Report No. | 22327

ORTECH
AN ALLIANCE TECHNICAL GROUP COMPANY

Report:

Covanta Durham York Renewable Energy Limited Partnership
Durham York Energy Centre 2024 Compliance Emission Testing in Accordance with Amended Environmental Compliance Approval (ECA) No. 7306-8FDKNX

Date: June 20, 2024



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Revision History

Version	Date	Summary Changes/Purpose of Revision
1	June 20, 2024	None

Table of Contents

Table of Contents

List of Appendices

EXECUTIVE SUMMARY

ORTECH Consulting Alliance Inc. (ORTECH) completed the annual compliance emission testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between March 18 and March 21, 2024. The emission testing program was performed to satisfy the requirements of the Ontario Ministry of the Environment, Conservation and Parks (MECP) Amended Environmental Compliance Approval (ECA) No. 7306-8FDKNX. Section 7(1) of the ECA 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
2022 Compliance	November/December 2022	22160
2023 Voluntary	April 2023	22230
2023 Compliance	September/October 2023	22235
2024 Compliance	March 2024	22327

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 August 2023, 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 (March 18 to March 21, 2024) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. Concentration data measured by ORTECH on March 19, 2024 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", 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)*	-	-	-	388	-
Average Combustion Zone Temp. (°C)*	-	-	-	1222	-
Steam (tonnes/day)*	-	-	-	794	-
MSW Combusted (tonnes/day)*	-	-	-	223	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	1362	-
Carbon Injection (kg/day)*	-	-	-	128	-
Lime Injection (kg/day)*	-	-	-	3550	-
Filterable Particulate (mg/Rm^3) (1)	1.58	0.84	1.52	1.31	9
PM_{10} with Condensable (mg/Rm^3) (1)	6.06	<6.26	<6.30	<6.21	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	5.99	<5.98	<6.10	<6.02	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.090	<0.089	<0.10	<0.093	-
Ammonia (mg/Rm^3) (1)	0.47	0.69	0.58	0.58	-
Cadmium (µg/Rm^3) (1)	0.088	0.16	<0.019	<0.090	7
Lead (µg/Rm^3) (1)	0.51	0.26	0.15	0.31	50
Mercury (µg/Rm^3) (1)	<0.098	0.067	0.32	<0.16	15
Antimony (µg/Rm^3) (1)	0.069	<0.044	<0.039	<0.051	-
Arsenic (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Barium (µg/Rm^3) (1)	10.6	10.5	9.33	10.1	-
Beryllium (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Chromium (µg/Rm^3) (1)	0.96	1.03	0.70	0.90	-
Cobalt (µg/Rm^3) (1)	0.032	<0.044	<0.039	<0.038	-
Copper (µg/Rm^3) (1)	2.72	1.64	1.19	1.85	-
Molybdenum (µg/Rm^3) (1)	4.01	4.25	3.39	3.88	-
Nickel (µg/Rm^3) (1)	0.68	0.77	0.44	0.63	-
Selenium (µg/Rm^3) (1)	<0.22	<0.22	<0.19	<0.21	-
Silver (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Thallium (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Vanadium (µg/Rm^3) (1)	<0.022	<0.022	<0.019	<0.021	-
Zinc (µg/Rm^3) (1)	14.3	10.3	8.26	11.0	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<1.97	<3.06	<1.88	<2.30	60
Total Chlorobenzenes (ng/Rm^3) (1)	<113	<99.6	<127	<113	-
Total Chlorophenols (ng/Rm^3) (5)	<521	<1828	NQ	<1163	-
Total PAHs (ng/Rm^3) (1)	<222	<399	<343	<321	-
VOCs (µg/Rm^3) (1)	<117	<62.4	<73.4	<84.3	-
Aldehydes (µg/Rm^3) (1)	<82.1	<15.5	<52.3	<50.0	-
Total VOCs (µg/Rm^3) (1) (4)	<199	<77.9	<126	<134	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	0.1	0.1	0	0.1	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).

(5) Total chlorophenols were not quantifiable (NQ) due to spike recovery loses during the extraction of the samples by the analytical laboratory.

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)*	-	-	-	388	-
Average Combustion Zone Temp. (°C)*	-	-	-	1280	-
Steam (tonnes/day)*	-	-	-	800	-
MSW Combusted (tonnes/day)*	-	-	-	218	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	522	-
Carbon Injection (kg/day)*	-	-	-	124	-
Lime Injection (kg/day)*	-	-	-	3539	-
Filterable Particulate (mg/Rm^3) (1)	1.73	1.44	1.28	1.48	9
PM_{10} with Condensable (mg/Rm^3) (1)	<5.39	<6.55	<5.19	<5.71	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	<4.98	<6.48	<5.00	<5.49	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.11	<0.098	<0.097	<0.10	-
Ammonia (mg/Rm^3) (1)	0.37	0.30	0.28	0.32	-
Cadmium (µg/Rm^3) (1)	0.014	0.055	0.10	0.057	7
Lead (µg/Rm^3) (1)	0.22	0.21	0.33	0.26	50
Mercury (µg/Rm^3) (1)	0.44	1.21	<0.089	<0.58	15
Antimony (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Arsenic (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Barium (µg/Rm^3) (1)	10.6	11.1	11.6	11.1	-
Beryllium (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Chromium (µg/Rm^3) (1)	0.90	0.88	0.95	0.91	-
Cobalt (µg/Rm^3) (1)	0.042	<0.023	<0.023	<0.029	-
Copper (µg/Rm^3) (1)	1.34	1.51	1.13	1.33	-
Molybdenum (µg/Rm^3) (1)	4.04	4.20	4.09	4.11	-
Nickel (µg/Rm^3) (1)	0.50	0.59	0.58	0.56	-
Selenium (µg/Rm^3) (1)	<0.22	<0.23	<0.23	<0.23	-
Silver (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Thallium (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Vanadium (µg/Rm^3) (1)	<0.022	<0.023	<0.023	<0.023	-
Zinc (µg/Rm^3) (1)	9.95	10.9	10.1	10.3	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<1.81	<2.00	<1.83	<1.88	60
Total Chlorobenzenes (ng/Rm^3) (1)	<156	<59.3	<152	<122	-
Total Chlorophenols (ng/Rm^3) (5)	NQ	NQ	<1471	<1380	-
Total PAHs (ng/Rm^3) (1)	<142	<315	<167	<208	-
VOCs (µg/Rm^3) (1)	<338	<279	<227	<281	-
Aldehydes (µg/Rm^3) (1)	<211	<188	<199	<199	-
Total VOCs (µg/Rm^3) (1) (4)	<549	<467	<426	<480	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	0.6	0.1	0	0.2	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).

(5) Total chlorophenols were not quantifiable (NQ) due to spike recovery loses during the extraction of the samples by the analytical laboratory.

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)	4.0	6.1	9.5	40
	Hydrogen Chloride (mg/Rm^3) (2)	0.2	0.3	0.5	9
	Nitrogen Oxides (mg/Rm^3) (2)	110	111	113	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.2	1.8	35
Boiler No. 2	Carbon Monoxide (mg/Rm^3) (1)	5.5	8.0	12.4	40
	Hydrogen Chloride (mg/Rm^3) (2)	2.1	2.2	2.4	9
	Nitrogen Oxides (mg/Rm^3) (2)	106	108	109	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.39	2.4	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 as approved by the MECP in May 2021) by WSP Canada Inc. 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 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 766 tonnes of steam per day for each Boiler (approximately 94.9% 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 Alliance (ORTECH) completed the annual compliance emission testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between March 18 to March 21, 2024. The emission testing program was performed to satisfy the requirements of the Ontario Ministry of the Environment, Conservation and Parks (MECP) Amended Environmental Compliance Approval (ECA) No. 7306-8FDKNX. Section 7(1) of the ECA 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:

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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
2022 Compliance	November/December 2022	22160
2023 Voluntary	April 2023	22230
2023 Compliance	September/October 2023	22235
2024 Compliance	March 2024	22327

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, a Pre-Test Plan letter was submitted to the MECP stating that the 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 acceptance email received from the MECP, dated February 14, 2024, indicating acceptance of the proposed sampling strategy. A copy of the Amended Environmental Compliance Approval, including amendment notices, is also provided in Appendix 3.

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 August 2023, 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 (March 18 to March 21, 2024) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. Concentration data measured by ORTECH on March 19, 2024 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 results from the three runs performed were combined and used to calculate test average results for the respective source. The samples for Test No. 1, Test No. 2 and Test No. 3 were analyzed and reported for each boiler.

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. Note due to an error by the sampling crew, the aldehyde sampling rate for Boiler No. 1 was 2 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, impinger outlet and dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

Field data sheets for the aldehyde tests are provided in Appendix 9.

4.8 Combustion Gases

In August 2023, 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 March 18, 2024 at 08:00 to March 21, 2024 at 16:00, was used to assess against the in-stack emission limit stated in the ECA for each boiler.

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 March 19, 2024. 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. except for the volatile organic compounds. The VOC samples were analyzed by Bureau Veritas. 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 reports are 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.

Proving data for the Aldehyde Trail solutions was deemed acceptable prior to the test program.

The proof data for the semi-volatile organics glassware, aldehydes solutions and VOST tubes is provided in Appendix 20.

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

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

6.3 Emission Testing QA/QC Results

Prior to the field testing program, preliminary 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.
- The process was monitored by Covanta personnel to ensure it was operating as close as possible to the maximum continuous rating stated in the ECA. Covanta notified ORTECH when to commence sampling each day and if sampling should be paused due to issues with the process.

Note due to an error by the sampling crew, the aldehyde sampling rate for Boiler No. 1 was 2 liters per minute for sixty minutes and not at 0.5 liters per minute per the test method. The total collected was similar to the amounts collected in the blank train. The emission data is lower than typical due to the increased sample volume for the test train.

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 11.3% well within the acceptable limit of less than ±20%, for elements that are greater than 5 times the minimum detection limit, except for copper in the back half. The copper relative percent difference was greater than 20%; the greater value was used to calculate the emission data.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 93-103%. 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 94-104%. 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, nickel and zinc were detected in the blank trains at levels greater than the limit of reporting. Chromium, copper, molybdenum and nickel 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 91-96% within the acceptable limit of 90-110% of the true value, except for Fraction 1B. The recovery for Fraction 1B was 76% (86% in the duplicate), however mercury was not detected in this fraction in any of the test samples.
- A matrix spike (performed as a post digestion spike) was analyzed with the test samples. All of the recovery results were between 90-97%, 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 1%, 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 101% for hydrogen chloride, 103% for hydrogen fluoride and 98.1% 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 104% for hydrogen chloride, 104% for hydrogen fluoride and 102% 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. The formaldehyde, acetaldehyde and acrolein BHA media sent to the field was deemed acceptable. The values reported by the analytical laboratory are not blank corrected.

