	187.0

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.4	0.3	0.7	0.3	6.8

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 18, 2022	**Plant:** DYEC	**Test No.:** 3	**Project No.:** 22081
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** APC Outlet No. 1	**Operator:** DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	Delta P ("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 (%)
2	1	0.00	10.6	46.55	0.82	0.35	281	66	67	0.38	4.0	63.4	9.73	2.17	96.0
	2	10.6	10.3	50.35	0.81	0.35	282	66	67	0.38	4.0	63.0	10.19	2.35	90.7
	3	20.9	9.8	53.82	0.75	0.35	283	67	67	0.38	4.0	60.7	9.92	2.24	97.9
	4	30.7	9.6	57.25	0.70	0.35	283	67	67	0.38	4.0	58.6	9.92	2.25	101.3
	5	40.3	9.1	60.60	0.63	0.35	282	67	67	0.38	4.0	55.6	10.00	2.28	105.5
	6	49.4	8.8	63.75	0.55	0.35	281	68	69	0.38	4.0	51.9	9.97	2.26	113.4
		58.2		66.81											
1	1	0.00	11.12	66.81	0.81	0.35	281	68	69	0.38	4.0	63.0	9.94	2.25	93.8
	2	11.1	10.92	70.70	0.81	0.35	281	68	69	0.38	4.0	63.0	10.13	2.33	91.3
	3	22.0	10.92	74.42	0.85	0.35	284	68	69	0.38	4.0	64.6	10.14	2.33	89.3
	4	33.0	10.45	78.14	0.81	0.35	286	68	69	0.38	4.0	63.2	9.94	2.25	94.2
	5	43.4	9.57	81.80	0.73	0.35	286	68	69	0.38	4.0	60.0	9.85	2.22	100.6
	6	53.0	8.86	85.20	0.67	0.35	287	68	69	0.38	4.0	57.5	9.89	2.23	104.5
		61.8		88.33											
Averages					**0.75**		**283**	**68**		**0.38**		**60.4**	**9.97**	**2.27**	**97.6**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	May 17, 2022
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	1
Test Location:	APC Outlet No. 2

Project No.: 22158
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.48
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.995
Pitot Factor	0.854
Barometric Pressure (" Hg)	29.48
Static Pressure ("H_2O)	-10.80
Oxygen Content (%)	8.67
Carbon Dioxide Content (%)	10.41
Carbon Monoxide Content (PPM)	15.6
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	9.9 l/min*
Cyclone Qs_{actual}	0.60 ft^3/min	17.0 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.0 Rft^3*	1.191 Rm^3*
Average Cyclone I Cut Diameter		10.13 µm
Average Cyclone IV Cut Diameter		2.32 µm
Average Isokineticity		96.6 %
Stack Gas Physical Parameters		
B_{ws}	15.6 % v/v	
Average m	220.4 (dimensionless)	
M_d	30.01 lbs/lbs mole	
M_w	28.14 lbs/lbs mole	
Average T_s	284 °F	140 °C
Average U_s	59.9 ft/s	18.2 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	57232 ACFM	27.0 m^3/s
Wet Reference Q_s	39627 SCFM*	18.7 Rm^3/s*
Dry Reference Q_s	33435 SCFM*	15.8 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	2.35 mg/Rm^3*	0.0371 g/s
Total Part. (b)	6.97 mg/Rm^3*	0.110 g/s
PM_{10} Part. (b)	5.96 mg/Rm^3*	0.094 g/s
$PM_{2.5}$ Part. (b)	5.29 mg/Rm^3*	0.083 g/s
Cond. Part.	4.62 mg/Rm^3*	0.073 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	689.0	761.5	956.3	
final volume or weight (ml or mg)	643.7	689.0	759.0	968.0	
gain in volume or weight (ml or mg)	153.0	0.0	-2.5	11.7	0.0
				TOTAL	**162.2**

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	1.2	0.8	0.5	0.3	5.5

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 17, 2022	**Plant:** DYEC	**Test No.:** 1	**Project No.:** 22158
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** APC Outlet No. 2	**Operator:** DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	Delta P ("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	11.0	36.96	0.84	0.35	284	63	63	0.38	4.0	64.1	10.12	2.32	90.7
	2	11.0	10.6	40.78	0.78	0.35	282	63	64	0.38	4.0	61.7	10.16	2.34	93.4
	3	21.6	10.5	44.46	0.76	0.35	281	64	64	0.38	4.0	60.9	9.99	2.27	96.8
	4	32.1	10.1	48.19	0.71	0.35	283	64	65	0.38	4.0	58.9	9.89	2.23	101.9
	5	42.3	9.6	51.85	0.67	0.35	284	65	66	0.38	4.0	57.3	10.12	2.32	101.6
	6	51.9	9.0	55.20	0.68	0.35	284	66	66	0.38	4.0	57.7	9.97	2.26	103.0
		60.9		58.43											
2	1	0.00	10.5	58.43	0.77	0.35	284	66	68	0.38	4.0	61.4	10.36	2.42	91.7
	2	10.5	10.3	62.00	0.74	0.35	284	66	68	0.38	4.0	60.2	10.15	2.33	96.3
	3	20.8	10.0	65.59	0.75	0.35	283	67	68	0.38	4.0	60.6	10.22	2.36	94.6
	4	30.8	9.9	69.06	0.74	0.35	284	67	68	0.38	4.0	60.2	10.19	2.35	95.7
	5	40.7	9.6	72.50	0.72	0.35	285	68	68	0.38	4.0	59.4	10.20	2.36	97.0
	6	50.4	8.8	75.85	0.64	0.35	285	67	69	0.38	4.0	56.0	10.16	2.34	103.5
		59.1		78.91											
Averages					**0.73**		**284**	**66**		**0.38**		**59.9**	**10.13**	**2.32**	**96.6**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	May 17, 2022
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	2
Test Location:	APC Outlet No. 2

Project No.: 22158
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.48
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.995
Pitot Factor	0.854
Barometric Pressure (" Hg)	29.52
Static Pressure ("H_2O)	-10.80
Oxygen Content (%)	8.63
Carbon Dioxide Content (%)	10.38
Carbon Monoxide Content (PPM)	19.1
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.34 Rft^3/min*	9.7 l/min*
Cyclone Qs_{actual}	0.59 ft^3/min	16.7 l/min
Stack Gas Sampling Parameters		
V_{ms}	41.3 Rft^3*	1.170 Rm^3*
Average Cyclone I Cut Diameter		10.25 µm
Average Cyclone IV Cut Diameter		2.37 µm
Average Isokineticity		89.3 %
Stack Gas Physical Parameters		
B_{ws}	15.8 % v/v	
Average m	220.3 (dimensionless)	
M_d	30.01 lbs/lbs mole	
M_w	28.10 lbs/lbs mole	
Average T_s	284 °F	140 °C
Average U_s	63.7 ft/s	19.4 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	60914 ACFM	28.7 m^3/s
Wet Reference Q_s	42212 SCFM*	19.9 Rm^3/s*
Dry Reference Q_s	35524 SCFM*	16.8 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.37 mg/Rm^3*	0.0229 g/s
Total Part. (b)	7.10 mg/Rm^3*	0.119 g/s
PM_{10} Part. (b)	6.67 mg/Rm^3*	0.112 g/s
$PM_{2.5}$ Part. (b)	6.33 mg/Rm^3*	0.106 g/s
Cond. Part.	5.73 mg/Rm^3*	0.096 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)	516.6	678.6	753.2	978.0	
final volume or weight (ml or mg)	674.0	677.7	751.7	985.0	
gain in volume or weight (ml or mg)	157.4	-0.9	-1.5	7.0	0.0
				TOTAL	162.0

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.5	0.4	0.5	0.2	6.7

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 17, 2022	**Plant:** DYEC	**Test No.:** 2	**Project No.:** 22158
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** APC Outlet No. 2	**Operator:** DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	Delta P ("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	10.7	78.96	0.92	0.35	283	68	68	0.38	4.0	67.1	10.12	2.32	86.6
	2	10.7	10.3	82.71	0.90	0.35	283	68	68	0.38	4.0	66.3	9.87	2.22	90.6
	3	21.0	10.2	86.45	0.88	0.35	283	69	69	0.38	4.0	65.6	10.13	2.32	88.4
	4	31.2	9.8	90.02	0.84	0.35	283	69	70	0.38	4.0	64.1	10.18	2.34	89.9
	5	41.1	9.6	93.45	0.76	0.35	284	69	70	0.38	4.0	61.0	10.25	2.37	93.6
	6	50.6	9.6	96.75	0.69	0.35	284	69	70	0.38	4.0	58.1	10.15	2.33	99.6
		60.3		100.12											
2	1	0.00	10.3	100.12	0.86	0.35	284	70	71	0.38	4.0	64.9	10.26	2.38	87.9
	2	10.3	10.1	103.66	0.86	0.35	284	70	71	0.38	4.0	64.9	10.77	2.59	82.1
	3	20.3	10.1	106.90	0.87	0.35	284	70	71	0.38	4.0	65.3	10.46	2.46	85.1
	4	30.4	10.1	110.30	0.84	0.35	284	70	71	0.38	4.0	64.1	10.30	2.39	88.4
	5	40.5	9.9	113.75	0.81	0.35	285	70	71	0.38	4.0	63.0	10.31	2.40	90.0
	6	50.4	9.3	117.15	0.74	0.35	287	71	72	0.38	4.0	60.3	10.18	2.35	96.0
		59.7		120.42											
Averages					**0.83**		**284**	**70**		**0.38**		**63.7**	**10.25**	**2.37**	**89.3**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	May 17, 2022
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	3
Test Location:	APC Outlet No. 2

Project No.: 22158
Operator: DU

Stack Diameter (m)	1.37
Stack Width (m)	0.00
Stack Breadth (m)	0.00
Stack Area (m^2)	1.48
No. of Traverses	2
No. of Points Per Traverse	6
Data Readings Per Point	1
DGMCF	0.995
Pitot Factor	0.854
Barometric Pressure (" Hg)	29.56
Static Pressure ("H_2O)	-10.80
Oxygen Content (%)	8.74
Carbon Dioxide Content (%)	10.31
Carbon Monoxide Content (PPM)	14.3
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	9.8 l/min*
Cyclone Qs_{actual}	0.60 ft^3/min	17.0 l/min
Stack Gas Sampling Parameters		
V_{ms}	41.7 Rft^3*	1.182 Rm^3*
Average Cyclone I Cut Diameter		10.15 µm
Average Cyclone IV Cut Diameter		2.33 µm
Average Isokineticity		92.1 %
Stack Gas Physical Parameters		
B_{ws}	16.1 % v/v	
Average m	220.8 (dimensionless)	
M_d	30.00 lbs/lbs mole	
M_w	28.06 lbs/lbs mole	
Average T_s	286 °F	141 °C
Average U_s	62.8 ft/s	19.1 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	60018 ACFM	28.3 m^3/s
Wet Reference Q_s	41513 SCFM*	19.6 Rm^3/s*
Dry Reference Q_s	34814 SCFM*	16.4 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	0.85 mg/Rm^3*	0.0139 g/s
Total Part. (b)	5.25 mg/Rm^3*	0.086 g/s
PM_{10} Part. (b)	5.08 mg/Rm^3*	0.083 g/s
$PM_{2.5}$ Part. (b)	4.74 mg/Rm^3*	0.078 g/s
Cond. Part.	4.40 mg/Rm^3*	0.072 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	689.0	759.0	968.0	
final volume or weight (ml or mg)	648.0	689.5	756.0	980.5	
gain in volume or weight (ml or mg)	157.3	0.5	-3.0	12.5	0.0
				TOTAL	**167.3**

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.2	0.4	0.3	<0.1	5.2

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: May 17, 2022	**Plant:** DYEC	**Test No.:** 3	**Project No.:** 22158
Client: Covanta	**Location:** Courtice, Ontario	**Test location:** APC Outlet No. 2	**Operator:** DU

Port No.	Point	Clock Time (min)	Dwell Time (min)	Dry Gas Meter (ft^3)	Delta P ("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	10.5	20.51	0.95	0.35	288	71	71	0.38	4.0	68.4	10.15	2.34	85.1
	2	10.5	10.4	24.19	0.86	0.35	288	71	72	0.38	4.0	65.1	9.97	2.26	91.8
	3	20.9	10.3	27.93	0.82	0.35	283	71	72	0.38	4.0	63.3	10.13	2.32	91.5
	4	31.2	10.1	31.54	0.74	0.35	284	72	73	0.38	4.0	60.2	10.18	2.34	95.7
	5	41.3	9.6	35.05	0.73	0.35	285	72	73	0.38	4.0	59.8	10.22	2.36	95.9
	6	50.9	9.1	38.37	0.65	0.35	285	72	73	0.38	4.0	56.5	10.12	2.32	103.1
		60.0		41.58											
2	1	0.00	10.2	41.58	0.84	0.35	285	73	74	0.38	4.0	64.2	10.18	2.35	89.9
	2	10.2	10.2	45.14	0.90	0.35	287	73	74	0.38	4.0	66.5	10.10	2.32	88.0
	3	20.4	10.2	48.74	0.90	0.35	288	73	75	0.38	4.0	66.6	10.19	2.35	87.0
	4	30.6	10.1	52.32	0.82	0.35	288	73	75	0.38	4.0	63.5	10.19	2.35	91.2
	5	40.7	9.9	55.84	0.77	0.35	288	73	75	0.38	4.0	61.6	10.20	2.36	93.9
	6	50.6	9.4	59.29	0.68	0.35	288	73	75	0.38	4.0	57.9	10.20	2.36	100.0
		60.0		62.59											
Averages					**0.81**		**286**	**73**		**0.38**		**62.8**	**10.15**	**2.33**	**92.1**

APPENDIX 24

Acid Gases Test Emission Calculations
(12 pages)

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No.1
Test No.:	1 - M26A
Date:	May 17, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.847
DGM CORRECTION FACTOR		1.008
NOZZLE DIAMETER		6.38 mm
DRY REF GAS VOLUME SAMPLED		1.230 m^3
AVGERGE ISOKINETICITY		103.7 %
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		139.4 °C
AVERAGE GAS MOISTURE BY VOLUME		14.8 %
AVERAGE GAS VELOCITY		17.44 m/s
BAROMETRIC PRESSURE (Station)		99.831 Kpa
STATIC PRESSURE		-2.614 Kpa
ABSOLUTE GAS PRESSURE		97.216 Kpa
OXYGEN CONCENTRATION		8.06 %
CARBON DIOXIDE CONCENTRATION		11.17 %
CARBON MONOXIDE CONCENTRATION		14.5 ppm

FLOWRATE

ACTUAL GAS FLOWRATE		25.77 m^3/s
DRY REF GAS FLOWRATE		15.22 Rm^3/s
DRY ADJ GAS FLOWRATE		19.74 Rm^3/s
WET REF GAS FLOWRATE		17.87 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.230 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	1 - M26A	**Test Location:**	APC Outlet No.1
Date:	May 17, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.48 "Hg	**CWTR (g)**	145.7		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	11.2		
Nozzle	0.2511 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		12	

Combustion Gases	
O2%	8.06
CO2%	11.17
COppm	14.5

Measured H2O
14.8 %

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	735.92	0.75	280	71	72	72	1.7	4.5		18.17	
	5	740.29	0.73	283	43	61	65	1.6	4.5		17.96	**120.6**
	10	743.64	0.7	283	42	61	68	1.5	4.5		17.59	**95.5**
	15	747.04	0.72	284	43	71	62	1.4	4.5		17.85	**98.7**
	20	750.56	0.67	284	43	73	63	1.5	4.5		17.22	**100.4**
	25	753.89	0.67	283	44	74	63	1.4	4.5		17.21	**98.2**
	30	757.56	0.67	282	45	75	64	1.4	4.5		17.20	**108.0**
	35	761.10	0.67	281	46	76	65	1.5	4.5		17.19	**103.9**
	40	764.63	0.67	284	47	76	65	1.4	4.5		17.22	**103.4**
	45	768.13	0.67	284	47	77	66	1.6	4.5		17.22	**102.7**
	50	771.67	0.67	284	49	77	66	1.6	5.0		17.22	**103.7**
	55	775.25	0.67	284	49	77	66	1.5	4.5		17.22	**104.9**
	60	778.82										**104.6**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No.1
Test No.:	2 - M26A
Date:	May 17, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.847
DGM CORRECTION FACTOR	1.008
NOZZLE DIAMETER	6.38 mm
DRY REF GAS VOLUME SAMPLED	1.249 m^3
AVGERGE ISOKINETICITY	98.4 %
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	15.0 %
AVERAGE GAS VELOCITY	18.74 m/s
BAROMETRIC PRESSURE (Station)	99.898 Kpa
STATIC PRESSURE	-2.614 Kpa
ABSOLUTE GAS PRESSURE	97.284 Kpa
OXYGEN CONCENTRATION	8.52 %
CARBON DIOXIDE CONCENTRATION	10.77 %
CARBON MONOXIDE CONCENTRATION	13.3 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.69 m^3/s
DRY REF GAS FLOWRATE	16.29 Rm^3/s
DRY ADJ GAS FLOWRATE	20.37 Rm^3/s
WET REF GAS FLOWRATE	19.18 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.249 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	2 - M26A	**Test Location:**	APC Outlet No.1
Date:	May 17, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.5 "Hg	**CWTR (g)**	151.6		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	10.6		
Nozzle	0.2511 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		12	

Combustion Gases	
O2%	8.52
CO2%	10.77
COppm	13.3

Measured H2O
15.0 %

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	779.03	0.75	280	63	64	65	1.5	4.0		18.19	
	5	782.35	0.81	284	49	64	68	1.55	4.0		18.95	**93.1**
	10	785.69	0.81	285	48	64	72	1.7	4.0		18.96	**90.1**
	15	789.18	0.81	285	48	65	75	1.9	5.0		18.96	**93.9**
	20	792.90	0.81	285	49	66	76	1.9	5.0		18.96	**99.7**
	25	796.64	0.81	285	49	66	77	1.9	5.0		18.96	**100.1**
	30	800.34	0.77	285	49	67	78	1.8	5.0		18.49	**98.9**
	35	803.96	0.81	285	50	67	78	1.95	5.0		18.96	**99.0**
	40	807.68	0.78	284	51	67	78	1.8	5.0		18.60	**99.3**
	45	811.34	0.78	285	52	68	79	2	5.0		18.61	**99.4**
	50	815.19	0.78	285	52	68	79	1.9	5.0		18.61	**104.5**
	55	818.89	0.78	285	55	68	79	1.9	5.0		18.61	**100.4**
	60	822.68										**102.9**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No.1
Test No.:	3 - M26A
Date:	May 17, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.847
DGM CORRECTION FACTOR		1.008
NOZZLE DIAMETER		6.38 mm
DRY REF GAS VOLUME SAMPLED		1.258 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	140.7 °C
AVERAGE GAS MOISTURE BY VOLUME	16.3 %
AVERAGE GAS VELOCITY	18.69 m/s
BAROMETRIC PRESSURE (Station)	100.000 Kpa
STATIC PRESSURE	-2.614 Kpa
ABSOLUTE GAS PRESSURE	97.386 Kpa
OXYGEN CONCENTRATION	8.37 %
CARBON DIOXIDE CONCENTRATION	10.81 %
CARBON MONOXIDE CONCENTRATION	13.2 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.62 m^3/s
DRY REF GAS FLOWRATE	16.01 Rm^3/s
DRY ADJ GAS FLOWRATE	20.27 Rm^3/s
WET REF GAS FLOWRATE	19.13 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.258 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - M26A	**Test Location:**	APC Outlet No.1
Date:	May 17, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.53 "Hg	**CWTR (g)**	168.3		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	11.3		
Nozzle	0.2511 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		12	