Two laboratory control samples were prepared by the analytical laboratory and analyzed with the test samples (Field Spike and 10 µg). The acrolein recoveries were 5% and 81%, the formaldehyde recoveries were 130% and 51% and the acetaldehyde recoveries were 124% and 146%.

The laboratory method and field blanks all showed levels of formaldehyde similar to the levels in the samples. Therefore, formaldehyde levels in the field samples are suspected to be false positives and represent maximum possible levels.

Acetaldehyde and acrolein in the laboratory method blank was much higher than in any of the samples. The method blank shows significant contamination. The second field blank showed low levels of acetaldehyde at levels similar to the field samples. Therefore, acetaldehyde levels in the field samples are suspected to be false positives and represent maximum possible values.

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.

Recovery of the dioxin and furan field spike standards were between 61-112% which indicates good extraction efficiency and provides a high degree of confidence in the results obtained from the dioxin and furan test trains.

Per the analytical reports for chlorobenzenes, the recoveries of select labelled extraction standards were below the method control limit, however the reported results are not expected to be biased.

Per the analytical reports for chlorophenols, the revised extraction scheme designed for improved monochlorobenzene recoveries removed the acidied/extraction step that enhanced chlorophenol recoveries. Therefore, chlorophenol recoveries were in some cases very low. Re-analysis using another fraction of the extract (on extracts where chlorobenzene fraction that showed good recoveries of the chlorobenzenes) did not provide improved data but showed similar recoveries. Reporting limits were raised significantly for the very low recoveries corresponding to observable levels after correction for recoveries. LCS target recoveries confirmed that in general targets by isotope dilution technique still provided estimates of chlorophenols even in the presence of poor ES recoveries. Selected samples with very low monochlorophenol ES recoveries had insufficient responses to provide estimates on the monochlorophenol targets.

The chlorophenol detection limits reported are significantly higher than the detection limits typically reported by the analytical laboratory (<1000 ng vs <60 ng). The emission data is elevated as a result for those compounds reported.

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.

Toluene was detected in one of the field blank samples in quantities significantly higher than the analytical detection limit. 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.

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 test sample were between 89 - 118%.

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 (March 18 to March 21, 2024) by the DYEC CEMS. Total hydrocarbon concentrations were also measured at the BH Outlet and Quench Inlet by ORTECH on March 19, 2024.

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)	138	139
Moisture by Volume (%)	15.9	16.9
Velocity (m/s)	18.7	17.8
Static Pressure (kPa)	-2.94	-2.89
Absolute Pressure (kPa)	96.7	96.8
Carbon Dioxide by Volume (%)**	10.6	11.0
Oxygen by Volume (%)**	8.57	8.28

* 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)	27.7	26.3
Dry Reference Flowrate (Rm^3/s)**	16.1	15.1
Dry Adjusted Flowrate (Rm^3/s)***	20.0	19.3
Wet Reference Flowrate (Rm^3/s)**	19.1	18.2

* 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)	0.95	1.09
Dry Reference Conc. (mg/Rm^3)*	1.62	1.89
Dry Adjusted Conc. (mg/Rm^3)**	1.31	1.48
Wet Reference Conc. (mg/Rm^3)*	1.37	1.57
Emission Rate (mg/s)	26.4	28.3

* 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 (1.31 mg/Rm^3, adjusted to 11% oxygen) and the Boiler No. 2 BH Outlet (1.48 mg/Rm^3, adjusted to 11% oxygen) were well below the maximum limit (9 mg/Rm^3, adjusted to 11% oxygen) stated in the ECA.

The amount of particulate matter detected in the blank sampling train filter and acetone probe rinse samples for Boiler No. 1 BH Outlet was 3.9 mg and 0.2 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 4.4 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)	<0.71	<0.79	<0.58	<0.63
Dry Reference Conc. (mg/Rm^3)*	<1.22	<1.37	<1.00	<1.09
Dry Adjusted Conc. (mg/Rm^3)**	<1.00	<1.08	<0.82	<0.86
Wet Reference Conc. (mg/Rm^3)*	<1.03	<1.14	<0.85	<0.91
Emission Rate (mg/s)	<20.2	<21.5	<16.5	<17.2

* 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)	1.57	1.59	2.13	1.78
Dry Reference Conc. (mg/Rm^3)*	2.69	2.77	3.63	3.11
Dry Adjusted Conc. (mg/Rm^3)**	2.21	2.18	2.99	2.45
Wet Reference Conc. (mg/Rm^3)*	2.28	2.30	3.08	2.58
Emission Rate (mg/s)	44.7	43.5	60.3	48.8

* 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 0.3 mg for the inorganic fraction and 2.9 mg for the organic fraction. The amount of condensable particulate detected in the blank sampling train for Boiler No. 2 was 0.4 mg for the inorganic fraction and 3.5 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)	<4.41	<4.16	<4.29	<4.00
Dry Reference Conc. (mg/Rm^3)*	<7.54	<7.25	<7.32	<6.97
Dry Adjusted Conc. (mg/Rm^3)**	<6.21	<5.71	<6.02	<5.49
Wet Reference Conc. (mg/Rm^3)*	<6.40	<6.02	<6.21	<5.79
Emission Rate (mg/s)	<125	<114	<122	<110

* 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)	1.81	2.43	<0.066	<0.073	0.41	0.23
Dry Reference Conc. (mg/Rm^3)*	3.12	4.19	<0.11	<0.13	0.71	0.40
Dry Adjusted Conc. (mg/Rm^3)**	2.55	3.33	<0.093	<0.10	0.58	0.32
Wet Reference Conc. (mg/Rm^3)*	2.61	3.50	<0.095	<0.11	0.59	0.33
Emission Rate (mg/s)	49.5	63.9	<1.80	<1.92	11.3	6.08
Dry Adjusted Conc. (ppm)**	1.71	2.23	<0.11	<0.12	0.83	0.46

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

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

7.6 Combustion Gas Emission Data

Combustion gases, including carbon dioxide, carbon monoxide, hydrogen chloride, nitrogen oxides, oxygen and sulphur dioxide, were measured continuously at the BH Outlet during the emission testing program by the DYEC CEMs. 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. The data measured by the DYEC CEMS, from March 18, 2024 at 08:00 to March 21, 2024 at 16:00, was used to assess against the in-stack emission limit stated in the ECA for each boiler. 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)	-	9.33	9.59
	Carbon Monoxide (mg/Rm^3, 4-hr)*	≤ 40	9.5	12.4
	Sulphur Dioxide (mg/Rm^3, 24-hr)*	≤ 35	1.8	2.4
	Nitrogen Oxides (mg/Rm^3, 24-hr)*	≤ 121	113	109
	Hydrogen Chloride (mg/Rm^3, 24-hr)*	≤ 9	0.5	2.4
	Total Hydrocarbons (mg/Rm^3, 1-hr)*	-	1	0
Quench Inlet	Oxygen (%, 1-hr)	≥ 6	7 (minimum)	6 (minimum)

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

Total hydrocarbon concentration data was measured by ORTECH on March 19, 2024 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	0.3
	Total Hydrocarbons (10-minute)**	-	0	0.3
Quench Inlet	Total Hydrocarbons (1-minute)*	-	0.1	0.2
	Total Hydrocarbons (10-minute)**	50	0.03	0.2

* 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)	<0.064	0.042
Dry Reference Conc. (µg/Rm^3)*	<0.11	0.073
Dry Adjusted Conc. (µg/Rm^3)**	<0.090	0.057
Wet Reference Conc. (µg/Rm^3)*	<0.093	0.061
Emission Rate (mg/s)	<0.0018	0.0011

* 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)	0.22	0.19
Dry Reference Conc. (µg/Rm^3)*	0.38	0.32
Dry Adjusted Conc. (µg/Rm^3)**	0.31	0.26
Wet Reference Conc. (µg/Rm^3)*	0.32	0.27
Emission Rate (mg/s)	0.0061	0.0049

* 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. 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)	<0.12	<0.43
Dry Reference Conc. (µg/Rm^3)*	<0.20	<0.74
Dry Adjusted Conc. (µg/Rm^3)**	<0.16	<0.58
Wet Reference Conc. (µg/Rm^3)*	<0.17	<0.62
Emission Rate (mg/s)	<0.0033	<0.011

* 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.

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)	0.090	0.092
Dry Reference Conc. (ng/Rm^3)*	0.16	0.16
Dry Adjusted Conc. (ng/Rm^3)**	0.12	0.13
Wet Reference Conc. (ng/Rm^3)*	0.13	0.13
Emission Rate (ng/s)	2.42	2.38

* 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)	<0.028	<0.016
Dry Reference Conc. (ng/Rm^3)*	<0.048	<0.028
Dry Adjusted Conc. (ng/Rm^3)**	<0.037	<0.022
Wet Reference Conc. (ng/Rm^3)*	<0.040	<0.023
Emission Rate (ng/s)	<0.75	<0.42

* 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", 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)	1.67	1.34
Dry Reference Conc. (pg TEQ/Rm^3)*	2.89	2.35
Dry Adjusted Conc. (pg TEQ/Rm^3)**	2.25	1.83
Wet Reference Conc. (pg TEQ/Rm^3)*	2.40	1.95
Emission Rate (ng TEQ/s)	0.045	0.035

* 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)*	<2.30	<1.88

* 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)	<84.1	<89.7
Dry Reference Conc. (ng/Rm^3)*	<146	<156
Dry Adjusted Conc. (ng/Rm^3)**	<113	<122
Wet Reference Conc. (ng/Rm^3)*	<121	<130
Emission Rate (µg/s)	<2.25	<2.29

* 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 chlorophenol detection limits reported are significantly higher than the detection limits typically reported by the analytical laboratory (<300 or <1000 ng vs <60 ng). The emission data is elevated as a result for those compounds reported. For some samples, select isomers could not be reported due to an absence of recovery on the corresponding extraction standards.

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)	<862	<1013
Dry Reference Conc. (ng/Rm^3)*	<1494	<1765
Dry Adjusted Conc. (ng/Rm^3)**	<1163	<1380
Wet Reference Conc. (ng/Rm^3)*	<1240	<1468
Emission Rate (µg/s)	<23.1	<26.0

* 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)	<239	<153
Dry Reference Conc. (ng/Rm^3)*	<413	<268
Dry Adjusted Conc. (ng/Rm^3)**	<321	<208
Wet Reference Conc. (ng/Rm^3)*	<343	<222
Emission Rate (µg/s)	<6.40	<3.97

* 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. There were significant levels of PAHs in the blank trains. 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)	1.82	7.53	34.7	137	<0.48	<2.00
Dry Reference Conc. (µg/Rm^3)*	3.17	13.3	60.5	241	<0.83	<3.52
Dry Adjusted Conc. (µg/Rm^3)**	2.46	10.2	46.9	186	<0.65	<2.72
Wet Reference Conc. (µg/Rm^3)*	2.63	11.0	50.2	200	<0.69	<2.91
Emission Rate (mg/s)	0.049	0.20	0.93	3.59	<0.013	<0.052

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

Note due to an error by the sampling crew, the aldehyde sampling rate for Boiler No. 1 was 2 liters per minute for sixty minutes and not at 0.5 liters per minute per the test method. The total collected was similar to the amounts collected in the blank train. The emission data is lower than typical due to the increased sample volume for the test train.

Acetaldehyde, formaldehyde and acrolein detected in the method blank in quantities significantly greater than the detection limit and in quantities similar to or greater than 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.

Volatile organic analysis data for the tests is provided in Table 82, 83 and Table 84 for Test No. 1, Test No. 2 and Test No. 3. 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.

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)	<62.6	<205
Dry Reference Conc. (µg/Rm^3)*	<109	<360
Dry Adjusted Conc. (µg/Rm^3)**	<84.3	<281
Wet Reference Conc. (µg/Rm^3)*	<90.7	<301
Emission Rate (mg/s)	<1.68	<5.26

* 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)*	<174	<618
Dry Adjusted Conc. (µg/Rm^3)**	<134	<480
Emission Rate (mg/s)	<2.67	<9.10

* 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 as approved by the MECP in May 2021) by WSP Canada Inc. The dispersion modelling results are detailed in Appendix 27. WSP 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 March 2024 emission testing program, was well below the applicable standard, guideline or upper risk threshold. The contaminants with the highest predicted concentrations relative to the standard were nitrogen oxides (11% of the 1-hour standard and 3% of the 24-hour standard with meteorological anomaly removal) and chromium (hexavalent) (2% of the annual standard), all other contaminants were 1% or less than the relevant standard with meteorological anomaly removal.

Note the particulate and metals sampling train collects total chromium, including metallic, divalent, trivalent and hexavalent forms of chromium. For the predicted POI, it was assumed all chromium collected was hexavalent chromium; this is a conservative assumption and may overestimate the hexavalent chromium emissions from the facility. The chromium emission data was also assessed against the chromium (metallic, divalent and trivalent forms) standard and was <1% of the 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 March 18 to March 21, 2024 for each boiler. 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
18-Mar-24	392	0	0	1200	1270	802	800	222	218	1648	583	128	124	3589	3668
19-Mar-24	392	0	0	1216	1271	802	800	223	221	1377	569	128	124	3516	3506
20-Mar-24	393	0	0	1231	1282	800	798	227	222	1301	448	128	124	3470	3453
21-Mar-24	373	0	0	1240	1296	773	766	218	212	1122	489	128	125	3623	3528
Average	388	0	0	1222	1280	794	800	223	218	1362	522	128	124	3550	3539

* 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 766 tonnes of steam per day for each Boiler (approximately 94.9% 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 as approved by the MECP in December 2021), 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 August 2023, 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 (March 18 to March 21, 2024) 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 March 19, 2024 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)*	-	-	-	388	-
Average Combustion Zone Temp. (°C)*	-	-	-	1222	-
Steam (tonnes/day)*	-	-	-	794	-
MSW Combusted (tonnes/day)*	-	-	-	223	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	1362	-
Carbon Injection (kg/day)*	-	-	-	128	-
Lime Injection (kg/day)*	-	-	-	3550	-
Filterable Particulate (mg/Rm^3) (1)	1.58	0.84	1.52	1.31	9
PM_{10} with Condensable (mg/Rm^3) (1)	6.06	<6.26	<6.30	<6.21	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	5.99	<5.98	<6.10	<6.02	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.090	<0.089	<0.10	<0.093	-
Ammonia (mg/Rm^3) (1)	0.47	0.69	0.58	0.58	-
Cadmium (µg/Rm^3) (1)	0.088	0.16	<0.019	<0.090	7
Lead (µg/Rm^3) (1)	0.51	0.26	0.15	0.31	50
Mercury (µg/Rm^3) (1)	<0.098	0.067	0.32	<0.16	15
Antimony (µg/Rm^3) (1)	0.069	<0.044	<0.039	<0.051	-
Arsenic (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Barium (µg/Rm^3) (1)	10.6	10.5	9.33	10.1	-
Beryllium (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Chromium (µg/Rm^3) (1)	0.96	1.03	0.70	0.90	-
Cobalt (µg/Rm^3) (1)	0.032	<0.044	<0.039	<0.038	-
Copper (µg/Rm^3) (1)	2.72	1.64	1.19	1.85	-
Molybdenum (µg/Rm^3) (1)	4.01	4.25	3.39	3.88	-
Nickel (µg/Rm^3) (1)	0.68	0.77	0.44	0.63	-
Selenium (µg/Rm^3) (1)	<0.22	<0.22	<0.19	<0.21	-
Silver (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Thallium (µg/Rm^3) (1)	<0.044	<0.044	<0.039	<0.042	-
Vanadium (µg/Rm^3) (1)	<0.022	<0.022	<0.019	<0.021	-
Zinc (µg/Rm^3) (1)	14.3	10.3	8.26	11.0	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<1.97	<3.06	<1.88	<2.30	60
Total Chlorobenzenes (ng/Rm^3) (1)	<113	<99.6	<127	<113	-
Total Chlorophenols (ng/Rm^3) (5)	<521	<1828	NQ	<1163	-
Total PAHs (ng/Rm^3) (1)	<222	<399	<343	<321	-
VOCs (µg/Rm^3) (1)	<117	<62.4	<73.4	<84.3	-
Aldehydes (µg/Rm^3) (1)	<82.1	<15.5	<52.3	<50.0	-
Total VOCs (µg/Rm^3) (1) (4)	<199	<77.9	<126	<134	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	0.1	0.1	0	0.1	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).

(5) Total chlorophenols were not quantifiable (NQ) due to spike recovery loses during the extraction of the samples by the analytical laboratory.

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)*	-	-	-	388	-
Average Combustion Zone Temp. (°C)*	-	-	-	1280	-
Steam (tonnes/day)*	-	-	-	800	-
MSW Combusted (tonnes/day)*	-	-	-	218	-
NO_X Reagent Injection Rate (liters/day)*	-	-	-	522	-
Carbon Injection (kg/day)*	-	-	-	124	-
Lime Injection (kg/day)*	-	-	-	3539	-
Filterable Particulate (mg/Rm^3) (1)	1.73	1.44	1.28	1.48	9
PM_{10} with Condensable (mg/Rm^3) (1)	<5.39	<6.55	<5.19	<5.71	-
$PM_{2.5}$ with Condensable (mg/Rm^3) (1)	<4.98	<6.48	<5.00	<5.49	-
Hydrogen Fluoride (mg/Rm^3) (1)	<0.11	<0.098	<0.097	<0.10	-
Ammonia (mg/Rm^3) (1)	0.37	0.30	0.28	0.32	-
Cadmium (µg/Rm^3) (1)	0.014	0.055	0.10	0.057	7
Lead (µg/Rm^3) (1)	0.22	0.21	0.33	0.26	50
Mercury (µg/Rm^3) (1)	0.44	1.21	<0.089	<0.58	15
Antimony (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Arsenic (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Barium (µg/Rm^3) (1)	10.6	11.1	11.6	11.1	-
Beryllium (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Chromium (µg/Rm^3) (1)	0.90	0.88	0.95	0.91	-
Cobalt (µg/Rm^3) (1)	0.042	<0.023	<0.023	<0.029	-
Copper (µg/Rm^3) (1)	1.34	1.51	1.13	1.33	-
Molybdenum (µg/Rm^3) (1)	4.04	4.20	4.09	4.11	-
Nickel (µg/Rm^3) (1)	0.50	0.59	0.58	0.56	-
Selenium (µg/Rm^3) (1)	<0.22	<0.23	<0.23	<0.23	-
Silver (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Thallium (µg/Rm^3) (1)	<0.044	<0.046	<0.045	<0.045	-
Vanadium (µg/Rm^3) (1)	<0.022	<0.023	<0.023	<0.023	-
Zinc (µg/Rm^3) (1)	9.95	10.9	10.1	10.3	-
Dioxins and Furans (pg TEQ/Rm^3) (3)	<1.81	<2.00	<1.83	<1.88	60
Total Chlorobenzenes (ng/Rm^3) (1)	<156	<59.3	<152	<122	-
Total Chlorophenols (ng/Rm^3) (5)	NQ	NQ	<1471	<1380	-
Total PAHs (ng/Rm^3) (1)	<142	<315	<167	<208	-
VOCs (µg/Rm^3) (1)	<338	<279	<227	<281	-
Aldehydes (µg/Rm^3) (1)	<211	<188	<199	<199	-
Total VOCs (µg/Rm^3) (1) (4)	<549	<467	<426	<480	-
Quench Inlet Organic Matter (THC) (ppm, dry) (2)	0.6	0.1	0	0.2	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).

(5) Total chlorophenols were not quantifiable (NQ) due to spike recovery loses during the extraction of the samples by the analytical laboratory.