Combustion Gases	
O2%	8.37
CO2%	10.81
COppm	13.2

Measured H2O
16.3 %

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	823.01	0.76	283	65	65	65	1.75	5.0		18.38	
	5	826.61	0.78	285	46	65	69	1.8	5.0		18.65	**101.7**
	10	830.18	0.8	285	44	65	73	1.9	5.0		18.89	**99.3**
	15	833.88	0.78	285	45	66	75	1.8	5.0		18.65	**101.3**
	20	837.49	0.78	285	46	67	77	1.8	5.0		18.65	**99.7**
	25	841.12	0.78	285	47	67	78	1.85	5.0		18.65	**100.0**
	30	844.75	0.79	286	48	68	79	1.9	5.0		18.78	**99.9**
	35	848.49	0.81	285	49	68	80	2	5.0		19.00	**102.2**
	40	852.29	0.78	286	49	69	80	1.9	5.0		18.66	**102.4**
	45	856.04	0.78	286	50	69	80	1.8	5.0		18.66	**102.9**
	50	859.67	0.78	286	51	70	81	1.8	5.0		18.66	**99.6**
	55	863.32	0.78	286	52	70	81	1.8	5.0		18.66	**100.0**
	60	867.02										**101.3**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 2
Test No.:	1 - M26A
Date:	May 16, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.847	
DGM CORRECTION FACTOR	1.008	
NOZZLE DIAMETER	6.38	mm
DRY REF GAS VOLUME SAMPLED	1.269	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	141.0	°C
AVERAGE GAS MOISTURE BY VOLUME	13.7	%
AVERAGE GAS VELOCITY	18.54	m/s
BAROMETRIC PRESSURE (Station)	99.357	Kpa
STATIC PRESSURE	-2.614	Kpa
ABSOLUTE GAS PRESSURE	96.742	Kpa
OXYGEN CONCENTRATION	9.33	%
CARBON DIOXIDE CONCENTRATION	9.75	%
CARBON MONOXIDE CONCENTRATION	20.0	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.39	m^3/s
DRY REF GAS FLOWRATE	16.26	Rm^3/s
DRY ADJ GAS FLOWRATE	19.00	Rm^3/s
WET REF GAS FLOWRATE	18.83	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.269	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^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	1 - M26A	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.34 "Hg	**CWTR (g)**	133		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	14.6		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0 ft³	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		1	
		Number of points / Port		12	

Combustion Gases	
O2%	9.33
CO2%	9.75
COppm	20.0

Measured H2O
13.7 %

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	599.47	0.72	283	71	72	72	1.7	5.0		17.89	
	5	602.99	0.74	285	54	72	76	1.75	5.0		18.16	**97.8**
	10	606.58	0.75	285	54	72	79	1.8	5.0		18.28	**98.2**
	15	610.12	0.75	285	54	81	73	1.85	5.0		18.28	**95.9**
	20	613.90	0.77	285	56	83	73	1.85	5.0		18.52	**102.1**
	25	617.59	0.8	286	58	84	74	1.9	5.0		18.89	**98.2**
	30	621.37	0.81	287	61	85	75	2	5.0		19.02	**98.6**
	35	625.22	0.81	287	62	85	75	1.95	5.0		19.02	**99.7**
	40	629.03	0.78	287	62	86	76	1.95	5.0		18.67	**98.6**
	45	632.81	0.76	287	61	86	76	1.9	5.0		18.43	**99.6**
	50	636.36	0.78	286	57	86	76	1.93	5.0		18.66	**94.7**
	55	640.90	0.78	286	55	87	76	1.9	5.0		18.66	**119.5**
	60	644.68										**99.4**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 2
Test No.:	2 - M26A
Date:	May 16, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.847
DGM CORRECTION FACTOR		1.008
NOZZLE DIAMETER		6.38 mm
DRY REF GAS VOLUME SAMPLED		1.278 m^3
AVGERGE ISOKINETICITY		97.7 %
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		141.0 °C
AVERAGE GAS MOISTURE BY VOLUME		13.6 %
AVERAGE GAS VELOCITY		19.18 m/s
BAROMETRIC PRESSURE (Station)		99.221 Kpa
STATIC PRESSURE		-2.614 Kpa
ABSOLUTE GAS PRESSURE		96.607 Kpa
OXYGEN CONCENTRATION		9.63 %
CARBON DIOXIDE CONCENTRATION		9.65 %
CARBON MONOXIDE CONCENTRATION		34.7 ppm

FLOWRATE

ACTUAL GAS FLOWRATE		28.34 m^3/s
DRY REF GAS FLOWRATE		16.80 Rm^3/s
DRY ADJ GAS FLOWRATE		19.12 Rm^3/s
WET REF GAS FLOWRATE		19.45 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.278 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	2 - M26A	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.3 "Hg	**CWTR (g)**	136.4		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	11.7		
Nozzle	0.2511 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%	9.63
CO2%	9.65
COppm	34.7

Measured H2O
13.6 %

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 %
1	0	644.54	0.86	286	67	73	74	1.9	5.5		19.60	
	5	648.26	0.9	288	51	73	77	2	5.5		20.08	**94.4**
	10	652.11	0.87	288	49	73	80	2	5.5		19.74	**95.4**
	15	655.94	0.94	289	50	82	73	2	5.5		20.54	**96.3**
	20	659.83	0.83	289	50	83	73	2.1	5.5		19.30	**94.0**
	25	663.69	0.79	288	51	84	74	1.9	5.0		18.81	**99.2**
	30	667.46	0.79	286	52	84	74	1.9	5.5		18.79	**99.0**
	35	671.21	0.76	284	53	84	74	1.9	5.5		18.40	**98.3**
	40	674.90	0.77	282	53	85	75	1.9	5.5		18.50	**98.5**
	45	678.67	0.79	283	54	85	75	1.9	5.5		18.75	**99.7**
	50	682.42	0.8	283	53	85	75	1.9	5.5		18.87	**97.9**
	55	686.24	0.79	283	53	85	75	1.9	5.5		18.75	**99.1**
	60	690.09										**100.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 2
Test No.:	3 - M26A
Date:	May 16, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.847
DGM CORRECTION FACTOR		1.008
NOZZLE DIAMETER		6.38 mm
DRY REF GAS VOLUME SAMPLED		1.270 m^3
AVGERGE ISOKINETICITY		101.5 %
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		141.1 °C
AVERAGE GAS MOISTURE BY VOLUME		16.2 %
AVERAGE GAS VELOCITY		18.92 m/s
BAROMETRIC PRESSURE (Station)		99.221 Kpa
STATIC PRESSURE		-2.614 Kpa
ABSOLUTE GAS PRESSURE		96.607 Kpa
OXYGEN CONCENTRATION		8.66 %
CARBON DIOXIDE CONCENTRATION		10.48 %
CARBON MONOXIDE CONCENTRATION		38.9 ppm

FLOWRATE

ACTUAL GAS FLOWRATE		27.96 m^3/s
DRY REF GAS FLOWRATE		16.07 Rm^3/s
DRY ADJ GAS FLOWRATE		19.87 Rm^3/s
WET REF GAS FLOWRATE		19.19 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		1.270 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, Ontario
Test No.:	3 - M26A	**Test Location:**	APC Outlet No. 2
Date:	May 16, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.3 "Hg	**CWTR (g)**	162.6		
Static Pressure	-10.500 "H_2O	**WCBDA (g)**	18.4		
Nozzle	0.2511 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%	8.66
CO2%	10.48
COppm	38.9

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	690.46	0.82	281	69	71	73	1.8	5.0		19.16	
	5	694.12	0.84	276	59	59	72	1.8	5.0		19.32	**97.6**
	10	697.81	0.83	288	57	79	72	2	5.0		19.36	**98.1**
	15	701.61	0.84	289	58	81	72	2	5.0		19.49	**100.6**
	20	705.47	0.82	289	62	82	72	1.8	5.0		19.26	**101.5**
	25	709.26	0.8	289	65	83	72	1.8	5.0		19.02	**100.7**
	30	713.12	0.75	288	68	83	73	1.8	5.0		18.41	**103.7**
	35	716.73	0.75	288	72	83	73	1.6	5.0		18.41	**100.0**
	40	720.43	0.77	287	76	83	73	1.8	5.0		18.64	**102.5**
	45	724.19	0.78	286	80	84	73	1.8	5.0		18.75	**102.8**
	50	727.98	0.78	286	74	84	73	1.8	5.0		18.75	**102.8**
	55	731.92	0.76	285	61	84	73	1.8	5.0		18.49	**106.8**
	60	735.58										**100.5**

APPENDIX 25

SVOC Test Emission Calculations
(18 pages)

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	1 - SVOC
Date:	May 18, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.847
DGM CORRECTION FACTOR		1.008
NOZZLE DIAMETER		6.38 mm
DRY REF GAS VOLUME SAMPLED		4.843 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	138.6 °C
AVERAGE GAS MOISTURE BY VOLUME	15.6 %
AVERAGE GAS VELOCITY	17.60 m/s
BAROMETRIC PRESSURE (Station)	100.881 Kpa
STATIC PRESSURE	-2.689 Kpa
ABSOLUTE GAS PRESSURE	98.191 Kpa
OXYGEN CONCENTRATION	8.29 %
CARBON DIOXIDE CONCENTRATION	11.06 %
CARBON MONOXIDE CONCENTRATION	13.5 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.00 m^3/s
DRY REF GAS FLOWRATE	15.39 Rm^3/s
DRY ADJ GAS FLOWRATE	19.60 Rm^3/s
WET REF GAS FLOWRATE	18.25 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		4.843 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	May 18, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.79 "Hg	**CWTR (g)**	642.5		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	17.3		
Nozzle	0.2511 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%	8.29
CO2%	11.06
COppm	13.5

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 %
1	0	11.85	0.76	282	59	60	59	1.65	7.5		18.26	
	5	15.27	0.84	283	53	59	64	1.9	9.0		19.21	**97.4**
2	10	18.90	0.8	283	49	60	66	1.8	9.0		18.75	**98.1**
	15	22.46	0.8	283	47	61	68	1.85	9.5		18.75	**98.3**
3	20	26.09	0.8	283	46	61	69	1.85	9.5		18.75	**100.0**
	25	29.72	0.76	283	45	62	70	1.8	9.0		18.27	**99.9**
4	30	33.27	0.73	283	44	70	62	1.8	9.0		17.91	**100.0**
	35	36.87	0.73	283	44	71	63	1.7	9.0		17.91	**103.5**
5	40	40.38	0.7	283	44	71	63	1.6	9.0		17.54	**100.7**
	45	43.82	0.69	283	44	72	63	1.65	9.0		17.41	**100.7**
6	50	47.23	0.67	284	44	72	64	1.6	9.0		17.17	**100.5**
	55	50.68	0.67	284	44	72	64	1.6	9.0		17.17	**103.1**
7	60	54.08	0.69	284	44	73	64	1.6	9.0		17.42	**101.6**
	65	57.49	0.71	284	44	73	64	1.7	9.0		17.67	**100.3**
8	70	60.99	0.75	284	44	73	64	1.75	9.0		18.16	**101.6**
	75	64.52	0.76	285	44	73	65	1.8	9.0		18.30	**99.7**
9	80	68.09	0.75	285	43	75	63	1.75	9.0		18.18	**100.1**
	85	71.68	0.74	285	43	75	65	1.75	9.0		18.06	**101.3**
10	90	75.26	0.72	285	43	75	65	1.7	9.0		17.81	**101.5**
	95	78.89	0.73	284	45	73	65	1.7	9.0		17.92	**104.4**
11	100	82.39	0.68	283	43	75	65	1.7	9.0		17.28	**100.1**
	105	85.89	0.69	279	45	72	65	1.7	9.0		17.36	**103.4**
12	110	89.35	0.69	281	45	73	65	1.7	9.0		17.39	**101.5**
	115	92.87	0.67	281	45	73	65	1.7	9.0		17.13	**103.3**
	120	96.35								0.53		**103.6**
1	0	96.88	0.86	283	52	65	63	1.9	10.0		19.44	
	5	100.68	0.84	286	47	67	63	1.9	10.0		19.25	**101.0**
2	10	104.38	0.85	286	47	68	63	1.85	10.5		19.36	**99.5**
	15	108.12	0.83	286	43	69	63	1.9	10.5		19.13	**99.9**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	May 18, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.79 "Hg	**CWTR (g)**	642.5		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	17.3		
Nozzle	0.2511 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%	8.29
CO2%	11.06
COppm	13.5

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 %
3	20	111.83	0.85	286	41	70	63	1.9	10.5		19.36	**100.2**
	25	115.17	0.75	286	40	70	64	1.8	10.5		18.19	**89.1**
4	30	118.79	0.67	286	40	71	64	1.7	10.5		17.19	**102.7**
	35	122.01	0.6	286	40	71	64	1.6	10.0		16.27	**96.5**
5	40	125.35	0.57	286	40	72	64	1.5	9.5		15.86	**105.7**
	45	129.03	0.55	286	40	72	64	1.2	9.0		15.58	**119.4**
6	50	132.14	0.6	285	40	73	64	1.4	9.0		16.26	**102.6**
	55	135.33	0.6	285	40	74	65	1.4	9.0		16.26	**100.7**
7	60	138.49	0.61	285	40	74	65	1.4	9.5		16.39	**99.5**
	65	141.73	0.61	285	40	74	65	1.5	9.5		16.39	**101.2**
8	70	145.02	0.73	284	40	74	65	1.4	10.0		17.92	**102.8**
	75	148.40	0.7	284	40	73	65	1.6	10.0		17.55	**96.5**
9	80	151.84	0.68	284	41	73	65	1.6	10.0		17.30	**100.4**
	85	155.25	0.68	283	41	73	65	1.65	10.0		17.28	**101.0**
10	90	158.66	0.67	283	41	73	65	1.6	10.0		17.16	**100.9**
	95	162.05	0.7	283	41	73	65	1.6	10.0		17.54	**101.1**
11	100	165.47	0.63	282	42	73	65	1.55	10.0		16.63	**99.8**
	105	168.83	0.64	247	42	73	65	1.6	10.0		16.36	**103.2**
12	110	172.22	0.62	245	42	73	65	1.55	10.0		16.08	**100.9**
	115	175.60	0.63	245	42	73	65	1.6	10.0		16.21	**102.0**
	120	179.01										**102.1**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	2 - SVOC
Date:	May 18, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.847	
DGM CORRECTION FACTOR	1.008	
NOZZLE DIAMETER	6.38	mm
DRY REF GAS VOLUME SAMPLED	4.885	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	139.6	°C
AVERAGE GAS MOISTURE BY VOLUME	16.1	%
AVERAGE GAS VELOCITY	18.16	m/s
BAROMETRIC PRESSURE (Station)	100.440	Kpa
STATIC PRESSURE	-2.689	Kpa
ABSOLUTE GAS PRESSURE	97.751	Kpa
OXYGEN CONCENTRATION	8.36	%
CARBON DIOXIDE CONCENTRATION	10.85	%
CARBON MONOXIDE CONCENTRATION	14.8	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.83	m^3/s
DRY REF GAS FLOWRATE	15.68	Rm^3/s
DRY ADJ GAS FLOWRATE	19.86	Rm^3/s
WET REF GAS FLOWRATE	18.70	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.885	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^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	May 18, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.66 "Hg	**CWTR (g)**	673.7		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	15.6		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.4 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%	8.36
CO2%	10.85
COppm	14.8

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	79.42	0.72	282	61	62	64	1.7	6.0		17.84	
	5	82.92	0.7	283	58	62	67	1.7	7.0		17.60	**102.0**
2	10	86.35	0.72	283	55	63	70	1.65	7.0		17.85	**101.1**
	15	89.75	0.75	283	52	63	72	1.7	7.0		18.22	**98.5**
3	20	93.24	0.77	283	50	64	74	1.8	7.0		18.46	**98.8**
	25	96.81	0.75	283	48	65	75	1.7	7.0		18.22	**99.5**
4	30	100.34	0.71	283	48	66	76	1.6	7.0		17.73	**99.5**
	35	103.78	0.73	284	48	66	76	1.7	7.0		17.99	**99.5**
5	40	107.34	0.71	284	47	67	77	1.65	7.0		17.74	**101.6**
	45	110.81	0.71	284	48	67	77	1.65	7.0		17.74	**100.2**
6	50	114.27	0.67	284	48	67	77	1.5	7.0		17.23	**99.9**
	55	117.61	0.67	284	48	68	78	1.55	7.0		17.23	**99.3**
7	60	120.95	0.71	284	48	68	78	1.65	7.0		17.74	**99.1**
	65	124.41	0.71	284	47	68	78	1.65	7.0		17.74	**99.7**
8	70	127.87	0.75	284	47	68	78	1.75	7.0		18.23	**99.7**
	75	131.46	0.75	284	47	68	78	1.75	7.0		18.23	**100.7**
9	80	135.05	0.79	284	47	68	78	1.9	7.5		18.71	**100.7**
	85	138.78	0.79	284	47	69	78	1.8	7.5		18.71	**102.0**
10	90	142.40	0.85	284	47	69	78	1.9	7.5		19.41	**98.9**
	95	146.10	0.86	284	48	69	78	2.05	8.0		19.52	**97.4**
11	100	149.93	0.83	284	48	69	78	1.95	7.5		19.18	**100.3**
	105	153.69	0.83	284	48	69	78	1.95	7.5		19.18	**100.2**
12	110	157.46	0.81	284	48	69	78	1.9	7.5		18.95	**100.5**
	115	161.20	0.84	284	49	69	78	1.9	7.5		19.30	**100.9**
	120	164.97								0.4		**99.9**
1	0	165.37	0.83	283	59	68	70	1.95	7.5		19.17	
	5	169.11	0.83	283	49	68	73	1.95	7.5		19.17	**100.5**
2	10	172.83	0.9	283	49	68	75	2.05	7.5		19.96	**99.6**
	15	176.67	0.86	283	49	68	76	2	8.0		19.51	**98.6**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	May 18, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.66 "Hg	**CWTR (g)**	673.7		
Static Pressure	-10.800 "H_2O	**WCBDA (g)**	15.6		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.4 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%	8.36
CO2%	10.85
COppm	14.8

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 %
3	20	180.49	0.85	283	50	68	77	1.95	8.0		19.40	**100.3**
	25	184.29	0.81	283	50	68	77	1.9	8.0		18.93	**100.2**
4	30	187.99	0.77	283	50	68	77	1.8	7.5		18.46	**99.9**
	35	191.63	0.75	283	51	69	78	1.8	7.5		18.22	**100.8**
5	40	195.20	0.68	283	51	69	78	1.6	7.0		17.35	**100.0**
	45	198.63	0.68	283	51	69	78	1.55	7.0		17.35	**100.9**
6	50	202.02	0.58	283	51	69	78	1.45	7.0		16.02	**99.7**
	55	205.23	0.65	283	50	69	78	1.5	7.0		16.96	**102.2**
7	60	208.54	0.69	283	49	69	79	1.6	7.0		17.48	**99.5**
	65	211.94	0.73	283	48	69	79	1.7	7.5		17.98	**99.2**
8	70	215.46	0.74	283	48	69	78	1.7	7.5		18.10	**99.8**
	75	218.99	0.74	283	47	69	78	1.7	7.5		18.10	**99.5**
9	80	222.54	0.74	283	47	69	78	1.7	7.5		18.10	**100.1**
	85	226.10	0.73	283	47	69	78	1.7	7.5		17.98	**100.4**
10	90	229.60	0.76	282	47	69	78	1.75	8.0		18.33	**99.3**
	95	233.20	0.72	282	47	69	78	1.65	8.0		17.84	**100.1**
11	100	236.68	0.72	282	48	69	78	1.65	8.0		17.84	**99.4**
	105	240.20	0.64	283	48	69	78	1.45	7.0		16.83	**100.5**
12	110	243.49	0.64	283	48	68	77	1.45	7.0		16.83	**99.7**
	115	246.77	0.64	283	48	68	78	1.45	7.0		16.83	**99.6**
	120	250.05										**99.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	3 - SVOC
Date:	May 19, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.847	
DGM CORRECTION FACTOR	1.008	
NOZZLE DIAMETER	6.38	mm
DRY REF GAS VOLUME SAMPLED	4.879	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	140.7	°C
AVERAGE GAS MOISTURE BY VOLUME	16.3	%
AVERAGE GAS VELOCITY	18.42	m/s
BAROMETRIC PRESSURE (Station)	99.492	Kpa
STATIC PRESSURE	-2.789	Kpa
ABSOLUTE GAS PRESSURE	96.703	Kpa
OXYGEN CONCENTRATION	8.16	%
CARBON DIOXIDE CONCENTRATION	11.00	%
CARBON MONOXIDE CONCENTRATION	16.4	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.22	m^3/s
DRY REF GAS FLOWRATE	15.66	Rm^3/s
DRY ADJ GAS FLOWRATE	20.15	Rm^3/s
WET REF GAS FLOWRATE	18.72	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.879	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^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	May 19, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	686.8		
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	12.4		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.4 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%	8.16
CO2%	11.00
COppm	16.4