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)	4.0	6.1	9.5	40
	Hydrogen Chloride (mg/Rm^3) (2)	0.2	0.3	0.5	9
	Nitrogen Oxides (mg/Rm^3) (2)	110	111	113	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.2	1.8	35
Boiler No. 2	Carbon Monoxide (mg/Rm^3) (1)	5.5	8.0	12.4	40
	Hydrogen Chloride (mg/Rm^3) (2)	2.1	2.2	2.4	9
	Nitrogen Oxides (mg/Rm^3) (2)	106	108	109	121
	Sulphur Dioxide (mg/Rm^3) (2)	0	0.39	2.4	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	March 18, 2024	10:09	13:20	180
2	March 18, 2024	14:10	17:17	180
3	March 19, 2024	15:26	18:35	180

Particle Size Distribution Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	March 19, 2024	8:24	10:26	120
2	March 19, 2024	11:02	13:04	120
3	March 19, 2024	13:50	15:53	120

Acid Gases Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	March 18, 2024	10:10	11:10	60
2	March 18, 2024	11:54	12:54	60
3	March 18, 2024	13:32	14:32	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	March 20, 2024	8:10	12:23	240
2	March 20, 2024	13:18	17:30	240
3	March 21, 2024	8:07	12:15	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	March 20, 2024	11:30	12:30	60
2	March 20, 2024	12:47	13:47	60
3	March 20, 2024	14:05	15:05	60

Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
1	March 20, 2024	7:57	8:37	40
2	March 20, 2024	8:43	9:23	40
3	March 20, 2024	9:29	10:09	40
4	March 20, 2024	10:15	10:55	40

Total Hydrocarbons Trains

Sampling Location	Test Number	Test Date	Sampling Period Start	Sampling Period Finish	Sampling Time min
BH Outlet	1	March 19, 2024	12:40	13:40	60
BH Outlet	2	March 19, 2024	13:50	14:50	60
BH Outlet	3	March 19, 2024	15:00	16:00	60
Quench Inlet	1	March 19, 2024	12:40	13:40	60
Quench Inlet	2	March 19, 2024	13:50	14:50	60
Quench Inlet	3	March 19, 2024	15:00	16:00	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	0.986	6.34	3.721	101.3
2	0.843	0.986	6.34	3.712	99.7
3	0.844	1.018	6.57	4.078	98.9

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	0.843	0.987	4.51	1.197	91.2
2	0.843	0.987	4.51	1.209	93.3
3	0.843	0.987	4.51	1.200	93.6

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.844	1.018	6.57	1.292	98.8
2	0.844	1.018	6.57	1.352	99.6
3	0.844	1.018	6.57	1.355	100.1

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	0.844	1.018	6.57	5.053	99.3
2	0.844	1.018	6.57	5.106	99.9
3	0.844	1.018	6.57	5.142	100.3

* 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	139	16.1	18.6	-2.92	96.8	10.4	8.80
2	140	15.4	18.7	-2.92	96.8	10.3	8.87
3	137	15.2	19.2	-2.96	96.2	10.7	8.43
Average	139	15.6	18.8	-2.93	96.6	10.5	8.70

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	137	14.3	19.1	-2.96	96.7	10.4	8.75
2	139	16.3	19.5	-2.96	96.4	10.2	9.12
3	137	15.0	18.9	-2.96	96.2	10.3	8.73
Average	138	15.2	19.2	-2.96	96.4	10.3	8.87

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	136	15.7	18.3	-2.92	96.8	10.4	8.76
2	138	15.9	19.1	-2.92	96.8	10.4	8.84
3	138	16.6	19.2	-2.92	96.7	10.3	8.80
Average	137	16.1	18.8	-2.92	96.8	10.4	8.80

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	16.7	18.2	-2.96	96.2	11.0	8.11
2	137	17.3	18.3	-2.96	96.6	10.9	8.15
3	138	17.0	18.0	-2.89	98.4	10.9	8.19
Average	138	17.0	18.1	-2.94	97.1	10.9	8.15

* 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	27.4	15.9	19.4	19.0
2	27.6	16.1	19.6	19.1
3	28.4	16.6	21.0	19.6
Average	27.8	16.2	20.0	19.2

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	28.3	16.8	20.6	19.6
2	28.8	16.6	19.8	19.8
3	28.0	16.4	20.2	19.3
Average	28.4	16.6	20.2	19.6

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	27.0	15.8	19.4	18.8
2	28.2	16.4	20.0	19.5
3	28.4	16.4	20.0	19.7
Average	27.8	16.2	19.8	19.3

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	26.8	15.4	19.9	18.5
2	27.0	15.5	19.9	18.7
3	26.6	15.5	19.9	18.7
Average	26.8	15.5	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	Particulate Concentration				Particulate Emission Rate
	Probe Rinse	Main Filter	Total		Actual	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	3.9	3.3	7.2	3.721	1.12	1.94	1.58	1.62	30.7
2	1.1	2.7	3.8	3.712	0.60	1.02	0.84	0.87	16.5
3	1.9	5.9	7.8	4.078	1.12	1.91	1.52	1.62	31.8
Average					0.95	1.62	1.31	1.37	26.4
Blank	0.2	3.9	4.1						

* At 25 °C and 1 atmosphere

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

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

$PM_{2.5}$

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	$PM_{2.5}$ Concentration Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	Emission Rate mg/s
1	0.8	1.197	0.40	0.67	0.54	0.57	11.2
2	<1.0	1.209	<0.48	<0.83	<0.70	<0.69	<13.7
3	<1.8	1.200	<0.88	<1.50	<1.22	<1.27	<24.6
Average			<0.58	<1.00	<0.82	<0.85	<16.5
Blank	<1.1						

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	1.197	0.45	0.75	0.61	0.64	12.6
2	<1.4	1.209	<0.67	<1.16	<0.97	<0.97	<19.2
3	<2.1	1.200	<1.03	<1.75	<1.42	<1.49	<28.7
Average			<0.71	<1.22	<1.00	<1.03	<20.2
Blank	<1.4						

* 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				Emission Rate mg/s
			Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	
1	3.3	1.197	1.64	2.76	2.25	2.36	46.3
2	3.2	1.209	1.53	2.65	2.22	2.22	43.9
3	3.2	1.200	1.56	2.67	2.17	2.27	43.7
Average			1.57	2.69	2.21	2.28	44.7
Blank	0.3						

Organic Condensable Particulate

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Organic Condensable Particulate Concentration				Emission Rate mg/s
			Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	
1	4.70	1.197	2.33	3.93	3.20	3.37	66.0
2	4.40	1.209	2.10	3.64	3.06	3.05	60.4
3	4.00	1.200	1.95	3.33	2.71	2.83	54.7
Average			2.13	3.63	2.99	3.08	60.3
Blank	2.90						

* 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	3.56	1.292	1.60	2.76	2.25	2.31	43.8
2	4.36	1.352	1.87	3.22	2.64	2.70	51.2
3	4.56	1.355	1.95	3.37	2.75	2.82	53.5
Average			1.81	3.12	2.55	2.61	49.5
Blank	<0.154						

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	1.292	<0.064	<0.11	<0.090	<0.092	<1.75
2	<0.147	1.352	<0.063	<0.11	<0.089	<0.091	<1.73
3	<0.165	1.355	<0.071	<0.12	<0.10	<0.10	<1.93
Average			<0.066	<0.11	<0.093	<0.095	<1.80
Blank	<0.106						

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	0.744	1.292	0.33	0.58	0.47	0.48	9.15
2	1.14	1.352	0.49	0.84	0.69	0.71	13.4
3	0.960	1.355	0.41	0.71	0.58	0.59	11.3
Average			0.41	0.71	0.58	0.59	11.3
Blank	<0.020						

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 March 18 to March 21, 2024

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (%, 1 hr Avg)	7.82	8.52	9.33
BH Outlet	Carbon Monoxide (mg/Rm^3, 1 hr Avg) *	3	6	14
BH Outlet	Carbon Monoxide (mg/Rm^3, 4 hr Avg) *	4.0	6.1	9.5
BH Outlet	Sulphur Dioxide (mg/Rm^3, 1 hr Avg) *	0	0.7	40
BH Outlet	Sulphur Dioxide (mg/Rm^3, 24 hr Avg) *	0	0.2	1.8
BH Outlet	Nitrogen Oxides (mg/Rm^3, 1 hr Avg) *	83	111	141
BH Outlet	Nitrogen Oxides (mg/Rm^3, 24 hr Avg) *	110	111	113
BH Outlet	Hydrogen Chloride (mg/Rm^3, 1 hr Avg) *	0	0	2
BH Outlet	Hydrogen Chloride (mg/Rm^3, 24 hr Avg) *	0.2	0.3	0.5
BH Outlet	Total Hydrocarbons (mg/Rm^3, 1 hr Avg) *	0	0	1
Quench Inlet	Oxygen (%, 1 hr Avg)	7	8	9

Data measured by the ORTECH CEMS on March 19, 2024

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0
BH Outlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0
BH Outlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.1	0.8
Quench Inlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.1	0.6
Quench Inlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.1	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0	0.4
Quench Inlet	2	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.1	0.4
Quench Inlet	3	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0	0
Average		Total Hydrocarbons (ppm dry, 10-min Avg)		0.03	

* 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	0.32	<0.1	0.32
Arsenic	<1	<0.2	<0.20
Barium	47.3	0.77	48.1
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.17	0.23	0.40
Chromium	3.59	0.79	4.38
Cobalt	<0.2	0.15	0.15
Copper	4.56	7.78	12.3
Lead	1.26	1.06	2.32
Mercury *	<0.015	<0.225	<0.45
Molybdenum	18.2	<0.1	18.2
Nickel	1.90	1.19	3.09
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	56.4	8.54	64.9
Total			<157

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	46.4	0.83	47.2
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.51	0.23	0.74
Chromium	3.32	1.35	4.67
Cobalt	<0.2	<0.1	<0.20
Copper	3.89	3.53	7.42
Lead	0.75	0.44	1.19
Mercury *	<0.015	0.30	0.30
Molybdenum	19.2	<0.1	19.2
Nickel	1.91	1.58	3.49
Selenium	<2	<1	<1.00
Silver	<0.2	0.13	<0.20
Thallium	<0.2	<0.05	<0.20
Vanadium	<1	<0.1	<0.10
Zinc	40.0	6.55	46.6
Total			<133

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	47.4	0.73	48.1
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	<0.05	<0.10
Chromium	3.03	0.58	3.61
Cobalt	<0.2	<0.1	<0.20
Copper	2.89	3.27	6.16
Lead	0.53	0.26	0.80
Mercury *	<0.015	1.64	1.64
Molybdenum	17.5	<0.1	17.5
Nickel	1.29	0.99	2.28
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	36.2	6.40	42.6
Total			<125

* 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	0.32	0.049	0.085	0.069	0.071	0.0013
Arsenic	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00085
Barium	48.1	7.50	12.9	10.6	10.8	0.21
Beryllium	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00085
Cadmium	0.40	0.062	0.11	0.088	0.090	0.0017
Chromium	4.38	0.68	1.18	0.96	0.99	0.019
Cobalt	0.15	0.023	0.040	0.032	0.033	0.00063
Copper	12.3	1.92	3.32	2.72	2.78	0.053
Lead	2.32	0.36	0.62	0.51	0.52	0.0099
Mercury	<0.45	<0.069	<0.12	<0.098	<0.10	<0.0019
Molybdenum	18.2	2.84	4.89	4.01	4.09	0.078
Nickel	3.09	0.48	0.83	0.68	0.69	0.013
Selenium	<1.00	<0.16	<0.27	<0.22	<0.22	<0.0043
Silver	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00085
Thallium	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00085
Vanadium	<0.10	<0.016	<0.027	<0.022	<0.022	<0.00043
Zinc	64.9	10.1	17.5	14.3	14.6	0.28
Total	<157	<24.4	<42.1	<34.5	<35.2	<0.67

Dry Gas Volume Sampled (Rm^3*) :	3.721
Actual Flowrate (m^3/s) :	27.4
Dry Reference Flowrate (Rm^3/s*) :	15.9
Dry Adjusted Flowrate (Rm^3/s**) :	19.4
Wet Reference Flowrate (Rm^3/s*) :	19.0

* 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	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00087
Arsenic	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00087
Barium	47.2	7.42	12.7	10.5	10.7	0.20
Beryllium	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00087
Cadmium	0.74	0.12	0.20	0.16	0.17	0.0032
Chromium	4.67	0.73	1.26	1.03	1.06	0.020
Cobalt	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00087
Copper	7.42	1.17	2.00	1.64	1.68	0.032
Lead	1.19	0.19	0.32	0.26	0.27	0.0051
Mercury	0.30	0.047	0.081	0.067	0.069	0.0013
Molybdenum	19.2	3.02	5.17	4.25	4.36	0.083
Nickel	3.49	0.55	0.94	0.77	0.79	0.015
Selenium	<1.00	<0.16	<0.27	<0.22	<0.23	<0.0043
Silver	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00087
Thallium	<0.20	<0.031	<0.054	<0.044	<0.045	<0.00087
Vanadium	<0.10	<0.016	<0.027	<0.022	<0.023	<0.00043
Zinc	46.6	7.32	12.5	10.3	10.6	0.20
Total	<133	<20.9	<35.9	<29.5	<30.2	<0.58

Dry Gas Volume Sampled (Rm^3*) :	3.712
Actual Flowrate (m^3/s) :	27.6
Dry Reference Flowrate (Rm^3/s*) :	16.1
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	19.1

* 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	<0.20	<0.029	<0.049	<0.039	<0.042	<0.00081
Arsenic	<0.20	<0.029	<0.049	<0.039	<0.042	<0.00081
Barium	48.1	6.90	11.8	9.33	10.0	0.20
Beryllium	<0.20	<0.029	<0.049	<0.039	<0.042	<0.00081
Cadmium	<0.10	<0.014	<0.025	<0.019	<0.021	<0.00041
Chromium	3.61	0.52	0.89	0.70	0.75	0.015
Cobalt	<0.20	<0.029	<0.049	<0.039	<0.042	<0.00081
Copper	6.16	0.88	1.51	1.19	1.28	0.025
Lead	0.80	0.11	0.19	0.15	0.17	0.0032
Mercury	1.64	0.24	0.40	0.32	0.34	0.0067
Molybdenum	17.5	2.51	4.29	3.39	3.63	0.071
Nickel	2.28	0.33	0.56	0.44	0.47	0.0093
Selenium	<1.00	<0.14	<0.25	<0.19	<0.21	<0.0041
Silver	<0.20	<0.029	<0.049	<0.039	<0.042	<0.00081
Thallium	<0.20	<0.029	<0.049	<0.039	<0.042	<0.00081
Vanadium	<0.10	<0.014	<0.025	<0.019	<0.021	<0.00041
Zinc	42.6	6.11	10.4	8.26	8.85	0.17
Total	<125	<17.9	<30.7	<24.3	<26.0	<0.51

Dry Gas Volume Sampled (Rm^3*) :	4.078
Actual Flowrate (m^3/s) :	28.4
Dry Reference Flowrate (Rm^3/s*) :	16.6
Dry Adjusted Flowrate (Rm^3/s**) :	21.0
Wet Reference Flowrate (Rm^3/s*) :	19.6

* 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	0.049	<0.031	<0.029	<0.036	30.5
Arsenic	<0.031	<0.031	<0.029	<0.030	5.0
Barium	7.50	7.42	6.90	7.27	4.5
Beryllium	<0.031	<0.031	<0.029	<0.030	5.0
Cadmium	0.062	0.12	<0.014	<0.064	79.5
Chromium	0.68	0.73	0.52	0.65	17.5
Cobalt	0.023	<0.031	<0.029	<0.028	15.7
Copper	1.92	1.17	0.88	1.32	40.7
Lead	0.36	0.19	0.11	0.22	57.7
Mercury	<0.069	0.047	0.24	<0.12	87.6
Molybdenum	2.84	3.02	2.51	2.79	9.3
Nickel	0.48	0.55	0.33	0.45	25.2
Selenium	<0.16	<0.16	<0.14	<0.15	5.0
Silver	<0.031	<0.031	<0.029	<0.030	5.0
Thallium	<0.031	<0.031	<0.029	<0.030	5.0
Vanadium	<0.016	<0.016	<0.014	<0.015	5.0
Zinc	10.1	7.32	6.11	7.85	26.3
Total	<24.4	<20.9	<17.9	<21.1	15.4

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	0.085	<0.054	<0.049	<0.063	30.9
Arsenic	<0.054	<0.054	<0.049	<0.052	5.3
Barium	12.9	12.7	11.8	12.5	4.8
Beryllium	<0.054	<0.054	<0.049	<0.052	5.3
Cadmium	0.11	0.20	<0.025	<0.11	79.4
Chromium	1.18	1.26	0.89	1.11	17.7
Cobalt	0.040	<0.054	<0.049	<0.047	15.4
Copper	3.32	2.00	1.51	2.28	41.1
Lead	0.62	0.32	0.19	0.38	58.1
Mercury	<0.12	0.081	0.40	<0.20	87.3
Molybdenum	4.89	5.17	4.29	4.78	9.4
Nickel	0.83	0.94	0.56	0.78	25.3
Selenium	<0.27	<0.27	<0.25	<0.26	5.3
Silver	<0.054	<0.054	<0.049	<0.052	5.3
Thallium	<0.054	<0.054	<0.049	<0.052	5.3
Vanadium	<0.027	<0.027	<0.025	<0.026	5.3
Zinc	17.5	12.5	10.4	13.5	26.7
Total	<42.1	<35.9	<30.7	<36.2	15.8

* 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	0.069	<0.044	<0.039	<0.051	32.1
Arsenic	<0.044	<0.044	<0.039	<0.042	7.3
Barium	10.6	10.5	9.33	10.1	6.8
Beryllium	<0.044	<0.044	<0.039	<0.042	7.3
Cadmium	0.088	0.16	<0.019	<0.090	80.1
Chromium	0.96	1.03	0.70	0.90	19.5
Cobalt	0.032	<0.044	<0.039	<0.038	15.5
Copper	2.72	1.64	1.19	1.85	42.3
Lead	0.51	0.26	0.15	0.31	59.2
Mercury	<0.098	0.067	0.32	<0.16	85.2
Molybdenum	4.01	4.25	3.39	3.88	11.4
Nickel	0.68	0.77	0.44	0.63	27.1
Selenium	<0.22	<0.22	<0.19	<0.21	7.3
Silver	<0.044	<0.044	<0.039	<0.042	7.3
Thallium	<0.044	<0.044	<0.039	<0.042	7.3
Vanadium	<0.022	<0.022	<0.019	<0.021	7.3
Zinc	14.3	10.3	8.26	11.0	28.1
Total	<34.5	<29.5	<24.3	<29.4	17.4

** 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	0.071	<0.045	<0.042	<0.053	30.3
Arsenic	<0.045	<0.045	<0.042	<0.044	4.8
Barium	10.8	10.7	10.0	10.5	4.3
Beryllium	<0.045	<0.045	<0.042	<0.044	4.8
Cadmium	0.090	0.17	<0.021	<0.093	79.5
Chromium	0.99	1.06	0.75	0.93	17.3
Cobalt	0.033	<0.045	<0.042	<0.040	15.8
Copper	2.78	1.68	1.28	1.91	40.4
Lead	0.52	0.27	0.17	0.32	57.5
Mercury	<0.10	0.069	0.34	<0.17	87.8
Molybdenum	4.09	4.36	3.63	4.03	9.1
Nickel	0.69	0.79	0.47	0.65	25.1
Selenium	<0.22	<0.23	<0.21	<0.22	4.8
Silver	<0.045	<0.045	<0.042	<0.044	4.8
Thallium	<0.045	<0.045	<0.042	<0.044	4.8
Vanadium	<0.022	<0.023	<0.021	<0.022	4.8
Zinc	14.6	10.6	8.85	11.3	26.1
Total	<35.2	<30.2	<26.0	<30.5	15.1

* At 25°C and 1 atmosphere

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

Metal	Emission Rate				Coefficient
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	of Variation %
Antimony	0.0013	<0.00087	<0.00081	<0.0010	29.0
Arsenic	<0.00085	<0.00087	<0.00081	<0.00085	3.3
Barium	0.21	0.20	0.20	0.20	2.6
Beryllium	<0.00085	<0.00087	<0.00081	<0.00085	3.3
Cadmium	0.0017	0.0032	<0.00041	<0.0018	79.2
Chromium	0.019	0.020	0.015	0.018	16.0
Cobalt	0.00063	<0.00087	<0.00081	<0.00077	16.3
Copper	0.053	0.032	0.025	0.037	39.2
Lead	0.0099	0.0051	0.0032	0.0061	56.4
Mercury	<0.0019	0.0013	0.0067	<0.0033	89.4
Molybdenum	0.078	0.083	0.071	0.077	7.8
Nickel	0.013	0.015	0.0093	0.013	23.9
Selenium	<0.0043	<0.0043	<0.0041	<0.0042	3.3
Silver	<0.00085	<0.00087	<0.00081	<0.00085	3.3
Thallium	<0.00085	<0.00087	<0.00081	<0.00085	3.3
Vanadium	<0.00043	<0.00043	<0.00041	<0.00042	3.3
Zinc	0.28	0.20	0.17	0.22	24.7
Total	<0.67	<0.58	<0.51	<0.59	13.7