Measured H2O
16.3 %

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	350.54	0.62	282	57	59	60	1.4	6.0		16.65	
	5	353.72	0.6	283	47	59	63	1.35	7.0		16.39	**100.3**
2	10	356.76	0.68	283	46	60	66	1.55	7.5		17.45	**97.2**
	15	360.05	0.71	283	46	60	68	1.6	8.0		17.83	**98.5**
3	20	363.40	0.71	284	45	61	70	1.65	8.0		17.84	**98.0**
	25	366.81	0.71	285	45	61	71	1.65	8.0		17.85	**99.5**
4	30	370.26	0.7	285	45	62	71	1.6	8.0		17.73	**100.7**
	35	373.64	0.72	285	45	62	72	1.65	8.0		17.98	**99.2**
5	40	377.10	0.71	285	45	63	72	1.7	8.0		17.85	**100.1**
	45	380.58	0.71	285	45	63	73	1.65	8.0		17.85	**101.3**
6	50	384.03	0.63	285	45	64	73	1.45	8.0		16.82	**100.3**
	55	387.28	0.61	286	46	64	73	1.4	8.0		16.56	**100.1**
7	60	390.48	0.66	286	46	64	74	1.55	8.0		17.22	**100.3**
	65	393.85	0.66	286	47	64	74	1.5	7.5		17.22	**101.4**
8	70	397.18	0.73	286	48	65	74	1.65	8.0		18.11	**100.2**
	75	400.67	0.77	285	48	65	74	1.75	8.5		18.59	**99.8**
9	80	404.25	0.8	285	46	65	74	1.8	8.5		18.95	**99.7**
	85	407.91	0.81	284	46	65	74	1.85	8.5		19.05	**100.0**
10	90	411.64	0.81	285	46	65	74	1.8	8.5		19.07	**101.2**
	95	415.29	0.83	284	46	65	74	1.9	8.5		19.29	**99.1**
11	100	419.04	0.82	284	46	65	74	1.8	8.5		19.17	**100.5**
	105	422.69	0.82	284	46	66	74	1.8	8.5		19.17	**98.4**
12	110	426.33	0.83	284	47	66	74	1.9	8.5		19.29	**98.1**
	115	430.06	0.81	284	47	66	74	1.8	8.5		19.05	**99.9**
	120	433.74								0.4		**99.7**
1	0	434.14	0.61	283	56	64	67	1.4	7.0		16.52	
	5	437.39	0.74	283	46	64	69	1.65	8.0		18.20	**102.2**
2	10	440.86	0.74	283	44	64	71	1.65	8.0		18.20	**98.9**
	15	444.41	0.76	283	44	65	73	1.75	8.0		18.44	**101.0**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	May 19, 2022	**Operator:**	TT

Pitot Factor	0.847	**Filter (mg)**	0		
DGMCF	1.008	**Probe (mg)**	0		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	686.8		
Static Pressure	-11.200 "H_2O	**WCBDA (g)**	12.4		
Nozzle	0.2511 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.4 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%	8.16
CO2%	11.00
COppm	16.4

Measured H2O
16.3 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures				ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
				Stack °F	Imp. Out °F	DGM Out °F	DGM In °F					
3	20	447.98	0.77	284	44	65	73	1.75	8.0		18.58	**100.0**
	25	451.57	0.77	286	44	57	74	1.75	8.0		18.60	**100.0**
4	30	455.15	0.8	286	44	65	74	1.8	8.5		18.96	**100.5**
	35	458.79	0.81	287	44	65	74	1.85	8.5		19.09	**99.5**
5	40	462.47	0.78	287	44	65	74	1.75	8.0		18.74	**100.0**
	45	466.08	0.77	287	44	65	74	1.75	8.0		18.62	**100.0**
6	50	469.68	0.77	287	44	65	74	1.75	8.0		18.62	**100.4**
	55	473.27	0.78	288	44	65	74	1.75	8.0		18.75	**100.1**
7	60	476.87	0.7	288	45	66	74	1.6	8.0		17.76	**99.8**
	65	480.32	0.72	288	45	66	74	1.65	8.0		18.01	**100.8**
8	70	483.80	0.76	288	45	66	75	1.75	8.5		18.51	**100.3**
	75	487.40	0.76	288	45	66	75	1.75	8.5		18.51	**100.9**
9	80	490.98	0.82	288	45	66	75	1.85	8.5		19.22	**100.3**
	85	494.69	0.84	288	45	66	74	1.95	9.0		19.46	**100.1**
10	90	498.48	0.86	288	45	66	74	1.95	9.0		19.69	**101.2**
	95	502.27	0.86	288	45	66	74	1.95	9.0		19.69	**100.0**
11	100	506.05	0.86	287	45	66	73	1.95	9.0		19.67	**99.7**
	105	509.83	0.87	285	45	66	73	2	9.0		19.76	**99.8**
12	110	513.66	0.87	284	45	66	73	2	9.0		19.75	**100.4**
	115	517.49	0.88	283	45	66	73	2	9.0		19.85	**100.3**
	120	521.33										**99.9**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	1 - SVOC
Date:	May 18, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT		0.845
DGM CORRECTION FACTOR		0.977
NOZZLE DIAMETER		6.36 mm
DRY REF GAS VOLUME SAMPLED		5.083 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	137.5 °C
AVERAGE GAS MOISTURE BY VOLUME	15.4 %
AVERAGE GAS VELOCITY	18.57 m/s
BAROMETRIC PRESSURE (Station)	100.881 Kpa
STATIC PRESSURE	-2.714 Kpa
ABSOLUTE GAS PRESSURE	98.166 Kpa
OXYGEN CONCENTRATION	8.51 %
CARBON DIOXIDE CONCENTRATION	10.58 %
CARBON MONOXIDE CONCENTRATION	12.3 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.44 m^3/s
DRY REF GAS FLOWRATE	16.32 Rm^3/s
DRY ADJ GAS FLOWRATE	20.43 Rm^3/s
WET REF GAS FLOWRATE	19.31 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		5.083 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	APC Outlet No. 2
Date:	May 18, 2022	**Operator:**	BM

Pitot Factor	0.845	**Filter (mg)**	0		
DGMCF	0.977	**Probe (mg)**	0		
Barometric Pressure	29.79 "Hg	**CWTR (g)**	664.8		
Static Pressure	-10.900 "H_2O	**WCBDA (g)**	18		
Nozzle	0.2505 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.38 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%	8.51
CO2%	10.58
COppm	12.3

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	83.94	0.97	272	52	65	63	2.2	4.5		20.46	
	5	87.93	0.98	281	50	64	63	2.3	5.0		20.69	**96.6**
2	10	92.05	0.95	283	47	64	63	2.3	5.0		20.40	**100.0**
	15	96.17	0.95	282	45	66	63	2.2	5.5		20.38	**101.7**
3	20	100.22	0.91	283	46	67	63	2.1	5.5		19.96	**99.7**
	25	104.18	0.89	283	45	68	64	2.1	5.5		19.74	**99.5**
4	30	108.13	0.81	283	45	70	64	1.9	5.0		18.83	**100.2**
	35	111.85	0.83	284	46	71	65	2	5.0		19.08	**98.7**
5	40	115.68	0.79	283	45	74	65	1.9	5.0		18.60	**100.2**
	45	119.45	0.74	284	45	74	65	1.8	5.0		18.01	**100.8**
6	50	123.13	0.62	284	44	72	66	1.4	4.0		16.49	**101.7**
	55	126.40	0.66	285	45	73	66	1.5	4.5		17.02	**98.7**
7	60	129.73	0.72	285	42	73	66	1.8	5.0		17.78	**97.4**
	65	133.37	0.72	285	42	75	66	1.8	5.0		17.78	**102.0**
8	70	137.02	0.74	284	41	74	67	1.8	5.0		18.01	**102.1**
	75	140.68	0.78	284	40	74	66	1.9	5.0		18.49	**100.9**
9	80	144.43	0.79	285	40	74	67	1.9	5.0		18.63	**100.8**
	85	148.19	0.79	285	41	74	67	1.9	5.0		18.63	**100.4**
10	90	151.94	0.76	283	41	74	67	1.8	5.0		18.24	**100.2**
	95	155.61	0.78	284	41	73	68	1.9	5.0		18.49	**99.8**
11	100	159.32	0.77	284	40	76	68	1.9	5.0		18.38	**99.7**
	105	163.04	0.74	284	41	75	67	1.7	5.0		18.01	**100.3**
12	110	166.65	0.65	172	41	73	68	1.8	5.0		15.56	**99.4**
	115	170.30	0.59	165	41	74	69	1.7	5.0		14.74	**99.0**
	120	173.90								0.38		**101.7**
1	0	174.28	0.92	287	44	69	69	2.1	6.0		20.13	
	5	178.52	0.93	288	41	71	69	2.1	6.0		20.25	**105.4**
2	10	182.62	0.94	288	41	70	68	2.1	6.0		20.36	**101.3**
	15	186.71	0.97	288	42	72	68	2.2	6.0		20.68	**100.7**

ORTECH Consulting Inc.

Plant: Covanta DYEC
Test No.: 1 - SVOC
Date: May 18, 2022

Plant Location: Courtice, ON
Test Location: APC Outlet No. 2
Operator: BM

Pitot Factor	0.845	**Filter (mg)**	0		
DGMCF	0.977	**Probe (mg)**	0		
Barometric Pressure	29.79 "Hg	**CWTR (g)**	664.8		
Static Pressure	-10.900 "H_2O	**WCBDA (g)**	18		
Nozzle	0.2505 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.38 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%	8.51
CO2%	10.58
COppm	12.3

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 %
3	20	190.80	0.96	288	42	72	68	2.2	6.0		20.57	**99.0**
	25	194.91	0.92	288	42	72	68	2.2	6.0		20.14	**100.0**
4	30	199.00	0.88	288	43	74	68	2	6.0		19.70	**101.6**
	35	202.93	0.87	288	44	74	69	2	6.0		19.58	**99.6**
5	40	206.85	0.85	288	44	74	69	2	6.0		19.36	**99.8**
	45	210.76	0.83	288	44	75	68	2	6.0		19.13	**100.7**
6	50	214.66	0.75	287	45	75	69	1.8	6.0		18.17	**101.7**
	55	218.38	0.72	286	45	74	68	1.7	5.5		17.79	**101.8**
7	60	221.97	0.75	286	45	74	68	1.8	5.5		18.16	**100.4**
	65	225.63	0.76	286	44	75	68	1.8	5.5		18.28	**100.3**
8	70	229.28	0.79	286	43	75	68	1.9	6.0		18.64	**99.3**
	75	233.04	0.8	286	44	75	68	2	6.0		18.76	**100.3**
9	80	236.89	0.8	286	45	75	68	2	6.0		18.76	**102.1**
	85	240.73	0.76	286	45	75	69	1.8	6.0		18.28	**101.8**
10	90	244.42	0.74	285	45	75	69	1.8	6.0		18.03	**100.3**
	95	248.10	0.67	284	45	76	69	1.6	5.5		17.14	**101.3**
11	100	251.63	0.59	284	44	75	69	1.5	5.0		16.08	**101.9**
	105	254.99	0.67	275	44	74	69	1.6	5.5		17.04	**103.4**
12	110	258.46	0.67	275	45	74	69	1.6	5.5		17.04	**99.7**
	115	261.93	0.67	274	44	74	69	1.6	5.5		17.03	**99.7**
	120	265.41										**99.9**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	2 - SVOC
Date:	May 18, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.845
DGM CORRECTION FACTOR	0.977
NOZZLE DIAMETER	6.36 mm
DRY REF GAS VOLUME SAMPLED	5.160 m^3
AVGERGE ISOKINETICITY	100.4 %
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	139.7 °C
AVERAGE GAS MOISTURE BY VOLUME	14.0 %
AVERAGE GAS VELOCITY	18.77 m/s
BAROMETRIC PRESSURE (Station)	100.474 Kpa
STATIC PRESSURE	-2.714 Kpa
ABSOLUTE GAS PRESSURE	97.760 Kpa
OXYGEN CONCENTRATION	8.51 %
CARBON DIOXIDE CONCENTRATION	10.47 %
CARBON MONOXIDE CONCENTRATION	14.2 ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.74 m^3/s
DRY REF GAS FLOWRATE	16.61 Rm^3/s
DRY ADJ GAS FLOWRATE	20.79 Rm^3/s
WET REF GAS FLOWRATE	19.33 Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0 mg
	-FILTER	0 mg
	-TOTAL	0 mg
DRY REF GAS VOLUME SAMPLED		5.160 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^3
PARTICULATE CONC. - WET REF		0.000 mg/m^3
PARTICULATE EMISSION RATE		0.000000 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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	APC Outlet No. 2
Date:	May 18, 2022	**Operator:**	BM

Pitot Factor	0.845	**Filter (mg)**	0		
DGMCF	0.977	**Probe (mg)**	0		
Barometric Pressure	29.67 "Hg	**CWTR (g)**	607.1		
Static Pressure	-10.900 "H_2O	**WCBDA (g)**	11.5		
Nozzle	0.2505 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.26 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%	8.51
CO2%	10.47
COppm	14.2

Measured H2O
14.0 %

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	65.77	0.86	267	55	65	64	2.1	5.0		19.18	
	5	69.72	0.91	283	56	68	66	2.1	4.5		19.95	**99.5**
2	10	73.66	0.92	283	50	66	66	2.2	5.0		20.06	**97.1**
	15	77.68	0.91	282	44	68	66	2.2	5.0		19.93	**98.7**
3	20	81.69	0.91	285	42	69	66	2.2	5.0		19.98	**98.8**
	25	85.74	0.92	284	41	69	66	2.2	5.5		20.07	**99.8**
4	30	89.76	0.87	286	41	72	67	2	5.5		19.54	**98.5**
	35	93.72	0.86	286	40	73	67	2.1	5.5		19.43	**99.5**
5	40	97.69	0.82	285	41	73	68	1.9	5.0		18.96	**100.2**
	45	101.51	0.81	286	41	74	68	1.9	5.0		18.86	**98.6**
6	50	105.31	0.75	285	43	75	68	1.7	5.0		18.13	**98.6**
	55	108.95	0.71	285	43	75	68	1.7	5.0		17.64	**98.0**
7	60	112.57	0.77	286	41	76	69	1.8	5.0		18.39	**100.2**
	65	116.31	0.8	286	41	76	70	1.8	5.0		18.74	**99.3**
8	70	120.06	0.84	285	42	76	69	2.1	5.5		19.19	**97.6**
	75	123.97	0.84	285	43	75	68	2.1	5.5		19.19	**99.4**
9	80	127.92	0.84	287	42	75	69	2	5.5		19.22	**100.6**
	85	131.82	0.81	287	42	76	70	1.9	5.5		18.87	**99.3**
10	90	135.65	0.81	286	42	77	70	1.9	5.5		18.86	**99.1**
	95	139.47	0.83	286	42	78	70	1.9	5.5		19.09	**98.7**
11	100	143.30	0.79	282	42	76	71	1.9	5.5		18.57	**97.7**
	105	147.17	0.78	278	42	76	71	1.8	5.0		18.41	**101.0**
12	110	150.92	0.78	278	43	76	71	1.8	5.0		18.41	**98.2**
	115	154.65	0.79	279	42	76	71	1.8	5.0		18.54	**97.6**
	120	158.50								0.26		**100.2**
1	0	158.76	0.98	278	45	74	71	2.3	6.0		20.63	
	5	162.93	1	285	42	75	71	2.2	6.0		20.94	**97.7**
2	10	167.12	0.98	286	42	76	71	2.3	6.0		20.74	**97.5**
	15	171.31	0.98	286	43	75	72	2.3	6.0		20.74	**98.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	APC Outlet No. 2
Date:	May 18, 2022	**Operator:**	BM

Pitot Factor	0.845	**Filter (mg)**	0		
DGMCF	0.977	**Probe (mg)**	0		
Barometric Pressure	29.67 "Hg	**CWTR (g)**	607.1		
Static Pressure	-10.900 "H_2O	**WCBDA (g)**	11.5		
Nozzle	0.2505 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.26 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%	8.51
CO2%	10.47
COppm	14.2

Measured H2O
14.0 %

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 %
3	20	175.50	0.97	286	43	76	71	2.2	6.0		20.64	**98.5**
	25	179.68	0.97	286	42	76	71	2.2	6.0		20.64	**98.8**
4	30	183.87	0.86	286	42	78	71	2.3	6.0		19.43	**99.0**
	35	188.03	0.88	286	42	76	71	2.2	6.0		19.66	**104.2**
5	40	192.10	0.78	285	43	77	71	2.1	6.0		18.49	**101.0**
	45	196.07	0.77	286	44	76	71	2	6.0		18.39	**104.4**
6	50	199.86	0.65	286	43	77	71	1.8	6.0		16.89	**100.5**
	55	203.60	0.65	285	43	77	72	1.8	6.0		16.88	**107.7**
7	60	207.03	0.73	286	43	77	72	1.5	6.0		17.90	**98.6**
	65	210.67	0.72	286	42	76	72	1.8	5.0		17.78	**98.8**
8	70	214.43	0.75	285	43	76	71	1.8	5.0		18.13	**102.9**
	75	218.29	0.79	285	43	76	71	1.9	5.0		18.61	**103.5**
9	80	222.08	0.81	287	42	77	71	2	5.0		18.87	**99.1**
	85	225.97	0.81	287	43	77	71	2	6.0		18.87	**100.5**
10	90	229.90	0.77	286	43	77	71	2	6.0		18.39	**101.5**
	95	233.80	0.77	285	43	78	71	2	6.0		18.37	**103.3**
11	100	237.73	0.71	281	43	77	72	2	6.0		17.60	**103.9**
	105	241.53	0.72	281	44	76	71	1.8	6.0		17.72	**104.3**
12	110	245.12	0.44	268	44	76	71	1.4	5.0		13.73	**98.0**
	115	248.50	0.44	269	43	77	71	1.2	4.0		13.74	**116.9**
	120	251.45										**101.9**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	3- SVOC
Date:	May 19, 2022

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.845	
DGM CORRECTION FACTOR	0.977	
NOZZLE DIAMETER	6.36	mm
DRY REF GAS VOLUME SAMPLED	4.966	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	139.2	°C
AVERAGE GAS MOISTURE BY VOLUME	16.1	%
AVERAGE GAS VELOCITY	18.55	m/s
BAROMETRIC PRESSURE (Station)	99.492	Kpa
STATIC PRESSURE	-2.839	Kpa
ABSOLUTE GAS PRESSURE	96.653	Kpa
OXYGEN CONCENTRATION	8.23	%
CARBON DIOXIDE CONCENTRATION	10.68	%
CARBON MONOXIDE CONCENTRATION	16.1	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.42	m^3/s
DRY REF GAS FLOWRATE	15.86	Rm^3/s
DRY ADJ GAS FLOWRATE	20.29	Rm^3/s
WET REF GAS FLOWRATE	18.91	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.966	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^3
PARTICULATE CONC. - WET REF		0.000	mg/m^3
PARTICULATE EMISSION RATE		0.000000	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 Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3- SVOC	**Test Location:**	APC Outlet No. 2
Date:	May 19, 2022	**Operator:**	NR

Pitot Factor	0.845	**Filter (mg)**	0		
DGMCF	0.977	**Probe (mg)**	0		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	688.3		
Static Pressure	-11.400 "H_2O	**WCBDA (g)**	14.4		
Nozzle	0.2505 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.39 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%	8.23
CO2%	10.68
COppm	16.1