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	<0.036	<0.063	<0.051	<0.053	<0.0010
Arsenic	<0.030	<0.052	<0.042	<0.044	<0.00085
Barium	7.27	12.5	10.1	10.5	0.20
Beryllium	<0.030	<0.052	<0.042	<0.044	<0.00085
Cadmium	<0.064	<0.11	<0.090	<0.093	<0.0018
Chromium	0.65	1.11	0.90	0.93	0.018
Cobalt	<0.028	<0.047	<0.038	<0.040	<0.00077
Copper	1.32	2.28	1.85	1.91	0.037
Lead	0.22	0.38	0.31	0.32	0.0061
Mercury	<0.12	<0.20	<0.16	<0.17	<0.0033
Molybdenum	2.79	4.78	3.88	4.03	0.077
Nickel	0.45	0.78	0.63	0.65	0.013
Selenium	<0.15	<0.26	<0.21	<0.22	<0.0042
Silver	<0.030	<0.052	<0.042	<0.044	<0.00085
Thallium	<0.030	<0.052	<0.042	<0.044	<0.00085
Vanadium	<0.015	<0.026	<0.021	<0.022	<0.00042
Zinc	7.85	13.5	11.0	11.3	0.22
Total	<21.1	<36.2	<29.4	<30.5	<0.59

* 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	46.5	0.51	47.0
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	<0.05	<0.10
Chromium	4.80	0.45	5.25
Cobalt	<0.2	<0.1	<0.20
Copper	3.02	4.98	8.00
Lead	<0.5	0.29	0.29
Mercury *	<0.015	<0.225	<0.23
Molybdenum	19.2	<0.1	19.2
Nickel	2.27	0.27	2.54
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	32.8	<3	32.8
Total			<117

* 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	82.8	0.0094	0.016	0.013	0.014	0.25
Pentachlorodibenzo-p-dioxins	153	0.017	0.030	0.023	0.025	0.47
Hexachlorodibenzo-p-dioxins	265	0.030	0.052	0.041	0.044	0.81
Heptachlorodibenzo-p-dioxins	203	0.023	0.040	0.031	0.033	0.62
Octachlorodibenzo-p-dioxin	115	0.013	0.023	0.018	0.019	0.35
Total	819	0.093	0.16	0.13	0.13	2.50

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	38.9	0.0044	0.0077	0.0060	0.0064	0.12
Pentachlorodibenzofurans	32.3	0.0037	0.0064	0.0049	0.0053	0.098
Hexachlorodibenzofurans	42.2	0.0048	0.0084	0.0065	0.0070	0.13
Heptachlorodibenzofurans	17.2	0.0020	0.0034	0.0026	0.0028	0.052
Octachlorodibenzofuran	16.7	0.0019	0.0033	0.0026	0.0028	0.051
Total	147	0.017	0.029	0.023	0.024	0.45

Dry Gas Volume Sampled (Rm^3*) :	5.053
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
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 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	91.2	0.010	0.018	0.014	0.015	0.28
Pentachlorodibenzo-p-dioxins	95.2	0.011	0.019	0.015	0.015	0.29
Hexachlorodibenzo-p-dioxins	247	0.028	0.048	0.038	0.040	0.75
Heptachlorodibenzo-p-dioxins	235	0.026	0.046	0.036	0.038	0.71
Octachlorodibenzo-p-dioxin	151	0.017	0.030	0.023	0.025	0.46
Total	819	0.092	0.16	0.12	0.13	2.49

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	268	0.030	0.052	0.041	0.044	0.81
Pentachlorodibenzofurans	84.3	0.0095	0.017	0.013	0.014	0.26
Hexachlorodibenzofurans	69.0	0.0078	0.014	0.011	0.011	0.21
Heptachlorodibenzofurans	33.5	0.0038	0.0066	0.0051	0.0054	0.10
Octachlorodibenzofuran	<22	<0.0025	<0.0043	<0.0034	<0.0036	<0.067
Total	<477	<0.054	<0.093	<0.073	<0.077	<1.45

Dry Gas Volume Sampled (Rm^3*) :	5.106
Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s*) :	15.5
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	96.5	0.011	0.019	0.015	0.016	0.29
Pentachlorodibenzo-p-dioxins	92.3	0.010	0.018	0.014	0.015	0.28
Hexachlorodibenzo-p-dioxins	262	0.030	0.051	0.040	0.042	0.79
Heptachlorodibenzo-p-dioxins	198	0.022	0.039	0.030	0.032	0.60
Octachlorodibenzo-p-dioxin	110	0.012	0.021	0.017	0.018	0.33
Total	759	0.086	0.15	0.11	0.12	2.29

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	44.9	0.0051	0.0087	0.0068	0.0072	0.14
Pentachlorodibenzofurans	15.4	0.0017	0.0030	0.0023	0.0025	0.046
Hexachlorodibenzofurans	26.4	0.0030	0.0051	0.0040	0.0043	0.080
Heptachlorodibenzofurans	9.48	0.0011	0.0018	0.0014	0.0015	0.029
Octachlorodibenzofuran	16.2	0.0018	0.0032	0.0025	0.0026	0.049
Total	112	0.013	0.022	0.017	0.018	0.34

Dry Gas Volume Sampled (Rm^3*) :	5.142
Actual Flowrate (m^3/s) :	26.6
Dry Reference Flowrate (Rm^3/s*) :	15.5
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

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	0.0094	0.010	0.011	0.010	7.5
Pentachlorodibenzo-p-dioxins	0.017	0.011	0.010	0.013	30.6
Hexachlorodibenzo-p-dioxins	0.030	0.028	0.030	0.029	4.3
Heptachlorodibenzo-p-dioxins	0.023	0.026	0.022	0.024	8.9
Octachlorodibenzo-p-dioxin	0.013	0.017	0.012	0.014	17.3
Total	0.093	0.092	0.086	0.090	4.3

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	0.0044	0.030	0.0051	0.013	111
Pentachlorodibenzofurans	0.0037	0.0095	0.0017	0.0050	81.1
Hexachlorodibenzofurans	0.0048	0.0078	0.0030	0.0052	46.4
Heptachlorodibenzofurans	0.0020	0.0038	0.0011	0.0023	60.6
Octachlorodibenzofuran	0.0019	<0.0025	0.0018	<0.0021	17.0
Total	0.017	<0.054	0.013	<0.028	81.3

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	0.016	0.018	0.019	0.018	6.8
Pentachlorodibenzo-p-dioxins	0.030	0.019	0.018	0.022	31.1
Hexachlorodibenzo-p-dioxins	0.052	0.048	0.051	0.051	4.1
Heptachlorodibenzo-p-dioxins	0.040	0.046	0.039	0.042	9.5
Octachlorodibenzo-p-dioxin	0.023	0.030	0.021	0.025	17.8
Total	0.16	0.16	0.15	0.16	5.1

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	0.0077	0.052	0.0087	0.023	111
Pentachlorodibenzofurans	0.0064	0.017	0.0030	0.0086	81.4
Hexachlorodibenzofurans	0.0084	0.014	0.0051	0.0090	47.0
Heptachlorodibenzofurans	0.0034	0.0066	0.0018	0.0039	61.1
Octachlorodibenzofuran	0.0033	<0.0043	0.0032	<0.0036	17.5
Total	0.029	<0.093	0.022	<0.048	81.8

* 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	0.013	0.014	0.015	0.014	7.1
Pentachlorodibenzo-p-dioxins	0.023	0.015	0.014	0.017	30.7
Hexachlorodibenzo-p-dioxins	0.041	0.038	0.040	0.039	3.8
Heptachlorodibenzo-p-dioxins	0.031	0.036	0.030	0.032	9.6
Octachlorodibenzo-p-dioxin	0.018	0.023	0.017	0.019	18.0
Total	0.13	0.12	0.11	0.12	4.9

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	0.0060	0.041	0.0068	0.018	111
Pentachlorodibenzofurans	0.0049	0.013	0.0023	0.0067	81.6
Hexachlorodibenzofurans	0.0065	0.011	0.0040	0.0070	47.1
Heptachlorodibenzofurans	0.0026	0.0051	0.0014	0.0031	61.2
Octachlorodibenzofuran	0.0026	<0.0034	0.0025	<0.0028	17.7
Total	0.023	<0.073	0.017	<0.037	82.0

* 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	0.014	0.015	0.016	0.015	6.6
Pentachlorodibenzo-p-dioxins	0.025	0.015	0.015	0.019	31.3
Hexachlorodibenzo-p-dioxins	0.044	0.040	0.042	0.042	4.3
Heptachlorodibenzo-p-dioxins	0.033	0.038	0.032	0.035	9.4
Octachlorodibenzo-p-dioxin	0.019	0.025	0.018	0.020	17.7
Total	0.13	0.13	0.12	0.13	5.2

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	0.0064	0.044	0.0072	0.019	111
Pentachlorodibenzofurans	0.0053	0.014	0.0025	0.0072	81.3
Hexachlorodibenzofurans	0.0070	0.011	0.0043	0.0075	46.9
Heptachlorodibenzofurans	0.0028	0.0054	0.0015	0.0033	60.9
Octachlorodibenzofuran	0.0028	<0.0036	0.0026	<0.0030	17.4
Total	0.024	<0.077	0.018	<0.040	81.6

* 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				Coefficient of Variation
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	%
Tetrachlorodibenzo-p-dioxins	0.25	0.28	0.29	0.27	7.1
Pentachlorodibenzo-p-dioxins	0.47	0.29	0.28	0.34	30.7
Hexachlorodibenzo-p-dioxins	0.81	0.75	0.79	0.78	3.8
Heptachlorodibenzo-p-dioxins	0.62	0.71	0.60	0.64	9.6
Octachlorodibenzo-p-dioxin	0.35	0.46	0.33	0.38	18.0
Total	2.50	2.49	2.29	2.42	4.9