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	52.81	0.98	277	50	64	61	2	6.0		20.82	
	5	57.09	0.96	283	47	63	62	2.5	6.0		20.69	**103.8**
2	10	61.31	0.95	284	45	64	62	2.3	6.0		20.60	**103.9**
	15	65.40	0.96	284	44	64	62	2.2	6.0		20.71	**101.2**
3	20	69.45	0.91	284	41	66	62	2.1	6.0		20.16	**99.6**
	25	73.50	0.93	283	40	66	62	2.1	6.0		20.37	**102.1**
4	30	77.43	0.88	285	40	67	62	2.1	6.0		19.84	**97.9**
	35	81.37	0.89	285	40	69	62	2	6.0		19.95	**101.0**
5	40	85.28	0.79	286	39	70	62	2	6.0		18.81	**99.4**
	45	89.17	0.79	285	39	70	63	2	6.0		18.80	**105.0**
6	50	93.03	0.7	286	39	71	64	2	6.0		17.71	**104.0**
	55	96.75	0.73	286	39	71	64	1.8	5.5		18.08	**106.3**
7	60	100.31	0.73	286	40	72	65	1.6	5.5		18.08	**99.6**
	65	103.89	0.72	286	40	72	65	1.6	5.5		17.96	**99.9**
8	70	107.54	0.74	285	40	72	65	1.6	5.5		18.19	**102.6**
	75	110.88	0.75	286	40	72	65	1.5	5.5		18.33	**92.5**
9	80	114.56	0.75	285	38	73	65	1.8	5.5		18.31	**101.3**
	85	118.27	0.73	285	38	73	66	1.8	5.5		18.07	**102.1**
10	90	121.92	0.69	285	39	75	67	1.7	5.5		17.57	**101.7**
	95	125.46	0.71	284	39	74	67	1.6	5.5		17.81	**101.1**
11	100	128.98	0.61	277	38	74	68	1.6	5.5		16.43	**99.1**
	105	132.50	0.62	275	38	75	68	1.6	5.5		16.54	**106.3**
12	110	135.85	0.47	268	40	73	67	1.4	5.0		14.33	**100.1**
	115	139.13	0.46	266	40	74	68	1.2	4.5		14.16	**112.3**
	120	141.91								0.39		**95.9**
1	0	142.30	0.89	273	49	71	67	2.2	7.0		19.79	
	5	146.49	0.88	284	39	71	68	2.2	7.0		19.83	**105.1**
2	10	150.43	0.9	285	40	72	68	2.1	7.0		20.06	**100.0**
	15	154.44	0.91	286	41	72	68	2.1	7.0		20.19	**100.6**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3- SVOC	**Test Location:**	APC Outlet No. 2
Date:	May 19, 2022	**Operator:**	NR

Pitot Factor	0.845	**Filter (mg)**	0		
DGMCF	0.977	**Probe (mg)**	0		
Barometric Pressure	29.38 "Hg	**CWTR (g)**	688.3		
Static Pressure	-11.400 "H_2O	**WCBDA (g)**	14.4		
Nozzle	0.2505 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.39 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%	8.23
CO2%	10.68
COppm	16.1

Measured H2O
16.1 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures				ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
				Stack °F	Imp. Out °F	DGM Out °F	DGM In °F					
3	20	158.44	0.88	285	41	73	68	2	7.0		19.84	**99.8**
	25	162.42	0.88	285	40	72	68	2	7.0		19.84	**100.8**
4	30	166.32	0.86	285	41	74	68	2	7.0		19.61	**98.9**
	35	170.29	0.87	287	41	73	68	2.1	7.0		19.75	**101.6**
5	40	174.25	0.81	286	41	73	68	2.1	7.0		19.05	**101.1**
	45	178.28	0.77	286	40	73	68	2	7.0		18.57	**106.5**
6	50	181.93	0.74	287	40	74	68	1.8	6.5		18.22	**98.9**
	55	185.67	0.71	287	40	75	68	1.8	6.5		17.84	**103.3**
7	60	189.23	0.79	286	40	75	69	1.6	6.5		18.81	**100.3**
	65	192.82	0.77	286	41	74	69	1.7	6.0		18.57	**95.7**
8	70	196.60	0.77	286	40	74	68	1.9	6.0		18.57	**102.2**
	75	200.49	0.78	286	40	74	68	1.8	6.0		18.69	**105.3**
9	80	204.04	0.8	284	41	74	69	1.8	6.0		18.90	**95.5**
	85	207.93	0.8	286	41	74	69	2	7.0		18.93	**103.0**
10	90	211.77	0.8	284	41	74	69	1.9	7.0		18.90	**101.9**
	95	215.55	0.81	286	40	74	69	1.8	7.0		19.05	**100.2**
11	100	219.32	0.72	277	40	75	69	1.8	7.0		17.85	**99.4**
	105	222.96	0.73	272	41	73	68	1.7	7.0		17.91	**101.1**
12	110	226.39	0.49	267	40	73	69	1.6	4.0		14.62	**94.5**
	115	229.23	0.51	267	41	73	69	1	5.0		14.92	**95.1**
	120	232.32										**101.2**

APPENDIX 26

ORTECH Total Hydrocarbon CEM Data
(4 pages)

Covanta - Durham York Energy Centre
Total Hydrocarbon Sampling at the Boiler No. 1 Quench Inlet

Test No. 1 May 17, 2022			Test No. 2 May 17, 2022			Test No. 3 May 17, 2022		
Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry	Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry	Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry
09:10	3.0		10:50	1.3		11:55	0.7	
09:11	2.2		10:51	1.3		11:56	0.0	
09:12	2.0		10:52	1.1		11:57	0.0	
09:13	2.3		10:53	1.0		11:58	0.3	
09:14	1.5		10:54	1.0		11:59	0.5	
09:15	1.2		10:55	0.9		12:00	0.2	
09:16	1.3		10:56	2.1		12:01	0.5	
09:17	1.3		10:57	1.5		12:02	1.1	
09:18	1.4		10:58	1.2		12:03	1.3	
09:19	0.9	1.7	10:59	1.2	1.3	12:04	0.9	0.5
09:20	0.3	1.4	11:00	0.9	1.2	12:05	1.1	0.5
09:21	0.4	1.3	11:01	0.8	1.2	12:06	1.4	0.7
09:22	0.3	1.1	11:02	0.8	1.1	12:07	1.7	0.9
09:23	0.5	0.9	11:03	1.2	1.2	12:08	1.8	1.0
09:24	0.5	0.8	11:04	1.0	1.1	12:09	0.2	1.0
09:25	0.5	0.7	11:05	0.7	1.1	12:10	0.6	1.1
09:26	0.8	0.7	11:06	0.5	1.0	12:11	1.0	1.1
09:27	0.9	0.6	11:07	0.3	0.8	12:12	1.3	1.1
09:28	0.8	0.6	11:08	0.2	0.7	12:13	1.2	1.1
09:29	0.9	0.6	11:09	0.5	0.7	12:14	0.9	1.1
09:30	0.8	0.6	11:10	0.3	0.6	12:15	0.9	1.1
09:31	0.9	0.7	11:11	0.0	0.5	12:16	0.9	1.1
09:32	0.9	0.8	11:12	0.5	0.5	12:17	1.0	1.0
09:33	0.8	0.8	11:13	0.4	0.4	12:18	0.7	0.9
09:34	0.8	0.8	11:14	0.4	0.4	12:19	0.8	0.9
09:35	0.8	0.8	11:15	0.3	0.3	12:20	1.1	1.0
09:36	0.7	0.8	11:16	0.3	0.3	12:21	0.9	1.0
09:37	0.7	0.8	11:17	0.2	0.3	12:22	0.4	0.9
09:38	0.8	0.8	11:18	0.1	0.3	12:23	0.0	0.8
09:39	0.8	0.8	11:19	0.2	0.3	12:24	0.2	0.7
09:40	0.8	0.8	11:20	0.0	0.2	12:25	0.4	0.6
09:41	0.8	0.8	11:21	0.0	0.2	12:26	0.5	0.6
09:42	0.8	0.8	11:22	0.0	0.2	12:27	0.0	0.5
09:43	0.9	0.8	11:23	0.0	0.2	12:28	0.0	0.4
09:44	1.0	0.8	11:24	0.0	0.1	12:29	0.0	0.3
09:45	1.0	0.8	11:25	0.9	0.2	12:30	0.0	0.2
09:46	1.0	0.9	11:26	1.1	0.2	12:31	0.0	0.0
09:47	1.1	0.9	11:27	1.0	0.3	12:32	0.0	0.1
09:48	1.0	0.9	11:28	1.1	0.4	12:33	0.0	0.1
09:49	0.9	0.9	11:29	0.9	0.5	12:34	0.0	0.1
09:50	0.8	0.9	11:30	0.9	0.6	12:35	0.0	0.0
09:51	0.8	0.9	11:31	0.9	0.7	12:36	0.0	0.0
09:52	0.8	0.9	11:32	0.8	0.8	12:37	0.0	0.0
09:53	0.6	0.9	11:33	0.7	0.8	12:38	0.0	0.0
09:54	0.6	0.9	11:34	0.7	0.9	12:39	0.0	0.0
09:55	0.6	0.8	11:35	0.8	0.9	12:40	0.0	0.0
09:56	0.5	0.8	11:36	0.7	0.9	12:41	0.0	0.0
09:57	0.5	0.7	11:37	0.6	0.8	12:42	0.0	0.0
09:58	1.0	0.7	11:38	0.7	0.8	12:43	0.0	0.0
09:59	1.9	0.8	11:39	0.7	0.8	12:44	0.0	0.0
10:00	2.1	0.9	11:40	0.6	0.7	12:45	0.0	0.0
10:01	1.9	1.0	11:41	0.6	0.7	12:46	0.0	0.0
10:02	1.8	1.1	11:42	0.7	0.7	12:47	0.0	0.0
10:03	0.5	1.1	11:43	0.8	0.7	12:48	0.0	0.0
10:04	0.5	1.1	11:44	0.8	0.7	12:49	0.0	0.0
10:05	0.6	1.1	11:45	1.0	0.7	12:50	0.0	0.0
10:06	0.4	1.1	11:46	1.2	0.8	12:51	0.0	0.0
10:07	0.3	1.1	11:47	0.9	0.8	12:52	0.0	0.0
10:08	0.4	1.1	11:48	0.9	0.8	12:53	0.4	0.0
10:09	0.4	0.9	11:49	0.9	0.8	12:54	0.0	0.0
10:10	0.3	0.7	11:50	0.7	0.8	12:55	0.2	0.1
Min	0.3	0.6	Min	0.0	0.1	Min	0.0	0.0
Max	3.0	1.7	Max	2.1	1.3	Max	1.8	1.1
Avg	0.9	0.9	Avg	0.7	0.7	Avg	0.4	0.4

Covanta - Durham York Energy Centre

Total Hydrocarbon Sampling at the Boiler No. 1 APC Outlet

Test No. 1 May 17, 2022			Test No. 2 May 17, 2022			Test No. 3 May 17, 2022		
	THC - 1 min	THC - 10 min Avg		THC - 1 min	THC - 10 min Avg		THC - 1 min	THC - 10 min Avg
Time	ppm, dry	ppm, dry	Time	ppm, dry	ppm, dry	Time	ppm, dry	ppm, dry
09:10	1.1		10:50	0.0		11:55	0.0	
09:11	1.4		10:51	0.0		11:56	0.0	
09:12	1.7		10:52	0.0		11:57	0.0	
09:13	1.8		10:53	0.0		11:58	0.0	
09:14	0.2		10:54	0.0		11:59	0.0	
09:15	0.6		10:55	0.0		12:00	0.0	
09:16	1.0		10:56	0.0		12:01	0.0	
09:17	1.3		10:57	0.0		12:02	0.0	
09:18	1.2		10:58	0.0		12:03	0.0	
09:19	0.9	1.1	10:59	0.0	0.0	12:04	0.0	0.0
09:20	0.9	1.1	11:00	0.0	0.0	12:05	0.0	0.0
09:21	0.9	1.1	11:01	0.0	0.0	12:06	0.0	0.0
09:22	1.0	1.0	11:02	0.0	0.0	12:07	0.0	0.0
09:23	0.7	0.9	11:03	0.0	0.0	12:08	0.1	0.0
09:24	0.8	0.9	11:04	0.0	0.0	12:09	0.0	0.0
09:25	1.1	1.0	11:05	0.0	0.0	12:10	0.0	0.0
09:26	0.9	1.0	11:06	0.0	0.0	12:11	0.0	0.0
09:27	0.4	0.9	11:07	0.0	0.0	12:12	0.0	0.0
09:28	0.0	0.8	11:08	0.0	0.0	12:13	0.0	0.0
09:29	0.2	0.7	11:09	0.0	0.0	12:14	0.0	0.0
09:30	0.4	0.6	11:10	0.0	0.0	12:15	0.0	0.0
09:31	0.5	0.6	11:11	0.0	0.0	12:16	0.4	0.1
09:32	0.0	0.5	11:12	0.0	0.0	12:17	0.3	0.1
09:33	0.0	0.4	11:13	0.0	0.0	12:18	0.1	0.1
09:34	0.0	0.3	11:14	0.0	0.0	12:19	0.1	0.1
09:35	0.0	0.2	11:15	0.0	0.0	12:20	0.1	0.1
09:36	0.0	0.2	11:16	0.0	0.0	12:21	0.2	0.1
09:37	0.0	0.1	11:17	0.0	0.0	12:22	0.0	0.1
09:38	0.0	0.1	11:18	0.0	0.0	12:23	0.1	0.1
09:39	0.0	0.1	11:19	0.0	0.0	12:24	0.0	0.1
09:40	0.0	0.0	11:20	0.0	0.0	12:25	0.0	0.1
09:41	0.0	0.0	11:21	0.0	0.0	12:26	0.0	0.1
09:42	0.0	0.0	11:22	0.0	0.0	12:27	0.0	0.1
09:43	0.0	0.0	11:23	0.0	0.0	12:28	0.1	0.1
09:44	0.0	0.0	11:24	0.0	0.0	12:29	0.0	0.0
09:45	0.0	0.0	11:25	0.0	0.0	12:30	0.2	0.1
09:46	0.0	0.0	11:26	0.0	0.0	12:31	0.2	0.1
09:47	0.0	0.0	11:27	0.0	0.0	12:32	0.4	0.1
09:48	0.0	0.0	11:28	0.1	0.0	12:33	0.5	0.1
09:49	0.0	0.0	11:29	0.0	0.0	12:34	0.3	0.2
09:50	0.0	0.0	11:30	0.0	0.0	12:35	0.0	0.2
09:51	0.0	0.0	11:31	0.0	0.0	12:36	0.0	0.2
09:52	0.0	0.0	11:32	0.0	0.0	12:37	0.0	0.2
09:53	0.0	0.0	11:33	0.0	0.0	12:38	0.0	0.2
09:54	0.0	0.0	11:34	0.0	0.0	12:39	0.0	0.2
09:55	0.0	0.0	11:35	0.0	0.0	12:40	0.0	0.1
09:56	0.0	0.0	11:36	0.4	0.1	12:41	0.0	0.1
09:57	0.0	0.0	11:37	0.3	0.1	12:42	0.0	0.1
09:58	0.4	0.0	11:38	0.1	0.1	12:43	0.0	0.0
09:59	0.0	0.0	11:39	0.1	0.1	12:44	0.0	0.0
10:00	0.2	0.1	11:40	0.1	0.1	12:45	0.0	0.0
10:01	0.2	0.1	11:41	0.2	0.1	12:46	0.0	0.0
10:02	0.2	0.1	11:42	0.0	0.1	12:47	0.0	0.0
10:03	0.0	0.1	11:43	0.1	0.1	12:48	0.0	0.0
10:04	0.0	0.1	11:44	0.0	0.1	12:49	0.0	0.0
10:05	0.1	0.1	11:45	0.0	0.1	12:50	0.0	0.0
10:06	0.3	0.1	11:46	0.0	0.1	12:51	0.0	0.0
10:07	0.1	0.1	11:47	0.0	0.1	12:52	0.0	0.0
10:08	0.0	0.1	11:48	0.1	0.1	12:53	0.0	0.0
10:09	0.0	0.1	11:49	0.0	0.0	12:54	0.0	0.0
10:10	0.3	0.1	11:50	0.2	0.1	12:55	0.0	0.0
Min	0.0	0.0	Min	0.0	0.0	Min	0.0	0.0
Max	1.8	1.1	Max	0.4	0.1	Max	0.5	0.2
Avg	0.3	0.3	Avg	0.0	0.0	Avg	0.1	0.1

Covanta - Durham York Energy Centre
Total Hydrocarbon Sampling at the Boiler No. 2 Quench Inlet

Test No. 1 May 16, 2022		
Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry
11:20	0.0	
11:21	0.0	
11:22	0.3	
11:23	0.9	
11:24	1.3	
11:25	1.0	
11:26	0.9	
11:27	0.8	
11:28	0.7	
11:29	1.0	0.7
11:30	0.9	0.8
11:31	1.1	0.9
11:32	1.2	1.0
11:33	1.1	1.0
11:34	1.3	1.0
11:35	1.3	1.0
11:36	1.4	1.1
11:37	1.2	1.1
11:38	1.2	1.2
11:39	1.4	1.2
11:40	1.5	1.3
11:41	2.0	1.4
11:42	2.0	1.4
11:43	2.1	1.5
11:44	2.0	1.6
11:45	2.1	1.7
11:46	2.8	1.8
11:47	2.9	2.0
11:48	5.3	2.4
11:49	1.3	2.4
11:50	2.0	2.4
11:51	1.9	2.4
11:52	1.0	2.3
11:53	0.9	2.2
11:54	0.9	2.1
11:55	1.2	2.0
11:56	1.2	1.8
11:57	0.8	1.6
11:58	0.9	1.2
11:59	1.1	1.2
12:00	1.1	1.1
12:01	0.9	1.0
12:02	0.8	1.0
12:03	1.0	1.0
12:04	1.0	1.0
12:05	0.7	0.9
12:06	0.5	0.9
12:07	0.6	0.9
12:08	0.9	0.9
12:09	1.1	0.9
12:10	0.5	0.8
12:11	0.8	0.8
12:12	1.0	0.8
12:13	0.9	0.8
12:14	0.6	0.8
12:15	0.7	0.8
12:16	0.8	0.8
12:17	0.7	0.8
12:18	0.4	0.7
12:19	0.8	0.7
12:20	1.1	0.8
Min	0.0	0.7
Max	5.3	2.4
Avg	1.2	1.3

Test No. 2 May 16, 2022		
Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry
12:30	1.0	
12:31	1.7	
12:32	1.1	
12:33	1.2	
12:34	1.7	
12:35	1.1	
12:36	0.9	
12:37	0.7	
12:38	0.6	
12:39	0.6	1.1
12:40	0.9	1.1
12:41	0.6	1.0
12:42	0.5	0.9
12:43	6.6	1.4
12:44	1.1	1.4
12:45	1.0	1.4
12:46	0.7	1.3
12:47	0.7	1.3
12:48	2.8	1.6
12:49	0.8	1.6
12:50	4.7	1.9
12:51	9.4	2.8
12:52	5.3	3.3
12:53	4.7	3.1
12:54	3.8	3.4
12:55	1.5	3.4
12:56	1.0	3.5
12:57	0.9	3.5
12:58	1.1	3.3
12:59	2.3	3.5
13:00	2.8	3.3
13:01	1.1	2.4
13:02	1.0	2.0
13:03	0.8	1.6
13:04	1.2	1.4
13:05	2.0	1.4
13:06	1.0	1.4
13:07	0.7	1.4
13:08	0.6	1.3
13:09	1.0	1.2
13:10	1.0	1.0
13:11	0.7	1.0
13:12	0.6	0.9
13:13	0.5	0.9
13:14	0.5	0.8
13:15	2.6	0.9
13:16	2.7	1.1
13:17	0.8	1.1
13:18	0.5	1.1
13:19	0.4	1.0
13:20	2.3	1.1
13:21	0.7	1.2
13:22	0.4	1.1
13:23	0.3	1.1
13:24	5.5	1.6
13:25	7.4	2.1
13:26	3.4	2.2
13:27	3.0	2.4
13:28	1.7	2.5
13:29	1.4	2.6
13:30	1.0	2.5
Min	0.3	0.8
Max	9.4	3.5
Avg	1.8	1.8

Test No. 3 May 16, 2022		
Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry
13:40	2.7	
13:41	1.3	
13:42	0.6	
13:43	3.5	
13:44	2.1	
13:45	0.5	
13:46	0.4	
13:47	1.2	
13:48	0.4	
13:49	0.3	1.3
13:50	1.1	1.1
13:51	0.9	1.1
13:52	0.5	1.1
13:53	0.7	0.8
13:54	0.2	0.6
13:55	0.5	0.6
13:56	0.7	0.7
13:57	0.8	0.6
13:58	1.3	0.7
13:59	1.4	0.8
14:00	11.8	1.9
14:01	2.4	2.0
14:02	1.9	2.2
14:03	2.4	2.3
14:04	2.5	2.6
14:05	2.4	2.7
14:06	1.5	2.8
14:07	2.4	3.0
14:08	0.8	2.9
14:09	0.4	2.8
14:10	2.2	1.9
14:11	0.7	1.7
14:12	1.3	1.7
14:13	0.3	1.4
14:14	0.3	1.2
14:15	0.2	1.0
14:16	0.1	0.9
14:17	0.2	0.6
14:18	0.5	0.6
14:19	0.8	0.7
14:20	0.7	0.5
14:21	0.2	0.4
14:22	5.0	0.8
14:23	7.1	1.5
14:24	1.2	1.6
14:25	2.7	1.8
14:26	0.8	1.9
14:27	0.3	1.9
14:28	0.7	1.9
14:29	3.4	2.2
14:30	0.8	2.2
14:31	0.2	2.2
14:32	0.2	1.7
14:33	0.1	1.0
14:34	0.1	0.9
14:35	0.4	0.7
14:36	1.3	0.8
14:37	0.7	0.8
14:38	0.6	0.8
14:39	0.9	0.5
14:40	0.5	0.5
Min	0.1	0.4
Max	11.8	3.0
Avg	1.4	1.4

Covanta - Durham York Energy Centre
Total Hydrocarbon Sampling at the Boiler No. 2 APC Outlet

Test No. 1 May 16, 2022			Test No. 2 May 16, 2022			Test No. 3 May 16, 2022		
Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry	Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry	Time	THC - 1 min ppm, dry	THC - 10 min Avg ppm, dry
11:20	1.6		12:30	1.0		14:50	0.0	
11:21	1.2		12:31	0.9		14:51	0.0	
11:22	0.8		12:32	0.9		14:52	0.1	
11:23	0.7		12:33	1.2		14:53	0.1	
11:24	0.4		12:34	1.2		14:54	0.0	
11:25	0.4		12:35	0.8		14:55	0.1	
11:26	0.6		12:36	0.9		14:56	0.6	
11:27	0.5		12:37	1.1		14:57	0.9	
11:28	0.2		12:38	1.1		14:58	1.0	
11:29	0.0	0.6	12:39	0.9	1.0	14:59	0.5	0.3
11:30	0.4	0.5	12:40	0.8	1.0	15:00	1.0	0.4
11:31	0.4	0.4	12:41	1.0	1.0	15:01	0.9	0.5
11:32	0.2	0.4	12:42	1.0	1.0	15:02	0.3	0.5
11:33	0.0	0.3	12:43	0.7	0.9	15:03	0.0	0.5
11:34	0.0	0.3	12:44	0.5	0.9	15:04	0.1	0.5
11:35	0.0	0.2	12:45	0.6	0.9	15:05	0.2	0.5
11:36	0.0	0.2	12:46	0.9	0.9	15:06	0.2	0.5
11:37	0.0	0.1	12:47	1.1	0.9	15:07	0.0	0.4
11:38	0.0	0.1	12:48	0.5	0.8	15:08	0.0	0.3
11:39	0.5	0.2	12:49	0.8	0.8	15:09	0.1	0.3
11:40	0.4	0.2	12:50	1.0	0.8	15:10	0.1	0.2
11:41	0.0	0.1	12:51	0.9	0.8	15:11	0.1	0.1
11:42	0.0	0.1	12:52	0.6	0.8	15:12	0.0	0.1
11:43	0.2	0.1	12:53	0.7	0.8	15:13	0.1	0.1
11:44	0.0	0.1	12:54	0.8	0.8	15:14	0.3	0.1
11:45	0.0	0.1	12:55	0.7	0.8	15:15	0.2	0.1
11:46	0.0	0.1	12:56	0.4	0.7	15:16	0.0	0.1
11:47	0.0	0.1	12:57	0.8	0.7	15:17	0.1	0.1
11:48	0.0	0.1	12:58	1.1	0.8	15:18	0.4	0.2
11:49	0.0	0.1	12:59	0.8	0.8	15:19	0.5	0.2
11:50	0.0	0.0	13:00	0.8	0.8	15:20	0.5	0.2
11:51	0.0	0.0	13:01	1.1	0.8	15:21	0.3	0.2
11:52	0.0	0.0	13:02	1.2	0.8	15:22	0.6	0.3
11:53	0.0	0.0	13:03	1.2	0.9	15:23	0.4	0.3
11:54	0.0	0.0	13:04	0.7	0.9	15:24	0.1	0.3
11:55	0.0	0.0	13:05	0.9	0.9	15:25	0.0	0.3
11:56	0.0	0.0	13:06	0.9	0.9	15:26	0.1	0.3
11:57	0.0	0.0	13:07	1.4	1.0	15:27	0.3	0.3
11:58	0.0	0.0	13:08	0.9	1.0	15:28	0.1	0.3
11:59	0.0	0.0	13:09	0.8	1.0	15:29	0.0	0.2
12:00	0.0	0.0	13:10	1.0	1.0	15:30	0.1	0.2
12:01	0.0	0.0	13:11	0.9	1.0	15:31	0.4	0.2
12:02	0.7	0.1	13:12	0.5	0.9	15:32	0.3	0.2
12:03	0.8	0.2	13:13	0.6	0.9	15:33	0.0	0.1
12:04	0.8	0.2	13:14	1.0	0.9	15:34	0.0	0.1
12:05	0.6	0.3	13:15	0.9	0.9	15:35	0.2	0.1
12:06	0.5	0.3	13:16	0.4	0.8	15:36	0.1	0.1
12:07	0.6	0.4	13:17	0.3	0.7	15:37	0.0	0.1
12:08	0.7	0.5	13:18	0.3	0.7	15:38	0.0	0.1
12:09	0.4	0.5	13:19	0.4	0.6	15:39	0.2	0.1
12:10	0.3	0.6	13:20	0.1	0.5	15:40	0.2	0.1
12:11	0.6	0.6	13:21	0.1	0.5	15:41	0.0	0.1
12:12	0.8	0.6	13:22	0.6	0.5	15:42	0.0	0.1
12:13	0.6	0.6	13:23	0.8	0.5	15:43	0.2	0.1
12:14	0.6	0.6	13:24	0.4	0.4	15:44	0.3	0.1
12:15	1.0	0.6	13:25	0.0	0.3	15:45	0.2	0.1
12:16	1.3	0.7	13:26	0.0	0.3	15:46	0.2	0.1
12:17	1.1	0.7	13:27	0.2	0.3	15:47	0.2	0.2
12:18	0.9	0.8	13:28	0.1	0.3	15:48	0.3	0.2
12:19	1.0	0.8	13:29	0.0	0.2	15:49	0.4	0.2
12:20	1.3	0.9	13:30	0.0	0.2	15:50	0.3	0.2
Min	0.0	0.0	Min	0.0	0.2	Min	0.0	0.1
Max	1.6	0.9	Max	1.4	1.0	Max	1.0	0.5
Avg	0.4	0.3	Avg	0.7	0.7	Avg	0.2	0.2

APPENDIX 27

Dispersion Modelling Results
for the May 2022 Testing Program
(19 pages)

TECHNICAL MEMORANDUM

DATE August 15, 2022 **Project No.** 22515701

TO Lydia Kwan
Covanta Durham York Renewable Energy LP

CC Enoch Chan

FROM Katie Armstrong **EMAIL katherine.armstrong@wsp.com**

CALPUFF MODELLING FOR MAY 2022 VOLUNTARY SOURCE TESTING AT DURHAM YORK ENERGY CENTRE

1.0 INTRODUCTION

Covanta Durham York Renewable Energy LP (Covanta) operates the Durham York Energy Centre (DYEC) under the multi-media Environmental Compliance Approval (ECA) 7306-8FDKNX, as amended. The 2011 ECA application was supported with an Emission Summary and Dispersion Modelling (ESDM) Report prepared by Golder Associates Ltd (Golder) using the CALPUFF dispersion model version 6.263, with results compared to Ministry of Environment, Conservation and Parks (MECP) Point of Impingement (POI) standards listed in Schedule 3 of Ontario Regulation (O.Reg.) 419/05 as of 2011.

In 2020, MECP requested that the CALPUFF modelling for DYEC be updated to use more recent meteorological data and an updated version of the CALPUFF dispersion model. Following consultation with MECP, including their provisional review and approval of the new meteorological files and updated CALPUFF modelling input files, formal approval was requested in August 2021 under Sections 7 (1) and 13 (1) of O.Reg. 419/05 for use of a specified dispersion model (CALPUFF version 7.2.1) and site-specific meteorological data for the 2014-2018 data period. Formal approval was received in December 2021.

Condition 7, Testing, Monitoring and Auditing, of the ECA requires annual source testing to be completed at the DYEC for over 100 contaminants as well as assessing the impact of the contaminants. According to the ECA Schedule "E" Source Testing Procedures, a source testing report is required that includes the following:

> *8. (7) the results of dispersion calculations in accordance with the O.Reg. 419/05, indicating the maximum concentration of the test contaminants, at the point of impingement.*
>
> *8. (8) an updated site wide emission source inventory to assess the aggregate point of impingement concentrations of the test contaminants.*

This memorandum summarizes the dispersion calculations/modelling results for the Voluntary May 2022 source testing program with the aid of the updated CALPUFF model and other input data sets as used in the 2011 ESDM Report and 2007 Environmental Assessment (EA) and compares the results to O.Reg. 419/05 Schedule 3 limits as last updated April 2018.

2.0 EMISSION RATES

Voluntary source testing was completed by Ortech Environmental in May 2022 for each of the two combustion train units and results were provided to Golder on a mass per time basis. Three tests were completed for each unit and averaged. The average emission rates for each unit were then summed together to provide the total stack emission rate of each contaminant to be modelled. Where source testing results indicated that the measured concentration is below the detection limit, the full detection limit was used as the emission rate for conservatism.

Emission rates for which source testing data was available were converted to grams per second (g/s) and are provided in an updated Site-wide Emission Inventory included in Appendix A. This emission inventory includes emissions from silo filling and diesel generator testing taken from the ESDM report, in addition to source test emissions from the main stack.

In response to clarifications provided by the MECP of December 9, 2016, two different emission rates were calculated for Total Particulate Matter:

1. Filterable fraction emission rate only; and
2. Total Particulate Matter (Sum of condensable and filterable fractions).

As source testing for the condensable fraction of total particulate matter is not required pursuant to Schedule "D": of the ECA, the condensable content of $PM_{2.5}$ was used.

3.0 MODELLING

In response to an MECP request in 2020, the CALPUFF modelling software and CALMET meteorological data have been updated. The MECP reviewed and approved the meteorological data and modelling input files in May 2021, prior to model execution. The following models and pre- and post-processors were used in the assessment:

- CALMET diagnostic meteorological model (v. 6.5.0, level 150223);
- CALPUFF dispersion model (v. 7.2.1, level 150618);
- CALPOST post processor (v. 7.1.0, Level 141010);
- BPIP building downwash pre-processor (v. 04274);
- POSTUTIL post processor (v.7.0.0, Level 150207).

These model versions are updates from those used in the original 2011 ESDM report. Formal approval for their use has been requested under s7(1) and s13(1) of O.Reg. 419/05 and is awaiting approval. Dispersion Modelling inputs are described in the following subsections.

3.1 Model Domain

The Model domain used in this assessment was modified slightly from the 2007 Environmental Assessment (EA) and ESDM Report. It extends 40 km by 40 km and is centred approximately 5 km north of the Site. This domain covers more than the air quality study area but will ensure that plumes are tracked beyond the furthest receptor locations to ensure the worst-case ground level concentrations are considered at all receptors.

3.2 Meteorology, Land Use and Terrain Data

The meteorology and terrain data used in this assessment were updated from those used in the 2007 Environmental Assessment (EA) and 2011 ESDM Report.

Meteorological data was updated using observation data from surface stations and large-scale mesoscale meteorological data from the Weather Research and Forecasting (WRF) model between 2014 – 2018, inclusive. The CALMET output files were submitted to MECP for review and approval prior to use in the modelling.

Terrain data was downloaded from the MECP's database of regional terrain data for modelling (MECP, 2017b) and processed using the CALPUFF pre-processor, TERREL.

3.3 Receptors

The receptors used in this assessment are similar to the receptors used in the 2011 ESDM Report but receptors at the edge of the domain were modified slightly to reflect the change in domain size. They include gridded ground level receptors to meet the requirements of O.Reg. 419/05 in addition to 400 discrete receptors to represent locations of interest, which were reviewed and updated in 2021. They include hospitals, nursing homes, schools, daycares, Senior citizen centres, the nearest residential receptors, specific watersheds and water bodies and parks.

3.4 Building Downwash

The buildings used in this assessment to represent building downwash are the same as the buildings used in the ESDM Report. Building wake effects were considered in this assessment using the U.S. EPA's Building Profile Input Program (BPIP-ISC). The inputs into this pre-processor include the coordinates and heights of the buildings and stacks. The output data from BPIP is used in the building wake effect calculations. No changes were made to the BPIP input or output file for this assessment.

3.5 Deposition

CALPUFF has the capability to account for wet and dry deposition of substances that would reduce ground level concentrations at POIs. However, the deposition algorithm has not been implemented for conservatism and to maintain consistency with the ESDM report and the previous EA for maximum POI predictions.

3.6 Thermal Internal Boundary Layer

CALPUFF contains an option to account for sub-grid coastal influences on plume dispersion such as the development of a thermal internal boundary layer (TIBL). Given the proximity of the proposed Facility to Lake Ontario (approximately 500 m) and the grid size (250 m), variations in coastline location within the grid cells near the proposed facility were accounted for in the dispersion modelling. To achieve this, a digitized sub-grid coastline, extending to the boundaries of the air quality study area was included as an additional input. This is consistent with the approach used in the ESDM report.

3.7 Averaging Times and Conversions

CALPUFF can predict 1-hour average values. Many of the relevant Schedule 3 standards are based on a 24-hour averaging time, which is also provided by CALPUFF. Several of the modelled contaminants have averaging periods less than 1 hour. For these contaminants, the 1-hour average concentration was converted using the conversion factors listed in Table 4-1 of Air Dispersion Modelling Guidance for Ontario (ADMGO). For example, the hourly concentrations can be converted to a 10-min average by multiplying the hour value by 1.65. This is consistent with the approach used in the ESDM report.

In 2016, a number of O.Reg 419/05 standards were updated or modified to include annual average Point of Impingement (POI) limits. CALPUFF can predict annual average values, therefore the CALPOST input file was modified to provide this output in addition to outputs for the 1 hour, 24 hour and 30-day averaging periods already provided.

3.8 Chemical Transformation

For the purposes of assessing project contributions to Secondary Particulate Matter (SPM) formation, chemical transformation was considered in the CALPUFF modelling of particulate matter. To model the chemical transformation of emitted NO, NO_2 and SO_2 into HNO_3, NO_3 and SO_4, CALPUFFs RIVAD/ARM3 mechanism was used. Monthly background ozone concentrations are required to generate SPM as well as setting the MCHEM Flag to 3 for particulate matter model runs. The monthly background ozone data used are consistent with the 2007 EA, as requested by MECP, and is summarised below in Table 1.

Table 1: Background Ozone Concentrations used for Chemical Transformation Modelling(1)

Month	Ozone Concentrations (ppb)
January	13.70
February	18.50
March	24.22
April	11.09
May	32.29
June	33.63
July	16.32
August	21.33
September	12.63
October	15.39
November	17.10
December	20.91

1 – Ozone levels from Courtice Road Station (2007-2008)

Chemical transformations were only modelled to calculate additional concentrations of particulate matter that is created as part of secondary transformations. Reported concentrations of NO_2 and SO_2 do not include the effects of depletion due to chemical transformation. The flag MCHEM is set to 0 for model runs used to produce concentrations of all other contaminants. This is consistent with the approach used in the 2011 ESDM report.

3.9 Dispersion Modelling Options

The options used in the CALPUFF dispersion model are summarized in the Table 2. The model options used were reviewed in consultation with MECP but are generally consistent with those used in the ESDM Report. In the ESDM report, Exhibit 9 indicated that Puff splitting was used, however this was a typographical error and this option was not actually used in the modelling. To maintain consistency with the ESDM report, puff splitting was not modelled for this assessment.

Table 2: CALPUFF Options and Flags

Flag	Value used in 2011 ESDM Report	Value Used in this Assessment	Comments
MGAUSS	1	1	Vertical distribution used in the near field
MCTADJ	3	3	Terrain adjustment method (3 used for partial plume path adjustment)
MCTSG	0	0	Subgrid-Scale complex terrain flag
MSLUG	0	0	Near-field puffs modelled as elongated
MTRANS	1	1	Transitional Plume Rise modelled
MTIP	1	1	Stack-tip downwash
MBDW	2	2	Method used to simulate building downwash 1 = ISC method; 2 = PRIME method
MSHEAR	0	0	Vertical wind shear modelled above stack top
MSPLIT	0*	0	Puff splitting allowed 0 = No; 1 = Yes ** NB: Value of "1" reported in ESDM Report but value of "0" actually used in ESDM Report modelling*
MCHEM	3 (For SPM, PM_{10} and $PM_{2.5}$) 0 (All other Contaminants)	3 (For SPM, PM_{10} and $PM_{2.5}$) 0 (All other Contaminants)	Chemical Transformation Scheme 0 = chemical transformation not modeled 3 = transformation rates computed internally (RIVAD/ARM3 Scheme)
MAQCHEM	0	0	Aqueous phase transformation flag (only used if MCHEM =1 or 3)
MWET	0	0	Wet removal modelled 0 = NO; 1 = Yes

Flag	Value used in 2011 ESDM Report	Value Used in this Assessment	Comments
MDRY	0	0	Dry deposition modelled 0 = NO; 1 = Yes
MTILT	0	0	Gravitational settling (plume tilt) modelled
MDISP	2	2	Methods used to compute dispersion coefficients 2 = (dispersion coefficients from internally calculated sigma v, sigma w using micrometeorological variables (u*, w*, L, etc.)
MTURBVW	3	3	Sigma measurements used (Used only if MDISP = 1or 5)
MDISP2	3	3	Back-up method used to compute dispersion when measured turbulence data are missing (Used only if MDISP=1 or 5)
MTAULY	0	0	Method used for Lagrangian timescale for Sigma-y (used only if MDISP=1,2 or MSIDP2=1,2)
MTAUADV	0	0	Method used for Advective-Decay timescale for Turbulence (used only if MDISP=2 or MDISP2=2)
MCTURB	1	1	Method used to compute turbulence sigma-v & sigma-w using micrometeorological variables (Used only if MDISP = 2 or MDISP2 = 2)
MROUGH	0	0	PG sigma y,z adjusted for roughness
MPARTL	1	1	Partial plume penetration of elevated inversion
MTINV	0	0	Strength of temp inversion provided in PROFILE.DAT extended records
MPDF	1	1	Probability Distribution Function used for dispersion under convective conditions 0 = NO; 1 = Yes
MSGTIBL	1	1	Sub-grid TIBL module used for shoreline
MBCON	0	0	Boundary conditions (concentration) modeled
MFOG	0	0	Configure for FOG Model output
MREG	0	0	Test options specified to see if they conform to regulatory values

3.10 Source Parameters

Stack exhaust temperature and flow rate were updated to match the stack characteristics at the time of source testing. All other source parameters are consistent with those used in the ESDM Report. The source parameters modelled are provided in Table 3, below:

Table 3: Modelled Source Parameters

Source ID	Stack Height [m]	Stack Diameter [m]	Flow Rate [m³/s]	Exit Velocity [m/s]	Exhaust Temperature [K]
STCK1	87.6 (No Change)	1.7 (No Change)	54.31 (UPDATED)	23.93 (UPDATED)	412.03 (UPDATED)

The ESDM Report includes an additional modelling scenario which include 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.