Furans

Congener Group	Emission Rate				Coefficient of Variation
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	%
Tetrachlorodibenzofurans	0.12	0.81	0.14	0.36	111
Pentachlorodibenzofurans	0.098	0.26	0.046	0.13	81.6
Hexachlorodibenzofurans	0.13	0.21	0.080	0.14	47.1
Heptachlorodibenzofurans	0.052	0.10	0.029	0.061	61.2
Octachlorodibenzofuran	0.051	<0.067	0.049	<0.056	17.7
Total	0.45	<1.45	0.34	<0.75	82.0

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	0.010	0.018	0.014	0.015	0.27
Pentachlorodibenzo-p-dioxins	0.013	0.022	0.017	0.019	0.34
Hexachlorodibenzo-p-dioxins	0.029	0.051	0.039	0.042	0.78
Heptachlorodibenzo-p-dioxins	0.024	0.042	0.032	0.035	0.64
Octachlorodibenzo-p-dioxin	0.014	0.025	0.019	0.020	0.38
Total	0.090	0.16	0.12	0.13	2.42

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	0.013	0.023	0.018	0.019	0.36
Pentachlorodibenzofurans	0.0050	0.0086	0.0067	0.0072	0.13
Hexachlorodibenzofurans	0.0052	0.0090	0.0070	0.0075	0.14
Heptachlorodibenzofurans	0.0023	0.0039	0.0031	0.0033	0.061
Octachlorodibenzofuran	<0.0021	<0.0036	<0.0028	<0.0030	<0.056
Total	<0.028	<0.048	<0.037	<0.040	<0.75

* At 25°C and 1 atmosphere

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

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

Dioxins

Congener Group	Blank Train pg	Method Blank pg
Tetrachlorodibenzo-p-dioxins	<0.61	<0.61
Pentachlorodibenzo-p-dioxins	<1.1	<0.74
Hexachlorodibenzo-p-dioxins	<1.1	<0.92
Heptachlorodibenzo-p-dioxins	4.42	3.09
Octachlorodibenzo-p-dioxin	8.95	6.93
Total	<16.2	<12.3

Furans

Congener Group	Blank Train pg	Method Blank pg
Tetrachlorodibenzofurans	0.57	<0.5
Pentachlorodibenzofurans	2.95	<0.7
Hexachlorodibenzofurans	<0.65	<0.5
Heptachlorodibenzofurans	<0.98	3.88
Octachlorodibenzofuran	<2.7	<3.9
Total	<7.85	<9.57

"<" 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	<1.5	<0.17	<0.30	<0.23	<0.25	<0.0046
12378-pentachlorodibenzo-p-dioxin	3.90	0.44	0.77	0.60	0.64	0.012
123478-hexachlorodibenzo-p-dioxin	5.90	0.67	1.17	0.90	0.97	0.018
123678-hexachlorodibenzo-p-dioxin	<12	<1.36	<2.37	<1.84	<1.98	<0.037
123789-hexachlorodibenzo-p-dioxin	8.36	0.95	1.65	1.28	1.38	0.025
1234678-heptachlorodibenzo-p-dioxin	96.7	11.0	19.1	14.8	15.9	0.29
Octachlorodibenzo-p-dioxin	115	13.1	22.8	17.6	18.9	0.35
2378-tetrachlorodibenzofuran	<1.8	<0.20	<0.36	<0.28	<0.30	<0.0055
12378-pentachlorodibenzofuran	4.87	0.55	0.96	0.75	0.80	0.015
23478-pentachlorodibenzofuran	<6.4	<0.73	<1.27	<0.98	<1.05	<0.020
123478-hexachlorodibenzofuran	<3.6	<0.41	<0.71	<0.55	<0.59	<0.011
123678-hexachlorodibenzofuran	5.61	0.64	1.11	0.86	0.92	0.017
234678-hexachlorodibenzofuran	6.74	0.77	1.33	1.03	1.11	0.021
123789-hexachlorodibenzofuran	<2.4	<0.27	<0.47	<0.37	<0.40	<0.0073
1234678-heptachlorodibenzofuran	17.2	1.96	3.40	2.63	2.83	0.052
1234789-heptachlorodibenzofuran	<3.7	<0.42	<0.73	<0.57	<0.61	<0.011
Octachlorodibenzofuran	16.7	1.90	3.30	2.56	2.75	0.051
PCB 81	<8.3	<0.94	<1.64	<1.27	<1.37	<0.025
PCB 77	277	31.5	54.8	42.4	45.6	0.84
PCB 123	56.6	6.44	11.2	8.67	9.32	0.17
PCB 118	2930	333	580	449	483	8.93
PCB 114	77.2	8.78	15.3	11.8	12.7	0.24
PCB 105	905	103	179	139	149	2.76
PCB 126	<5.5	<0.63	<1.09	<0.84	<0.91	<0.017
PCB 167	27.4	3.12	5.42	4.20	4.51	0.084
PCB 156/157	84.1	9.56	16.6	12.9	13.9	0.26
PCB 169	<6.5	<0.74	<1.29	<1.00	<1.07	<0.020
PCB 189	<2.9	<0.33	<0.57	<0.44	<0.48	<0.0088
Total Dioxins & Furans Only	<312	<35.5	<61.8	<47.8	<51.5	<0.95
Total PCBs Only	<4381	<498	<867	<671	<722	<13.4
Total Dioxins & Furans and PCBs	<4693	<534	<929	<719	<773	<14.3

Dry Gas Volume Sampled (Rm³*) :	5.053
Actual Flowrate (m³/s) :	26.8
Dry Reference Flowrate (Rm³/s*) :	15.4
Dry Adjusted Flowrate (Rm³/s**) :	19.9
Wet Reference Flowrate (Rm³/s*) :	18.5

* 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 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/m^3	pg/Rm^{3*}	pg/Rm^{3**}	pg/Rm^{3*}	ng/s
2378-tetrachlorodibenzo-p-dioxin	<1.3	<0.15	<0.25	<0.20	<0.21	<0.0039
12378-pentachlorodibenzo-p-dioxin	4.25	0.48	0.83	0.65	0.69	0.013
123478-hexachlorodibenzo-p-dioxin	5.60	0.63	1.10	0.85	0.91	0.017
123678-hexachlorodibenzo-p-dioxin	14.3	1.61	2.80	2.18	2.32	0.043
123789-hexachlorodibenzo-p-dioxin	7.86	0.88	1.54	1.20	1.28	0.024
1234678-heptachlorodibenzo-p-dioxin	114	12.8	22.3	17.4	18.5	0.35
Octachlorodibenzo-p-dioxin	151	17.0	29.6	23.0	24.5	0.46
2378-tetrachlorodibenzofuran	10.2	1.15	2.00	1.56	1.66	0.031
12378-pentachlorodibenzofuran	<6.5	<0.73	<1.27	<0.99	<1.06	<0.020
23478-pentachlorodibenzofuran	15.3	1.72	3.00	2.33	2.48	0.046
123478-hexachlorodibenzofuran	6.93	0.78	1.36	1.06	1.12	0.021
123678-hexachlorodibenzofuran	8.36	0.94	1.64	1.28	1.36	0.025
234678-hexachlorodibenzofuran	10.8	1.21	2.12	1.65	1.75	0.033
123789-hexachlorodibenzofuran	<6.1	<0.69	<1.19	<0.93	<0.99	<0.019
1234678-heptachlorodibenzofuran	26.8	3.01	5.25	4.09	4.35	0.081
1234789-heptachlorodibenzofuran	6.71	0.75	1.31	1.02	1.09	0.020
Octachlorodibenzofuran	<22	<2.47	<4.31	<3.36	<3.57	<0.067
PCB 81	20.6	2.32	4.03	3.14	3.34	0.063
PCB 77	345	38.8	67.6	52.6	56.0	1.05
PCB 123	207	23.3	40.5	31.6	33.6	0.63
PCB 118	11600	1304	2272	1770	1883	35.2
PCB 114	302	34.0	59.1	46.1	49.0	0.92
PCB 105	3780	425	740	577	614	11.5
PCB 126	26.6	2.99	5.21	4.06	4.32	0.081
PCB 167	104	11.7	20.4	15.9	16.9	0.32
PCB 156/157	311	35.0	60.9	47.4	50.5	0.94
PCB 169	8.41	0.95	1.65	1.28	1.37	0.026
PCB 189	<2.4	<0.27	<0.47	<0.37	<0.39	<0.0073
Total Dioxins & Furans Only	<418	<47.0	<81.9	<63.8	<67.9	<1.27
Total PCBs Only	<16707	<1878	<3272	<2549	<2712	<50.7
Total Dioxins & Furans and PCBs	<17125	<1925	<3354	<2612	<2780	<52.0

Dry Gas Volume Sampled (Rm^{3*}) :	5.106
Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate ($Rm^3/s*$) :	15.5
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/m^3	pg/Rm^{3*}	pg/Rm^{3**}	pg/Rm^{3*}	ng/s
2378-tetrachlorodibenzo-p-dioxin	<1.1	<0.12	<0.21	<0.17	<0.18	<0.0033
12378-pentachlorodibenzo-p-dioxin	4.45	0.50	0.87	0.67	0.72	0.013
123478-hexachlorodibenzo-p-dioxin	5.06	0.57	0.98	0.77	0.82	0.015
123678-hexachlorodibenzo-p-dioxin	<11	<1.25	<2.14	<1.67	<1.77	<0.033
123789-hexachlorodibenzo-p-dioxin	6.82	0.77	1.33	1.03	1.10	0.021
1234678-heptachlorodibenzo-p-dioxin	93.7	10.6	18.2	14.2	15.1	0.28
Octachlorodibenzo-p-dioxin	110	12.5	21.4	16.7	17.7	0.33
2378-tetrachlorodibenzofuran	2.40	0.27	0.47	0.36	0.39	0.0072
12378-pentachlorodibenzofuran	<4.4	<0.50	<0.86	<0.67	<0.71	<0.013
23478-pentachlorodibenzofuran	<6.6	<0.75	<1.28	<1.00	<1.06	<0.020
123478-hexachlorodibenzofuran	<3.0	<0.34	<0.58	<0.45	<0.48	<0.0090
123678-hexachlorodibenzofuran	4.93	0.56	0.96	0.75	0.79	0.015
234678-hexachlorodibenzofuran	7.33	0.83	1.43	1.11	1.18	0.022
123789-hexachlorodibenzofuran	<2.2	<0.25	<0.43	<0.33	<0.35	<0.0066
1234678-heptachlorodibenzofuran	<17	<1.93	<3.31	<2.58	<2.74	<0.051
1234789-heptachlorodibenzofuran	3.01	0.34	0.59	0.46	0.49	0.0091
Octachlorodibenzofuran	16.2	1.84	3.15	2.45	2.61	0.049
PCB 81	<11	<1.25	<2.14	<1.67	<1.77	<0.033
PCB 77	364	41.2	70.8	55.1	58.7	1.10
PCB 123	153	17.3	29.8	23.2	24.7	0.46
PCB 118	11300	1281	2198	1712	1822	34.1
PCB 114	281	31.8	54.6	42.6	45.3	0.85
PCB 105	3080	349	599	467	496	9.28
PCB 126	<11	<1.25	<2.14	<1.67	<1.77	<0.033
PCB 167	72.7	8.24	14.1	11.0	11.7	0.22
PCB 156/157	176	19.9	34.2	26.7	28.4	0.53
PCB 169	7.22	0.82	1.40	1.09	1.16	0.022
PCB 189	<2.5	<0.28	<0.49	<0.38	<0.40	<0.0075
Total Dioxins & Furans Only	<299	<33.9	<58.2	<45.3	<48.2	<0.90
Total PCBs Only	<15458	<1752	<3006	<2342	<2492	<46.6
Total Dioxins & Furans and PCBs	<15758	<1786	<3064	<2387	<2540	<47.5