4.0 MODELLING RESULTS

Modelling was completed for emissions from the main stack only, using a unit emission rate to generate dispersion factors in µg/m³ per g/s for 10-minute, ½ - hour, 1-hour, 24-hour, 30-day and annual averaging periods. In Ontario, MECP guidance allows for the removal of meteorological anomalies to account for extreme, rare and transient conditions that may be present in the datasets and considered outliers. As such, for air quality assessments that require 24-hour average concentrations, the highest predicted 24-hr concentration in each year of meteorological data may be removed. Similarly, for assessments that use shorter 1-hour average concentrations, the eight highest predicted concentrations in each year may be removed, as per the MECP guidance listed in ADMGO. No predicted results are removed for assessment against annual averaging periods. Elimination of these anomalies is optional but both methodologies are considered acceptable for the demonstration of compliance with Ontario Regulation 419/05 standards. Previously, maximums with anomalies were presented.

The resulting dispersion factors are presented in Table 4, below for both the with and without meteorological anomaly removal:

Table 4: Modelling Dispersion Factors

Averaging Period	10-min	½- hr	1-hr	24-hr	30-day	Annual
Dispersion Factor without meteorological anomaly removal [µg/m³ per g/s]	47.65	34.65	28.88	1.22	0.17	0.06
Dispersion Factor with meteorological anomaly removal [µg/m³ per g/s]	17.2	12.51	10.42	1.17	0.17	0.06

The average emission rate for each contaminant presented in Appendix A was multiplied by the applicable dispersion factor above to calculate the maximum point of impingement concentration for emissions from the main stack. The modelled POI concentrations were compared to the 2018 Schedule 3 standards listed in O.Reg. 419/05 and in the case of $PM_{2.5}$ and PM_{10}, the Ontario Ambient Air Quality Criteria (AAQC).

The MECP updated the list of standards and guidelines for facilities to assess their emissions against, namely the Air Contaminants Benchmark (ACB) List, dated April 2018, which includes standards and guidelines (Benchmark 1) and screening levels (Benchmark 2). The ACB List is required to be used to assess point of impingement (POI) concentrations of contaminants released into the air.

Contaminants released by the Facility that do not have Benchmark 1 standards or guidelines in the ACB List are considered to be 'Contaminants with No MECP POI Limits'. Where applicable, predicted POI concentrations of Contaminants with No MECP POI Limits were screened against the Benchmark 2 screening levels in the ACB List or the de minimus limit.

The modelled concentrations of all compounds assessed were below their relevant MECP standards. The Emission Summary Table has been updated and is included in Appendix B. It has been modified to include reference to the new ACB List and to meet the requirements of the updated MECP guidance document "Procedure for preparing an Emission Summary and Dispersion Modelling Report" (PIBs 3614e04.1, March 2018). Results are presented both with and without meteorological anomaly removal but only the results with meteorological anomaly removal are presented as a percentage of the relevant limit.

The contaminant with the highest predicted concentration relative to O.Reg. 419/05 standard is Nitrogen Oxides at 11% of the relevant limit.

5.0 SUMMARY OF MODELLING UPDATES

The dispersion modelling for the DYEC was updated to reflect data obtained from Voluntary May 2022 source testing. A summary of the changes made to the modelling are provided in Table 5, below.

Table 5: ECA Concordance Table

Modelling Inputs	Changes from 2011 ESDM Report
Emission Rates	Updated to use May 2022 Source Testing Data. List of contaminants assessed expanded to include all contaminants for which source testing data was performed.
Model and Model Version	Updated model versions in consultation with MECP (See section 3.0)
Meteorology and Terrain data	Updated meteorological and terrain data prepared in consultation with MECP (See Section 3.2)
Receptors	Minor modifications made to receptors located on outskirts of modelling grid to reflect updated domain (See Section 3.3)
Building Downwash	No Change
Deposition	No Change
Chemical Transformations	No Change
Thermal Internal Boundary Layer	No Change
Averaging Times and Conversions	CALPOST input file was modified to generate annual averaging to account for new O.Reg. 419/05 standards introduced in 2016 that include annual averaging periods.
Dispersion Modelling Options	No Change
Background Air Quality Concentrations	Ozone background data used in secondary particulate modelling consistent with the EA.
Emission Summary Table	Updated to include new O.Reg. 419/05 standards introduced after the ECA was approved and contaminants that were not included in the ESDM report but for which source testing data was available.

6.0 CONCLUSIONS

This assessment was completed to document compliance with Condition 8(7) and 8(8) of Schedule E of the ECA for the DYEC. The results of this assessment demonstrate that the Facility is operating in compliance with the POI limits listed in s.20 of O. Reg. 419/05.

7.0 CLOSURE

We trust this memorandum meets your needs at this time. Should you have any questions please contact the undersigned.

Golder Associates Ltd.

Enoch Chan, B.Eng, EIT
Air Quality Specialist

Katherine Armstrong, M.Sc.
Team Lead - Air Quality Modelling and Approvals

EC/KSA/ng

https://golderassociates.sharepoint.com/sites/158498/project files/6 deliverables/spring 2022/final/22515701-tm-rev0 covanta updated modelling memo 12aug2022.docx

APPENDIX A

Site-Wide Emission Inventory

Appendix A
Site-Wide Emission Inventory

Source Identifier	Source Description	Source Parameters					Emission Data						
		Stack Volumetric Flow Rate [Am³/s]	Stack Exit Gas Temperature [°C]	Stack Inner Diameter [m]	Stack Height Above Grade [m]	Stack Location [x, y]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averagıng Period [hours]	Emission Estimating Technique	Emissions Data Quallty	Percentage of Overall Emissions [%]
1A	Main Stack - Spring 2022 Source Testing Conditions	54.32	138.9	1.7	87.6	(680538, 4860346)	1 – methylnaphthalene	90-12-0	4.77E-07	1,24, annual	ST	Above-Average	100%
							1,1,2-Trichloroethane	79-00-5	1.44E-05	1,24, annual	ST	Above-Average	100%
							1,2,3,4-tetrachlorobenzene	634-66-2	7.69E-08	1,24, annual	ST	Above-Average	100%
							1,2,3-trichlorobenzene	87-61-6	7.69E-08	1,24, annual	ST	Above-Average	100%
							1,2,4 – Trichlorobenzene	120-82-1	1.06E-07	1,24, annual	ST	Above-Average	100%
							1,2,4,5-Tetrachlorobenzene	95-94-3	7.69E-08	1,24, annual	ST	Above-Average	100%
							1,2-Dichlorobenzene	95-50-1	3.45E-07	1,24, annual	ST	Above-Average	100%
							1,2-Dichloroethane	107-06-2	2.27E-05	1,24, annual	ST	Above-Average	100%
							1,2-Dichloropropane	78-87-5	3.71E-05	1,24, annual	ST	Above-Average	100%
							1,3,5-trichlorobenzene	108-70-3	7.72E-08	1,24, annual	ST	Above-Average	100%
							1,3-Butadiene	106-99-0	2.89E-05	1,24, annual	ST	Above-Average	100%
							1,3-Dichlorobenzene	541-73-1	3.55E-07	1,24, annual	ST	Above-Average	100%
							1,4-Dichlorobenzene	106-46-7	4.53E-07	1,24, annual	ST	Above-Average	100%
							1-Methylphenanthrene	832-69-9	1.12E-07	1,24, annual	ST	Above-Average	100%
							2 – methylnaphthalene	91-57-6	1.08E-06	1,24, annual	ST	Above-Average	100%
							2,3,4,5-tetrachlorophenol	4901-51-3	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,3,4,6-Tetrachlorophenol	58-90-2	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,3,4-trichlorophenol	15950-66-0	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,3,5,6-tetrachlorophenol	935-95-5	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,3,5-trichlorophenol	933-78-8	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,3,6-trichlorophenol	933-75-5	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,3-dichlorophenol	576-24-9	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,4,5-trichlorophenol	95-95-4	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,4,6-Trichlorophenol	88-06-2	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,4-Dichlorophenol	120-83-2	3.85E-07	1,24, annual	ST	Above-Average	100%
							2,6-dichlorophenol	87-65-0	3.85E-07	1,24, annual	ST	Above-Average	100%
							2-Butanone	78-93-3	5.58E-04	1,24, annual	ST	Above-Average	100%
							2-Chloronaphthalene	91-58-7	7.69E-08	1,24, annual	ST	Above-Average	100%
							2-Methylanthracene	613-12-7	7.69E-08	1,24, annual	ST	Above-Average	100%
							2-monochlorophenol	95-57-8	3.85E-07	1,24, annual	ST	Above-Average	100%
							3,4,5-trichlorophenol	609-19-8	3.85E-07	1,24, annual	ST	Above-Average	100%
							3,4-dichlorophenol	95-77-2	3.85E-07	1,24, annual	ST	Above-Average	100%
							3,5-dichlorophenol	591-35-5	3.85E-07	1,24, annual	ST	Above-Average	100%
							3-Methylcholanthrene	56-49-5	3.85E-07	1,24, annual	ST	Above-Average	100%
							3-monochlorophenol	108-43-0	3.85E-07	1,24, annual	ST	Above-Average	100%
							4-monochlorophenol	106-48-9	3.85E-07	1,24, annual	ST	Above-Average	100%
							7,12-Dimethylbenzo(a)anthracene	57-97-6	7.69E-08	1,24, annual	ST	Above-Average	100%
							9,10-Dimethylanthracene	781-43-1	7.69E-08	1,24, annual	ST	Above-Average	100%
							9-Methylphenanthrene	883-20-5	7.69E-08	1,24, annual	ST	Above-Average	100%

Source Identifier	Source Description	Source Parameters					Emission Data						
		Stack Volumetric Flow Rate [Am³/s]	Stack Exit Gas Temperature [°C]	Stack Inner Diameter [m]	Stack Height Above Grade [m]	Stack Location [x, y]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averagıng Period [hours]	Emission Estimating Technique	Emissions Data Quallty	Percentage of Overall Emissions [%]
							Acenaphthene	83-32-9	8.50E-08	1,24, annual	ST	Above-Average	5%
							Acenaphthylene	208-96-8	8.31E-08	1,24, annual	ST	Above-Average	3%
							Acetaldehyde	75-07-0	1.37E-03	1,24, annual	ST	Above-Average	99%
							Acetone	67-64-1	5.68E-04	1,24, annual	ST	Above-Average	100%
							Acrolein	107-02-8	9.80E-05	1,24, annual	ST	Above-Average	97%
							Ammonia	7664-41-7	4.41E-02	1,24, annual	ST	Above-Average	100%
							Anthracene	120-12-7	7.69E-08	1,24, annual	ST	Above-Average	16%
							Antimony	7440-36-0	5.05E-06	1,24, annual	ST	Above-Average	100%
							Arsenic	7440-38-2	1.72E-06	1,24, annual	ST	Above-Average	100%
							Barium	7440-39-3	5.14E-05	1,24, annual	ST	Above-Average	100%
							Benzene	71-43-2	2.55E-04	1,24, annual	ST	Above-Average	50%
							Benzo(a)anthracene	56-55-3	7.69E-08	1,24, annual	ST	Above-Average	27%
							Benzo(a)fluorene	238-84-6	7.69E-08	1,24, annual	ST	Above-Average	100%
							Benzo(a)pyrene	50-32-8	7.69E-08	1,24, annual	ST	Above-Average	48%
							Benzo(b)fluoranthene	205-99-2	7.69E-08	1,24, annual	ST	Above-Average	17%
							Benzo(b)fluorene	243-17-4	7.69E-08	1,24, annual	ST	Above-Average	100%
							Benzo(e)pyrene	192-97-2	7.69E-08	1,24, annual	ST	Above-Average	100%
							Benzo(g,h,i)perylene	191-24-2	9.16E-08	1,24, annual	ST	Above-Average	100%
							Benzo(k)fluoranthene	207-08-9	7.69E-08	1,24, annual	ST	Above-Average	52%
							Beryllium	7440-41-7	1.72E-06	1,24, annual	ST	Above-Average	100%
							Biphenyl	92-51-3	1.83E-07	1,24, annual	ST	Above-Average	100%
							Bromodichloromethane	75-27-4	1.44E-05	1,24, annual	ST	Above-Average	100%
							Bromoform	75-25-2	1.44E-05	1,24, annual	ST	Above-Average	100%
							Bromomethane	74-83-9	1.16E-03	1,24, annual	ST	Above-Average	100%
							Cadmium	7440-43-9	1.22E-06	1,24, annual	ST	Above-Average	100%
							Carbon Monoxide	630-08-0	5.18E-01	1,24, annual	ST	Above-Average	67%
							Carbon tetrachloride	56-23-5	4.16E-05	1,24, annual	ST	Above-Average	100%
							Chlorobenzene	108-90-7	1.87E-06	1,24, annual	ST	Above-Average	100%
							Chloroform	67-66-3	6.88E-05	1,24, annual	ST	Above-Average	100%
							Chromium (hexavalent)	18540-29-9	3.16E-05	1,24, annual	ST	Above-Average	100%
							Chrysene	218-01-9	7.69E-08	1,24, annual	ST	Above-Average	13%
							Cobalt	7440-48-4	1.37E-06	1,24, annual	ST	Above-Average	100%
							Copper	7440-50-8	8.38E-05	1,24, annual	ST	Above-Average	100%
							Coronene	191-07-1	3.85E-07	1,24, annual	ST	Above-Average	100%
							Cumene (Isopropylbenzene)	98-82-8	3.63E-05	1,24, annual	ST	Above-Average	100%
							Dibenzo(a,c)anthracene	215-58-7	7.69E-08	1,24, annual	ST	Above-Average	100%
							Dibenzo(a,e)pyrene	192-65-4	3.85E-07	1,24, annual	ST	Above-Average	100%
							Dibenzo(a,h)anthracene	53-70-3	7.69E-08	1,24, annual	ST	Above-Average	40%
							Dibromochloromethane	124-48-1	1.44E-05	1,24, annual	ST	Above-Average	100%
							Dichlorodifluoromethane	75-71-8	2.01E-04	1,24, annual	ST	Above-Average	100%
							Dichloroethene, 1,1 -	75-34-3	1.44E-05	1,24, annual	ST	Above-Average	100%

Source Identifier	Source Description	Source Parameters					Emission Data						
		Stack Volumetric Flow Rate [Am³/s]	Stack Exit Gas Temperature [°C]	Stack Inner Diameter [m]	Stack Height Above Grade [m]	Stack Location [x, y]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averagıng Period [hours]	Emission Estimating Technique	Emissions Data Quallty	Percentage of Overall Emissions [%]
							Dichloromethane	75-09-2	2.14E-02	1,24, annual	ST	Above-Average	100%
							Dioxins, Furans and Dioxin- like PCBs	N/A	0.00024 µg TEQ/s	1,24, annual	ST	Above-Average	100%
							Ethylbenzene	100-41-4	1.45E-04	1,24, annual	ST	Above-Average	100%
							Ethylene Dibromide	106-93-4	2.89E-05	1,24, annual	ST	Above-Average	100%
							Fluoranthene	206-44-0	1.19E-07	1,24, annual	ST	Above-Average	8%
							Fluorides	7664-39-3	3.75E-03	1,24, annual	ST	Above-Average	100%
							Fluorene	86-73-7	8.05E-08	1,24, annual	ST	Above-Average	2%
							Formaldehyde	50-00-0	7.00E-04	1,24, annual	ST	Above-Average	96%
							Hexachlorobenzene	118-74-1	7.69E-08	1,24, annual	ST	Above-Average	100%
							Hydrogen Chloride	7647-01-0	1.45E-01	1,24, annual	ST	Above-Average	100%
							Indeno(1,2,3 – cd)pyrene	193-39-5	8.35E-08	1,24, annual	ST	Above-Average	38%
							Lead	7439-92-1	9.71E-06	1,24, annual	ST	Above-Average	100%
							M&P-Xylene	179601-23-1	6.61E-04	1,24, annual	ST	Above-Average	100%
							Mercury	7439-97-6	3.44E-06	1,24, annual	ST	Above-Average	100%
							Mesitylene (1,3,5-Trimethylbenzene)	108-67-8	6.72E-05	1,24, annual	ST	Above-Average	100%
							Molybdenum	7439-98-7	3.02E-04	1,24, annual	ST	Above-Average	100%
							m-Terphenyl	92-06-8	7.69E-08	1,24, annual	ST	Above-Average	100%
							Naphthalene	91-20-3	1.01E-05	1,24, annual	ST	Above-Average	19%
							Nickel	7440-02-0	2.27E-05	1,24, annual	ST	Above-Average	100%
							Nitrogen Oxides	10102-44-0	4.35E+00	1,24, annual	ST	Above-Average	44%
							Nitrogen Oxides	10102-44-0	4.35E+00	1,24, annual	ST	Above-Average	44%
							Nitrogen Oxides	10102-44-0	4.35E+00	1,24, annual	ST	Above-Average	44%
							O-terphenyl	84-15-1	7.69E-08	1,24, annual	ST	Above-Average	100%
							O-Xylene	95-47-6	2.10E-04	1,24, annual	ST	Above-Average	100%
							Pentachlorobenzene	608-93-5	7.69E-08	1,24, annual	ST	Above-Average	100%
							Pentachlorophenol	87-86-5	3.85E-07	1,24, annual	ST	Above-Average	100%
							Perylene	198-55-0	7.69E-08	1,24, annual	ST	Above-Average	100%
							Phenanthrene	85-01-8	3.55E-07	1,24, annual	ST	Above-Average	3%
							Picene	213-46-7	3.85E-07	1,24, annual	ST	Above-Average	100%
							PM10 (Condensable and Filterable)	N/A	1.87E-01	1,24, annual	ST	Above-Average	75%
							PM10 (Filterable Only)	N/A	3.08E-02	1,24, annual	ST	Above-Average	100%
							PM2.5 (Condensable and Filterable)	N/A	1.73E-01	1,24, annual	ST	Above-Average	74%
							PM2.5 (Filterable Only)	N/A	1.66E-02	1,24, annual	ST	Above-Average	100%
							Polychlorinated Biphenyls (PCB)	N/A	2.45E-04	1,24, annual	ST	Above-Average	100%
							p-Terphenyl	92-94-4	7.69E-08	1,24, annual	ST	Above-Average	100%
							Pyrene	129-00-0	1.61E-07	1,24, annual	ST	Above-Average	12%
							Selenium	7782-49-2	8.58E-06	1,24, annual	ST	Above-Average	100%
							Silver	7440-22-4	1.72E-06	1,24, annual	ST	Above-Average	100%
							Styrene	100-42-5	7.89E-05	1,24, annual	ST	Above-Average	100%
							Sulphur Dioxide	7446-09-5	1.47E-02	1,24, annual	ST	Above-Average	44%
							Tetrachloroethene	127-18-4	1.86E-05	1,24, annual	ST	Above-Average	100%
							Tetralin	119-64-2	1.28E-06	1,24, annual	ST	Above-Average	100%

Source Identifier	Source Description	Source Parameters					Emission Data						
		Stack Volumetric Flow Rate [Am³/s]	Stack Exit Gas Temperature [°C]	Stack Inner Diameter [m]	Stack Height Above Grade [m]	Stack Location [x, y]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averagıng Period [hours]	Emission Estimating Technique	Emissions Data Quallty	Percentage of Overall Emissions [%]
							Thallium	7440-28-0	1.72E-06	1,24, annual	ST	Above-Average	100%
							Toluene	108-88-3	8.23E-03	1,24, annual	ST	Above-Average	99%
							Total Chromium (and compounds)	7440-47-3	3.16E-05	1,24, annual	ST	Above-Average	100%
							Total Particulate Matter (Condensable and Filterable)	N/A	2.04E-01	1,24, annual	ST	Above-Average	73%
							Total Particulate Matter (Filterable Only)	N/A	4.73E-02	1,24, annual	ST	Above-Average	70%
							trans,1,2-Dichloroethene	156-60-5	1.55E-05	1,24, annual	ST	Above-Average	100%
							Trichloroethane, 1,1,1 -	71-55-6	1.44E-05	1,24, annual	ST	Above-Average	100%
							Trichloroethene	79-01-6	1.44E-05	1,24, annual	ST	Above-Average	100%
							Trichloroethylene, 1,1,2 -	79-01-6	1.44E-05	1,24, annual	ST	Above-Average	100%
							Trichlorofluoromethane	75-69-4	7.12E-05	1,24, annual	ST	Above-Average	100%
							Trichlorotrifluoroethane	76-13-1	2.89E-05	1,24, annual	ST	Above-Average	100%
							Vanadium	7440-62-2	8.58E-07	1,24, annual	ST	Above-Average	100%
							Vinyl chloride	75-01-4	2.99E-05	1,24, annual	ST	Above-Average	100%
							Xylenes, m-, p- and o-	1330-20-7	8.71E-04	1,24, annual	ST	Above-Average	93%
							Zinc	7440-66-6	1.95E-04	1,24, annual	ST	Above-Average	100%

Source Identifier	Source Description	Source Parameters					Emission Data						
		Stack Volumetric Flow Rate [Am³/s]	Stack Exit Gas Temperature [°C]	Stack Inner Diameter [m]	Stack Height Above Grade [m]	Stack Location [x, y]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averagıng Period [hours]	Emission Estimating Technique	Emissions Data Quallty	Percentage of Overall Emissions [%]
2	Silo Filling	0.31	Ambient	0.10	5.4864	(680551,4860359)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	4%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	5%
		0.31	Ambient	0.10	4.8768	(680513,4860332)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	4%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	5%
		0.31	Ambient	0.10	3.9624	(680517,4860333)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	4%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	5%
		0.31	Ambient	0.10	12.4	(680537,4860391)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	4%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	5%
3	Stand-by generator	1.16	265.85	0.2	3	(680475,4860419)	Carbon Monoxide	630-08-0	2.56E-01	½	EF	Marginal	33%
							Nitrogen Oxides	10102-44-0	1.12E+00	½	EF	Marginal	11%
							Sulphur Dioxide	7446-09-5	1.88E-02	½	EF	Above-Average	56%
							Total Particulate Matter	N/A	3.25E-02	½	EF	Above-Average	12%
							Filterable TSP	N/A	2.03E-02	½	EF	Above-Average	30%
							PM_{10}	N/A	1.88E-02	½	EF	Above-Average	8%
							$PM_{2.5}$	N/A	1.88E-02	½	EF	Above-Average	8%
							Sulphuric Acid	7664-93-9	2.88E-04	½	EC	Above-Average	100%
							Benzene	71-43-2	2.54E-04	½	EF	Marginal	50%
							Toluene	108-88-3	9.21E-05	½	EF	Marginal	1%
							Xylenes, m-, p- and o-	1330-20-7	6.32E-05	½	EF	Marginal	7%
							Propylene	115-07-1	9.14E-04	½	EF	Marginal	100%
							Formaldehyde	50-00-0	2.58E-05	½	EF	Marginal	4%
							Acetaldehyde	75-07-0	8.26E-06	½	EF	Marginal	<1%
							Acrolein	107-02-8	2.58E-06	½	EF	Marginal	3%
							Naphthalene	91-20-3	4.26E-05	½	EF	Marginal	81%
							Acenaphthylene	208-96-8	3.02E-06	½	EF	Marginal	97%
							Acenaphthene	83-32-9	1.53E-06	½	EF	Marginal	95%
							Fluorene	86-73-7	4.19E-06	½	EF	Marginal	98%
							Phenanthrene	85-01-8	1.34E-05	½	EF	Marginal	97%
							Anthracene	120-12-7	4.03E-07	½	EF	Marginal	84%
							Fluoranthene	206-44-0	1.32E-06	½	EF	Marginal	92%
							Pyrene	129-00-0	1.22E-06	½	EF	Marginal	88%
							Benzo(a)anthracene	56-55-3	2.04E-07	½	EF	Marginal	73%
							Chrysene	218-01-9	5.01E-07	½	EF	Marginal	87%
							Benzo(b)fluoranthene	205-99-2	3.64E-07	½	EF	Marginal	83%
							Benzo(k)fluoranthene	207-08-9	7.14E-08	½	EF	Marginal	48%
							Benzo(a)pyrene	50-32-8	8.42E-08	½	EF	Marginal	52%
							Indeno(1,2,3 – cd)pyrene	193-39-5	1.36E-07	½	EF	Marginal	62%
							Dibenzo(a,h)anthracene	53-70-3	1.13E-07	½	EF	Marginal	60%
							Benzo(ghi)perylene	191-24-2	1.82E-07	½	EF	Marginal	100%

APPENDIX B

Emission Summary Table

Appendix B
Emission Summary Table

Contaminant	CAS No.	Total Facility Emission Rate [g/s]	Air Dispersion Model Used	Maximum POI Concentration Before Meteorological Anomaly Removal [µg/m³]	Maximum POI Concentration After Meeorological Anomaly Removal [µg/m³]	Averaging Period	MECP POI Limit [µg/m³]	Limiting Effect	Schedule	Source	Benchmark	Percentage of MECP Limit [%]	Notes	Version of Date of ACB List
1 – methylnaphthalene	90-12-0	4.77E-07	Calpuff	5.84E-07	5.56E-07	24-hour	35.5	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
1,2,4 – Trichlorobenzene	120-82-1	1.06E-07	Calpuff	1.30E-07	1.24E-07	24-hour	400	Particulate	Sch. 3	Guideline	B1	<1%	—	Apr-18
1,2,4,5-Tetrachlorobenzene	95-94-3	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	1	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
1,2-Dichlorobenzene	95-50-1	3.45E-07	Calpuff	9.97E-06	3.60E-06	1-hour	30500	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
2 – methylnaphthalene	91-57-6	1.08E-06	Calpuff	1.32E-06	1.26E-06	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
2,3,4,6-Tetrachlorophenol	58-90-2	3.85E-07	Calpuff	4.71E-07	4.49E-07	24-hour	0.75	Health	—	SL-JSL	B2	Below SL-JSL	—	Apr-18
2,4,6-Trichlorophenol	88-06-2	3.85E-07	Calpuff	4.71E-07	4.49E-07	24-hour	1.5	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
2,4-Dichlorophenol	120-83-2	3.85E-07	Calpuff	4.71E-07	4.49E-07	24-hour	33.5	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
3-Methylcholanthrene	56-49-5	3.85E-07	Calpuff	4.71E-07	4.49E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
7,12-Dimethylbenzo(a)anthracene	57-97-6	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Acenaphthene	83-32-9	8.50E-08	Calpuff	1.04E-07	9.91E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Acenaphthylene	208-96-8	8.31E-08	Calpuff	1.02E-07	9.69E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Acetaldehyde	75-07-0	1.37E-03	Calpuff	1.68E-03	1.60E-03	24-hour	500	Health	Sch. 3	Standard	B1	<1%	Note 2URT - Note 4, Table 4	Apr-18
Acetaldehyde	75-07-0	1.37E-03	Calpuff	1.68E-03	1.60E-03	24-hour	5000	—	Sch. 6	URT	—	<1%	—	—
Acrolein	107-02-8	9.80E-05	Calpuff	1.20E-04	1.14E-04	24-hour	0.4	Health	Sch. 3	Standard	B1	<1%	Note 2URT - Note 4, Table 4	Apr-18
Acrolein	107-02-8	9.80E-05	Calpuff	2.83E-03	1.02E-03	1-hour	4.5	Health	Sch. 3	Standard	B1	<1%	Note 2URT - Note 4, Table 4	Apr-18
Acrolein	107-02-8	9.80E-05	Calpuff	1.20E-04	1.14E-04	24-hour	4	Health	Sch. 6	URT	—	<1%	—	Apr-18
Ammonia	7664-41-7	4.41E-02	Calpuff	5.40E-02	5.15E-02	24-hour	100	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Ammonia	7664-41-7	4.41E-02	Calpuff	5.40E-02	5.15E-02	24-hour	1000	Health	Sch. 6	URT	—	<1%	—	Apr-18
Anthracene	120-12-7	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Antimony	7440-36-0	5.05E-06	Calpuff	6.19E-06	5.89E-06	24-hour	25	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Arsenic	7440-38-2	1.72E-06	Calpuff	2.10E-06	2.00E-06	24-hour	0.3	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Barium	7440-39-3	5.14E-05	Calpuff	6.29E-05	6.00E-05	24-hour	10	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Benzene	71-43-2	2.55E-04	Calpuff	1.44E-05	1.44E-05	Annual	0.45	Health	Sch. 3	Standard	B1	<1%	Note 19, Table 2, 3 URT - Note 4, Table 4	Apr-18
Benzene	71-43-2	2.55E-04	Calpuff	3.13E-04	2.98E-04	24-hour	100	Health	Sch. 6	URT/DAV	B1	<1%	—	—
Benzene	71-43-2	2.55E-04	Calpuff	1.44E-05	1.44E-05	Annual	4.5	Health	—	AAV	—	<1%	—	Apr-18
Benzo(a)anthracene	56-55-3	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Benzo(a)fluorene	238-84-6	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Benzo(a)pyrene	50-32-8	7.69E-08	Calpuff	4.35E-09	4.35E-09	Annual	0.00001	Health	Sch. 3	Standard	B1	<1%	Note 7, 19, Table 2, 3URT - Note 4, Table 4	Apr-18
Benzo(a)pyrene	50-32-8	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.005	Health	Sch. 6	URT	—	<1%	—	Apr-18
Benzo(a)pyrene	50-32-8	7.69E-08	Calpuff	4.35E-09	4.35E-09	Annual	0.0001	Health	—	AAV	—	<1%	—	Apr-18
Benzo(b)fluoranthene	205-99-2	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Benzo(b)fluorene	243-17-4	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Benzo(e)pyrene	192-97-2	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Benzo(g,h,i)perylene	191-24-2	9.16E-08	Calpuff	1.12E-07	1.07E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Benzo(k)fluoranthene	207-08-9	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Beryllium	7440-41-7	1.72E-06	Calpuff	2.10E-06	2.00E-06	24-hour	0.01	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Biphenyl	92-51-3	1.83E-07	Calpuff	2.24E-07	2.13E-07	24-hour	175	Health	—	SL-JSL	B2	Below SL-JSL	—	Apr-18
Bromodichloromethane	75-27-4	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	350	Health	—	SL-JSL	B2	Below SL-JSL	—	Apr-18
Bromoform	75-25-2	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	55	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Bromomethane	74-83-9	1.16E-03	Calpuff	1.42E-03	1.35E-03	24-hour	1350	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Cadmium	7440-43-9	1.22E-06	Calpuff	1.49E-06	1.42E-06	24-hour	0.025	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Cadmium	7440-43-9	1.22E-06	Calpuff	1.49E-06	1.42E-06	24-hour	0.25	Health	Sch. 6	URT	—	<1%	—	Apr-18
Carbon Monoxide	630-08-0	5.18E-01	Calpuff	1.79E+01	6.48E+00	1/2-hour	6000	Health	Sch. 3	Standard	B1	<1%	Note 9	Apr-18
Carbon tetrachloride	56-23-5	4.16E-05	Calpuff	5.09E-05	4.85E-05	24-hour	2.4	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Carbon tetrachloride	56-23-5	4.16E-05	Calpuff	5.09E-05	4.85E-05	24-hour	24	Health	Sch. 6	URT	—	<1%	—	Apr-18
Chlorobenzene	108-90-7	1.87E-06	Calpuff	5.41E-05	1.95E-05	1-hour	3500	Health	Sch. 3	Guideline	B1	<1%	Note 2, 3	Apr-18
Chlorobenzene	108-90-7	1.87E-06	Calpuff	8.93E-05	3.22E-05	10-minute	4500	Odour	Sch. 3	Guideline	B1	<1%	Note 2, 3	Apr-18
Chloroform	67-66-3	6.88E-05	Calpuff	8.42E-05	8.02E-05	24-hour	1	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Chloroform	67-66-3	6.88E-05	Calpuff	8.42E-05	8.02E-05	24-hour	100	Health	Sch. 6	URT	—	<1%	—	Apr-18
Chromium (hexavalent)	18540-29-9	3.16E-05	Calpuff	1.79E-06	1.79E-06	Annual	0.00014	Health	Sch. 3	Standard	B1	1%	Notes 11, 19, Table 2, 3URT - Note 4, Table 4	Apr-18
Chromium (hexavalent)	18540-29-9	3.16E-05	Calpuff	3.87E-05	3.69E-05	24-hour	0.07	Health	Sch. 6	URT	—	<1%	—	—
Chrysene	218-01-9	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Cobalt	7440-48-4	1.37E-06	Calpuff	1.68E-06	1.60E-06	24-hour	0.1	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Copper	7440-50-8	8.38E-05	Calpuff	1.03E-04	9.78E-05	24-hour	50	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Dibenzo(a,c)anthracene	215-58-7	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Dibenzo(a,h)anthracene	53-70-3	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Dichlorodifluoromethane	75-71-8	2.01E-04	Calpuff	2.46E-04	2.35E-04	24-hour	500000	Health	Sch. 3	Guideline	B1	<1%	Note 10	Apr-18
Dichloroethene, 1,1 -	75-34-3	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	165	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Dichloroethene, 1,1 -	75-34-3	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	1650	Health	Sch. 6	URT	—	<1%	—	Apr-18
Dichloromethane	75-09-2	2.14E-02	Calpuff	2.62E-02	2.50E-02	24-hour	220	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Dichloromethane	75-09-2	2.14E-02	Calpuff	2.62E-02	2.50E-02	24-hour	22000	Health	Sch. 6	URT	—	<1%	—	Apr-18
Dioxins, Furans and Dioxin- like PCBs	N/A	0.00024 µg TEQ/s	Calpuff	0.0003 pg TEQ/m³	0.00029 pg TEQ/m³	24-hour	0.1 pg TEQ/m³	Health	Sch. 3	Guideline	B1	<1%	Note 8, 8a, Table 1URT - Note 4, Table 4	Apr-18
Ethylbenzene	100-41-4	1.45E-04	Calpuff	1.77E-04	1.69E-04	24-hour	1000	Not Applicable	Sch. 3	Guideline	B1	<1%	Note 2, 3	Apr-18
Ethylbenzene	100-41-4	1.45E-04	Calpuff	6.90E-03	2.49E-03	10-minute	1900	Not Applicable	Sch. 3	Guideline	B1	<1%	Note 2, 3	Apr-18
Ethylbenzene	100-41-4	1.45E-04	Calpuff	1.77E-04	1.69E-04	24-hour	14000	Not Applicable	Sch. 6	URT	—	<1%	—	Apr-18
Ethylene Dibromide	106-93-4	2.89E-05	Calpuff	3.53E-05	3.37E-05	24-hour	3	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Fluoranthene	206-44-0	1.19E-07	Calpuff	1.46E-07	1.39E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Fluorides	7664-39-3	3.75E-03	Calpuff	4.59E-03	4.38E-03	24-hour	0.86	Vegetation	Sch. 3	Standard	B1	<1%	Note 2, 20	Apr-18
Fluorides	7664-39-3	3.75E-03	Calpuff	6.38E-04	6.38E-04	30-day	0.34	Vegetation	Sch. 3	Standard	B1	<1%	Note 2, 20	Apr-18
Fluorides	7664-39-3	3.75E-03	Calpuff	4.59E-03	4.38E-03	24-hour	1.74	Vegetation	Sch. 3	Standard	B1	<1%	Note 2, 20	Apr-18
Fluorides	7664-39-3	3.75E-03	Calpuff	6.38E-04	6.38E-04	30-day	0.69	Vegetation	Sch. 3	Standard	B1	<1%	Note 2, 20	Apr-18
Fluorides	7664-39-3	3.75E-03	Calpuff	4.59E-03	4.38E-03	24-hour	3.44	Vegetation	Sch. 3	Standard	B1	<1%	Note 2, 20	Apr-18
Fluorides	7664-39-3	3.75E-03	Calpuff	6.38E-04	6.38E-04	30-day	1.38	Vegetation	Sch. 3	Standard	B1	<1%	Note 2, 20	Apr-18

Appendix B
Emission Summary Table

Contaminant	CAS No.	Total Facility Emission Rate [g/s]	Air Dispersion Model Used	Maximum POI Concentration Before Meteorological Anomaly Removal [µg/m³]	Maximum POI Concentration After Meeorological Anomaly Removal [µg/m³]	Averaging Period	MECP POI Limit [µg/m³]	Limiting Effect	Schedule	Source	Benchmark	Percentage of MECP Limit [%]	Notes	Version of Date of ACB List
Fluorene	86-73-7	8.05E-08	Calpuff	9.86E-08	9.39E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Formaldehyde	50-00-0	7.00E-04	Calpuff	8.57E-04	8.17E-04	24-hour	65	Odour & Irritation	Sch. 3	Standard	B1	<1%	—	Apr-18
Hexachlorobenzene	118-74-1	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.011	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
Hydrogen Chloride	7647-01-0	1.45E-01	Calpuff	1.77E-01	1.69E-01	24-hour	20	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Hydrogen Chloride	7647-01-0	1.45E-01	Calpuff	1.77E-01	1.69E-01	24-hour	200	Health	Sch. 6	URT	—	<1%	—	Apr-18
Indeno(1,2,3 – cd)pyrene	193-39-5	8.35E-08	Calpuff	1.02E-07	9.74E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Lead	7439-92-1	9.71E-06	Calpuff	1.19E-05	1.13E-05	24-hour	0.5	Health	Sch. 3	Standard	B1	<1%	Note 2URT - Note 4, Table 4	Apr-18
Lead	7439-92-1	9.71E-06	Calpuff	1.65E-06	1.65E-06	30-day	0.2	Health	Sch. 3	Standard	B1	<1%	Note 2URT - Note 4, Table 4	Apr-18
Lead	7439-92-1	9.71E-06	Calpuff	1.19E-05	1.13E-05	24-hour	2	Health	Sch. 6	URT	—	<1%	Note 2URT - Note 4, Table 4	Apr-18
Mercury	7439-97-6	3.44E-06	Calpuff	4.21E-06	4.01E-06	24-hour	2	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Molybdenum	7439-98-7	3.02E-04	Calpuff	3.70E-04	3.52E-04	24-hour	120	Particulate	Sch. 3	Guideline	B1	<1%	—	Apr-18
Naphthalene	91-20-3	1.01E-05	Calpuff	1.24E-05	1.18E-05	24-hour	22.5	Odour	Sch. 3	Guideline	B1	<1%	Note 2, 3	Apr-18
Naphthalene	91-20-3	1.01E-05	Calpuff	4.81E-04	1.74E-04	10-minute	50	Odour	Sch. 3	Guideline	B1	<1%	Note 2, 3	Apr-18
Nickel	7440-02-0	2.27E-05	Calpuff	1.28E-06	1.28E-06	Annual	0.04	Health	Sch. 3	Standard	B1	<1%	Note 19, Table 2, 3URT - Note 4, Table 4	Apr-18
Nickel	7440-02-0	2.27E-05	Calpuff	2.78E-05	2.65E-05	24-hour	2	Health	Sch. 6	URT	—	<1%	—	Apr-18
Nickel	7440-02-0	2.27E-05	Calpuff	1.28E-06	1.28E-06	Annual	0.4	Health	—	AAV	—	<1%	—	Apr-18
Nitrogen Oxides	10102-44-0	4.35E+00	Calpuff	5.33E+00	5.08E+00	24-hour	200	Health	Sch. 3	Standard	B1	3%	Notes 2, 17	Apr-18
Nitrogen Oxides	10102-44-0	4.35E+00	Calpuff	1.26E+02	4.54E+01	1-hour	400	Health	Sch. 3	Standard	B1	11%	Notes 2, 17	Apr-18
O-terphenyl	84-15-1	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	—
PM_{10} (Condensable and Filterable)	N/A	1.87E-01	Calpuff	3.13E-01	2.61E-01	24-hour	50	—	—	AAQC	—	<1%	—	—
PM_{10} (Filterable Only)	N/A	3.08E-02	Calpuff	2.38E-01	1.69E-01	24-hour	50	—	—	AAQC	—	<1%	—	—
$PM_{2.5}$ (Condensable and Filterable)	N/A	1.73E-01	Calpuff	3.05E-01	2.45E-01	24-hour	27	—	—	AAQC	—	<1%	—	—
$PM_{2.5}$ (Filterable Only)	N/A	1.66E-02	Calpuff	2.34E-01	1.66E-01	24-hour	27	—	—	AAQC	—	<1%	—	—
Pentachlorobenzene	608-93-5	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	80	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
Pentachlorophenol	87-86-5	3.85E-07	Calpuff	4.71E-07	4.49E-07	24-hour	20	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Perylene	198-55-0	7.69E-08	Calpuff	9.42E-08	8.98E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Phenanthrene	85-01-8	3.55E-07	Calpuff	4.35E-07	4.14E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Pyrene	129-00-0	1.61E-07	Calpuff	1.97E-07	1.88E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Selenium	7782-49-2	8.58E-06	Calpuff	1.05E-05	1.00E-05	24-hour	10	Health	Sch. 3	Guideline	B1	<1%	—	Apr-18
Silver	7440-22-4	1.72E-06	Calpuff	2.10E-06	2.00E-06	24-hour	1	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Sulphur Dioxide	7446-09-5	1.47E-02	Calpuff	1.80E-02	1.72E-02	24-hour	275	Health	Sch. 3	Standard	B1	<1%	Effective until July 1, 2023Note 2URT - Note 4, Table 4	Apr-18
Sulphur Dioxide	7446-09-5	1.47E-02	Calpuff	4.25E-01	1.54E-01	1-hour	690	Health	Sch. 3	Standard	B1	<1%	Effective until July 1, 2023Note 2URT - Note 4, Table 4	Apr-18
Tetrachloroethene	127-18-4	1.86E-05	Calpuff	2.28E-05	2.17E-05	24-hour	360	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Tetrachloroethene	127-18-4	1.86E-05	Calpuff	2.28E-05	2.17E-05	24-hour	3600	Health	Sch. 6	URT	—	<1%	—	—
Tetralin	119-64-2	1.28E-06	Calpuff	1.56E-06	1.49E-06	24-hour	151.5	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
Thallium	7440-28-0	1.72E-06	Calpuff	2.10E-06	2.00E-06	24-hour	0.5	Health	Sch. 3	SL-JSL	B2	Below SL-JSL	—	Apr-18
Toluene	108-88-3	8.23E-03	Calpuff	1.01E-02	9.60E-03	24-hour	2000	Not Applicable	Sch. 3	Guideline	B1	<1%	To be updated - Note 5	Apr-18
Total Chromium (and compounds)	7440-47-3	3.16E-05	Calpuff	3.87E-05	3.69E-05	24-hour	0.5	Health	Sch. 3	Standard	B1	<1%	Note 11aURT - Note 4, Table 4	Apr-18
Total Chromium (and compounds)	7440-47-3	3.16E-05	Calpuff	3.87E-05	3.69E-05	24-hour	5	Health	Sch. 6	URT	—	<1%	—	Apr-18
Total Particulate Matter (Condensable and Filterable)	N/A	2.04E-01	Calpuff	3.23E-01	2.81E-01	24-hour	120	Particulate	Sch. 3	Guideline	B1	<1%	—	Apr-18
Total Particulate Matter (Filterable only)	N/A	4.73E-02	Calpuff	2.43E-01	1.71E-01	24-hour	120	Particulate	Sch. 3	Guideline	B1	<1%	—	Apr-18
Trichloroethane, 1,1,1 -	71-55-6	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	115000	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Trichloroethene	79-01-6	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	0.1	—	—	De Minimus	—	Below De Minimus	—	Apr-18
Trichloroethylene, 1,1,2 -	79-01-6	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	12	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Trichloroethylene, 1,1,2 -	79-01-6	1.44E-05	Calpuff	1.77E-05	1.68E-05	24-hour	1200	Health	Sch. 6	URT	—	<1%	—	Apr-18
Trichlorofluoromethane	75-69-4	7.12E-05	Calpuff	8.72E-05	8.31E-05	24-hour	6000	Health	Sch. 3	Guideline	B1	<1%	Note 10	Apr-18
Vanadium	7440-62-2	8.58E-07	Calpuff	1.05E-06	1.00E-06	24-hour	2	Health	Sch. 3	Standard	B1	<1%	—	Apr-18
Vinyl chloride	75-01-4	2.99E-05	Calpuff	3.66E-05	3.49E-05	24-hour	1	Health	Sch. 3	Standard	B1	<1%	URT - Note 4, Table 4	Apr-18
Vinyl chloride	75-01-4	2.99E-05	Calpuff	3.66E-05	3.49E-05	24-hour	100	Health	Sch. 6	URT	—	<1%	—	Apr-18
Xylenes, m-, p- and o-	1330-20-7	8.71E-04	Calpuff	1.07E-03	1.02E-03	24-hour	730	Not Applicable	Sch. 3	Guideline	B1	<1%	Note 2, 3, 22	Apr-18
Xylenes, m-, p- and o-	1330-20-7	8.71E-04	Calpuff	4.15E-02	1.50E-02	10-minute	3000	Not Applicable	Sch. 3	Guideline	B1	<1%	Note 2, 3, 22	Apr-18
Xylenes, m-, p- and o-	1330-20-7	8.71E-04	Calpuff	1.07E-03	1.02E-03	24-hour	7300	Not Applicable	Sch. 6	URT	—	<1%	—	Apr-18
Zinc	7440-66-6	1.95E-04	Calpuff	2.39E-04	2.28E-04	24-hour	120	Particulate	Sch. 3	Standard	B1	<1%	—	Apr-18

APPENDIX 28

DYEC CEMS 1-Hour Average Data
(3 pages)

Covanta - Durham York Energy Centre
Boiler No. 1 CEMS

			BH Outlet								Scrubber Inlet
		O_2	CO		SO_2		NOx		HCl		THC	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		mg/m^3 @ 11% O_2	%
Date	Time	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
17-May-22	0:00	8.16	12		0		109		2		0	8
17-May-22	1:00	7.90	8		0		113		2		0	8
17-May-22	2:00	8.29	10		0		107		3		0	8
17-May-22	3:00	8.30	11	10.3	0		104		3		0	8
17-May-22	4:00	8.61	11	10.0	0		115		2		0	9
17-May-22	5:00	8.35	12	11.0	0		115		2		0	9
17-May-22	6:00	8.37	14	12.0	0		114		2		0	8
17-May-22	7:00	8.44	11	12.0	0		110		1		0	8
17-May-22	8:00	8.41	12	12.3	0		109		2		0	8
17-May-22	9:00	8.10	13	12.5	0		111		1		0	8
17-May-22	10:00	8.48	12	12.0	0		106		2		0	8
17-May-22	11:00	8.26	11	12.0	0		110		1		0	8
17-May-22	12:00	8.25	12	12.0	0		112		1		0	8
17-May-22	13:00	8.52	9	11.0	0		112		1		0	8
17-May-22	14:00	8.47	12	11.0	0		110		1		0	8
17-May-22	15:00	8.28	10	10.8	0		110		1		0	8
17-May-22	16:00	8.28	10	10.3	0		111		1		0	8
17-May-22	17:00	8.15	11	10.8	0		102		1		0	8
17-May-22	18:00	8.70	8	9.8	0		116		1		0	9
17-May-22	19:00	8.22	11	10.0	0		105		0		0	8
17-May-22	20:00	8.54	9	9.8	0		111		1		0	8
17-May-22	21:00	8.57	10	9.5	0		116		2		0	8
17-May-22	22:00	8.11	8	9.5	0		107		1		0	8
17-May-22	23:00	8.70	5	8.0	0	0.0	109	110	2	1.5	0	8
18-May-22	0:00	8.52	7	7.5	0	0.0	116	110	2	1.5	0	9
18-May-22	1:00	8.25	6	6.5	0	0.0	111	110	2	1.5	0	8
18-May-22	2:00	8.05	5	5.8	0	0.0	107	110	2	1.5	0	8
18-May-22	3:00	8.29	4	5.5	0	0.0	113	111	1	1.4	0	9
18-May-22	4:00	8.64	8	5.8	0	0.0	121	111	1	1.3	0	9
18-May-22	5:00	8.08	5	5.5	0	0.0	109	111	1	1.3	0	8
18-May-22	6:00	8.16	12	7.3	0	0.0	120	111	1	1.3	0	8
18-May-22	7:00	8.27	9	8.5	0	0.0	98	111	0	1.2	0	8
18-May-22	8:00	8.17	12	9.5	0	0.0	111	111	1	1.2	0	8
18-May-22	9:00	8.24	13	11.5	0	0.0	109	111	1	1.2	0	8
18-May-22	10:00	8.15	11	11.3	0	0.0	110	111	1	1.1	0	8
18-May-22	11:00	8.42	9	11.3	0	0.0	105	110	2	1.2	0	8
18-May-22	12:00	8.29	14	11.8	0	0.0	114	111	1	1.2	0	8
18-May-22	13:00	8.25	17	12.8	0	0.0	105	110	1	1.2	0	8
18-May-22	14:00	8.40	14	13.5	0	0.0	115	110	1	1.2	0	8
18-May-22	15:00	8.14	11	14.0	0	0.0	110	110	1	1.2	0	8
18-May-22	16:00	8.56	14	14.0	0	0.0	109	110	1	1.2	0	8
18-May-22	17:00	8.34	14	13.3	0	0.0	113	111	1	1.2	0	8
18-May-22	18:00	9.11	13	13.0	0	0.0	112	111	0	1.1	0	9
18-May-22	19:00	8.74	10	12.8	0	0.0	109	111	0	1.1	0	9
18-May-22	20:00	8.35	9	11.5	0	0.0	101	110	0	1.1	0	9
18-May-22	21:00	8.24	10	10.5	0	0.0	113	110	0	1.0	0	8
18-May-22	22:00	7.94	23	13.0	0	0.0	116	111	0	1.0	0	8
18-May-22	23:00	8.17	11	13.3	0	0.0	105	111	1	0.9	0	8
19-May-22	0:00	8.25	5	12.3	0	0.0	110	110	0	0.8	0	8
19-May-22	1:00	8.32	6	11.3	0	0.0	112	110	1	0.8	0	8
19-May-22	2:00	8.02	4	6.5	0	0.0	110	110	1	0.8	0	8
19-May-22	3:00	8.06	8	5.8	0	0.0	96	110	1	0.8	0	8
19-May-22	4:00	8.35	9	6.8	0	0.0	109	109	1	0.8	0	8
19-May-22	5:00	8.77	11	8.0	0	0.0	92	109	2	0.8	0	9
19-May-22	6:00	8.47	11	9.8	2	0.1	105	108	1	0.8	0	
19-May-22	7:00	8.46	13	11.0	0	0.1	108	108	1	0.8	0	9
19-May-22	8:00	8.47	14	12.3	0	0.1	110	108	0	0.8	0	8
19-May-22	9:00	8.14	16	13.5	0	0.1	110	108	0	0.8	0	8
19-May-22	10:00	8.20	17	15.0	0	0.1	113	108	0	0.7	0	8
19-May-22	11:00	8.16	12	14.8	0	0.1	104	108	0	0.6	0	8
19-May-22	12:00	8.31	12	14.3	0	0.1	109	108	0	0.6	0	8
19-May-22	13:00	8.40	10	12.8	0	0.1	106	108	0	0.5	0	8
19-May-22	14:00	8.00	13	11.8	0	0.1	103	108	0	0.5	0	8
19-May-22	15:00	8.23	14	12.3	0	0.1	123	108	0	0.5	0	8
	Min	7.90	4	5.5	0	0.0	92	108	0	0.5	0	8
	Max	9.11	23	15.0	2	0.1	123	111	3	1.5	0	9
	Avg	8.33	11	10.7	0.03	0.02	110	110	1	1.0	0	8
	Std Dev	0.22	3.4	2.5	0.3	0.04	5.38	1.1	0.8	0.3	-	0.4

Note: All times are Eastern Standard Time

Covanta - Durham York Energy Centre
Boiler No. 2 CEMS

					BH Outlet						Scrubber Inlet
		O_2	CO		SO_2		NOx		HCl		THC	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		mg/m^3 @ 11% O_2	%
Date	Time	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
16-May-22	6:00	8.86	19		0		113		4		0	
16-May-22	7:00	8.89	18		0		113		4		0	9
16-May-22	8:00	8.87	22		1		106		4		0	9
16-May-22	9:00	8.96	22	20.3	1		116		4		0	9
16-May-22	10:00	9.22	21	20.8	0		110		4		0	9
16-May-22	11:00	9.61	28	23.3	3		112		4		0	9
16-May-22	12:00	9.70	35	26.5	0		101		2		0	9
16-May-22	13:00	8.48	30	28.5	0		108		2		0	8
16-May-22	14:00	8.69	26	29.8	1		115		3		0	9
16-May-22	15:00	8.44	27	29.5	0		108		2		0	8
16-May-22	16:00	8.08	21	26.0	0		112		3		0	8
16-May-22	17:00	8.66	12	21.5	0		114		3		0	9
16-May-22	18:00	8.81	16	19.0	0		110		4		0	9
16-May-22	19:00	8.46	17	16.5	0		110		3		0	8
16-May-22	20:00	9.12	13	14.5	0		107		3		0	9
16-May-22	21:00	8.54	14	15.0	0		111		3		0	8
16-May-22	22:00	8.88	10	13.5	1		112		4		0	9
16-May-22	23:00	8.75	13	12.5	0		109		4		0	9
17-May-22	0:00	8.74	16	13.3	0		113		4		0	9
17-May-22	1:00	8.66	20	14.8	0		112		4		0	9
17-May-22	2:00	8.66	18	16.8	0		108		4		0	9
17-May-22	3:00	8.65	13	16.8	0		116		3		0	9
17-May-22	4:00	9.04	10	15.3	0		109		3		0	9
17-May-22	5:00	8.69	33	18.5	0	0.3	98	110	5	3.5	0	8
17-May-22	6:00	8.78	13	17.3	0	0.3	111	110	4	3.5	0	9
17-May-22	7:00	8.60	11	16.8	0	0.3	107	110	4	3.5	0	8
17-May-22	8:00	8.47	13	17.5	4	0.4	108	110	4	3.5	0	8
17-May-22	9:00	8.71	18	13.8	1	0.4	112	110	4	3.5	0	9
17-May-22	10:00	8.70	12	13.5	8	0.8	107	110	5	3.5	0	9
17-May-22	11:00	8.66	19	15.5	0	0.6	107	109	3	3.5	0	8
17-May-22	12:00	8.57	18	16.8	0	0.6	116	110	3	3.5	0	9
17-May-22	13:00	8.83	16	16.3	0	0.6	106	110	4	3.6	0	9
17-May-22	14:00	9.00	18	17.8	0	0.6	119	110	4	3.6	0	9
17-May-22	15:00	8.54	14	16.5	0	0.6	105	110	4	3.7	0	8
17-May-22	16:00	8.85	14	15.5	0	0.6	108	110	4	3.8	0	9
17-May-22	17:00	8.62	14	15.0	0	0.6	107	110	3	3.8	0	8
17-May-22	18:00	8.84	11	13.3	1	0.6	107	109	3	3.7	0	9
17-May-22	19:00	9.47	19	14.5	32	2.0	111	109	4	3.8	0	9
17-May-22	20:00	9.09	14	14.5	0	2.0	108	109	3	3.8	0	9
17-May-22	21:00	9.13	11	13.8	0	2.0	114	110	4	3.8	0	9
17-May-22	22:00	9.33	11	13.8	0	1.9	105	109	4	3.8	0	9
17-May-22	23:00	9.13	8	11.0	0	1.9	113	109	4	3.8	0	9
18-May-22	0:00	8.95	10	10.0	1	2.0	112	109	4	3.8	0	9
18-May-22	1:00	8.80	8	9.3	0	2.0	108	109	4	3.8	0	9
18-May-22	2:00	9.24	10	9.0	0	2.0	106	109	4	3.8	0	9
18-May-22	3:00	9.33	17	11.3	0	2.0	113	109	3	3.8	0	9
18-May-22	4:00	9.45	15	12.5	0	2.0	107	109	5	3.9	0	9
18-May-22	5:00	9.76	17	14.8	0	2.0	109	109	5	3.9	0	9
18-May-22	6:00	8.75	12	15.3	0	2.0	109	109	3	3.8	0	9
18-May-22	7:00	8.53	13	14.3	0	2.0	112	110	4	3.8	0	8
18-May-22	8:00	8.76	10	13.0	3	1.9	115	110	4	3.8	0	9
18-May-22	9:00	8.39	11	11.5	0	1.9	109	110	3	3.8	0	8
18-May-22	10:00	8.47	11	11.3	0	1.5	109	110	3	3.7	0	8
18-May-22	11:00	8.47	10	10.5	0	1.5	108	110	3	3.7	0	8
18-May-22	12:00	8.52	14	11.5	0	1.5	111	110	3	3.7	0	8
18-May-22	13:00	8.60	17	13.0	0	1.5	112	110	3	3.7	0	9
18-May-22	14:00	8.50	13	13.5	0	1.5	108	109	3	3.6	0	8
18-May-22	15:00	8.66	11	13.8	0	1.5	112	110	3	3.6	0	9
18-May-22	16:00	8.43	14	13.8	0	1.5	110	110	3	3.5	0	8
18-May-22	17:00	8.41	15	13.3	0	1.5	106	110	3	3.5	0	8
18-May-22	18:00	8.83	15	13.8	0	1.5	115	110	3	3.5	0	9
18-May-22	19:00	8.82	10	13.5	0	0.2	107	110	3	3.5	0	9
18-May-22	20:00	8.97	11	12.8	0	0.2	108	110	3	3.5	0	9
18-May-22	21:00	8.80	11	11.8	0	0.2	116	110	3	3.5	0	9
18-May-22	22:00	8.71	11	10.8	0	0.2	108	110	3	3.4	0	9
18-May-22	23:00	8.57	12	11.3	0	0.2	111	110	3	3.4	0	8
19-May-22	0:00	8.59	15	12.3	0	0.1	112	110	4	3.4	0	9
19-May-22	1:00	8.73	14	13.0	0	0.1	106	110	4	3.4	0	9
19-May-22	2:00	8.65	13	13.5	0	0.1	110	110	3	3.3	0	9
19-May-22	3:00	8.72	15	14.3	0	0.1	118	110	2	3.3	0	8
19-May-22	4:00	8.93	15	14.3	0	0.1	112	111	3	3.2	0	9
19-May-22	5:00	8.93	13	14.0	0	0.1	90	110	5	3.2	0	9

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Covanta - Durham York Energy Centre
Boiler No. 2 CEMS

					BH Outlet							Scrubber Inlet
		O_2	CO		SO_2		NOx		HCl		THC	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		mg/m^3 @ 11% O_2	%
Date	Time	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
19-May-22	6:00	8.49	13	14.0	0	0.1	108	110	4	3.3	0	8
19-May-22	7:00	8.33	10	12.8	0	0.1	107	110	4	3.3	0	8
19-May-22	8:00	8.30	14	12.5	0	0.0	112	109	4	3.3	0	8
19-May-22	9:00	8.48	14	12.8	1	0.0	109	109	4	3.3	0	8
19-May-22	10:00	8.02	15	13.3	0	0.0	109	109	4	3.3	0	8
19-May-22	11:00	8.08	13	14.0	0	0.0	105	109	4	3.4	0	8
19-May-22	12:00	8.29	18	15.0	0	0.0	109	109	4	3.4	0	8
19-May-22	13:00	8.28	27	18.3	0	0.0	82	108	4	3.5	0	8
19-May-22	14:00	8.58	15	18.3	0	0.0	111	108	4	3.5	0	8
19-May-22	15:00	8.16	14	18.5	0	0.0	112	108	4	3.5	0	8
	Min	8.02	8	9.0	0	0	82	108	2	3.2	0	8
	Max	9.76	35	29.8	32	2.0	119	111	5	3.9	0	9
	Avg	8.74	15	15.3	0.7	0.9	109	110	4	3.6	0	9
	Std Dev	0.35	5.4	4.3	3.7	0.8	5.17	0.5	0.7	0.2	0	0.5

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