Dry Gas Volume Sampled (Rm^{3*}) :	5.142
Actual Flowrate (m^3/s) :	26.6
Dry Reference Flowrate (Rm^3/s^*) :	15.5
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 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	<0.17	<0.15	<0.12	<0.15	15.6
12378-pentachlorodibenzo-p-dioxin	0.44	0.48	0.50	0.48	6.4
123478-hexachlorodibenzo-p-dioxin	0.67	0.63	0.57	0.62	7.8
123678-hexachlorodibenzo-p-dioxin	<1.36	1.61	<1.25	<1.41	13.1
123789-hexachlorodibenzo-p-dioxin	0.95	0.88	0.77	0.87	10.3
1234678-heptachlorodibenzo-p-dioxin	11.0	12.8	10.6	11.5	10.2
Octachlorodibenzo-p-dioxin	13.1	17.0	12.5	14.2	17.3
2378-tetrachlorodibenzofuran	<0.20	1.15	0.27	<0.54	97.1
12378-pentachlorodibenzofuran	0.55	<0.73	<0.50	<0.59	20.4
23478-pentachlorodibenzofuran	<0.73	1.72	<0.75	<1.07	53.2
123478-hexachlorodibenzofuran	<0.41	0.78	<0.34	<0.51	46.3
123678-hexachlorodibenzofuran	0.64	0.94	0.56	0.71	28.2
234678-hexachlorodibenzofuran	0.77	1.21	0.83	0.94	25.8
123789-hexachlorodibenzofuran	<0.27	<0.69	<0.25	<0.40	61.0
1234678-heptachlorodibenzofuran	1.96	3.01	<1.93	<2.30	26.9
1234789-heptachlorodibenzofuran	<0.42	0.75	0.34	<0.51	43.4
Octachlorodibenzofuran	1.90	<2.47	1.84	<2.07	17.0
PCB 81	<0.94	2.32	<1.25	<1.50	48.0
PCB 77	31.5	38.8	41.2	37.2	13.6
PCB 123	6.44	23.3	17.3	15.7	54.5
PCB 118	333	1304	1281	973	56.9
PCB 114	8.78	34.0	31.8	24.9	56.2
PCB 105	103	425	349	292	57.6
PCB 126	<0.63	2.99	<1.25	<1.62	75.7
PCB 167	3.12	11.7	8.24	7.68	56.2
PCB 156/157	9.56	35.0	19.9	21.5	59.4
PCB 169	<0.74	0.95	0.82	<0.83	12.5
PCB 189	<0.33	<0.27	<0.28	<0.29	10.7
Total Dioxins & Furans Only	<35.5	<47.0	<33.9	<38.8	18.4
Total PCBs Only	<498	<1878	<1752	<1376	55.4
Total Dioxins & Furans and PCBs	<534	<1925	<1786	<1415	54.2

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	<0.30	<0.25	<0.21	<0.26	16.3
12378-pentachlorodibenzo-p-dioxin	0.77	0.83	0.87	0.82	5.8
123478-hexachlorodibenzo-p-dioxin	1.17	1.10	0.98	1.08	8.5
123678-hexachlorodibenzo-p-dioxin	<2.37	2.80	<2.14	<2.44	13.7
123789-hexachlorodibenzo-p-dioxin	1.65	1.54	1.33	1.51	11.0
1234678-heptachlorodibenzo-p-dioxin	19.1	22.3	18.2	19.9	10.8
Octachlorodibenzo-p-dioxin	22.8	29.6	21.4	24.6	17.8
2378-tetrachlorodibenzofuran	<0.36	2.00	0.47	<0.94	97.6
12378-pentachlorodibenzofuran	0.96	<1.27	<0.86	<1.03	21.0
23478-pentachlorodibenzofuran	<1.27	3.00	<1.28	<1.85	53.8
123478-hexachlorodibenzofuran	<0.71	1.36	<0.58	<0.88	46.9
123678-hexachlorodibenzofuran	1.11	1.64	0.96	1.24	28.8
234678-hexachlorodibenzofuran	1.33	2.12	1.43	1.62	26.3
123789-hexachlorodibenzofuran	<0.47	<1.19	<0.43	<0.70	61.5
1234678-heptachlorodibenzofuran	3.40	5.25	<3.31	<3.99	27.5
1234789-heptachlorodibenzofuran	<0.73	1.31	0.59	<0.88	43.9
Octachlorodibenzofuran	3.30	<4.31	3.15	<3.59	17.5
PCB 81	<1.64	4.03	<2.14	<2.61	48.4
PCB 77	54.8	67.6	70.8	64.4	13.1
PCB 123	11.2	40.5	29.8	27.2	54.6
PCB 118	580	2272	2198	1683	56.8
PCB 114	15.3	59.1	54.6	43.0	56.1
PCB 105	179	740	599	506	57.7
PCB 126	<1.09	5.21	<2.14	<2.81	76.1
PCB 167	5.42	20.4	14.1	13.3	56.4
PCB 156/157	16.6	60.9	34.2	37.3	59.8
PCB 169	<1.29	1.65	1.40	<1.45	12.7
PCB 189	<0.57	<0.47	<0.49	<0.51	11.0
Total Dioxins & Furans Only	<61.8	<81.9	<58.2	<67.3	19.0
Total PCBs Only	<867	<3272	<3006	<2382	55.4
Total Dioxins & Furans and PCBs	<929	<3354	<3064	<2449	54.1

* At 25°C and 1 atmosphere

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

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

Specific Isomer	Dry Adjusted Concentration				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	<0.23	<0.20	<0.17	<0.20	15.9
12378-pentachlorodibenzo-p-dioxin	0.60	0.65	0.67	0.64	6.1
123478-hexachlorodibenzo-p-dioxin	0.90	0.85	0.77	0.84	8.3
123678-hexachlorodibenzo-p-dioxin	<1.84	2.18	<1.67	<1.90	13.8
123789-hexachlorodibenzo-p-dioxin	1.28	1.20	1.03	1.17	10.8
1234678-heptachlorodibenzo-p-dioxin	14.8	17.4	14.2	15.5	11.0
Octachlorodibenzo-p-dioxin	17.6	23.0	16.7	19.1	18.0
2378-tetrachlorodibenzofuran	<0.28	1.56	0.36	<0.73	97.7
12378-pentachlorodibenzofuran	0.75	<0.99	<0.67	<0.80	21.1
23478-pentachlorodibenzofuran	<0.98	2.33	<1.00	<1.44	54.0
123478-hexachlorodibenzofuran	<0.55	1.06	<0.45	<0.69	47.1
123678-hexachlorodibenzofuran	0.86	1.28	0.75	0.96	29.0
234678-hexachlorodibenzofuran	1.03	1.65	1.11	1.26	26.5
123789-hexachlorodibenzofuran	<0.37	<0.93	<0.33	<0.54	61.7
1234678-heptachlorodibenzofuran	2.63	4.09	<2.58	<3.10	27.7
1234789-heptachlorodibenzofuran	<0.57	1.02	0.46	<0.68	44.1
Octachlorodibenzofuran	2.56	<3.36	2.45	<2.79	17.7
PCB 81	<1.27	3.14	<1.67	<2.03	48.7
PCB 77	42.4	52.6	55.1	50.1	13.5
PCB 123	8.67	31.6	23.2	21.1	54.8
PCB 118	449	1770	1712	1310	57.0
PCB 114	11.8	46.1	42.6	33.5	56.3
PCB 105	139	577	467	394	57.8
PCB 126	<0.84	4.06	<1.67	<2.19	76.3
PCB 167	4.20	15.9	11.0	10.4	56.6
PCB 156/157	12.9	47.4	26.7	29.0	60.0
PCB 169	<1.00	1.28	1.09	<1.12	13.0
PCB 189	<0.44	<0.37	<0.38	<0.40	10.6
Total Dioxins & Furans Only	<47.8	<63.8	<45.3	<52.3	19.1
Total PCBs Only	<671	<2549	<2342	<1854	55.5
Total Dioxins & Furans and PCBs	<719	<2612	<2387	<1906	54.3

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

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

TABLE 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	<0.25	<0.21	<0.18	<0.21	16.5
12378-pentachlorodibenzo-p-dioxin	0.64	0.69	0.72	0.68	5.5
123478-hexachlorodibenzo-p-dioxin	0.97	0.91	0.82	0.90	8.7
123678-hexachlorodibenzo-p-dioxin	<1.98	2.32	<1.77	<2.02	13.7
123789-hexachlorodibenzo-p-dioxin	1.38	1.28	1.10	1.25	11.2
1234678-heptachlorodibenzo-p-dioxin	15.9	18.5	15.1	16.5	10.7
Octachlorodibenzo-p-dioxin	18.9	24.5	17.7	20.4	17.7
2378-tetrachlorodibenzofuran	<0.30	1.66	0.39	<0.78	97.5
12378-pentachlorodibenzofuran	0.80	<1.06	<0.71	<0.86	20.9
23478-pentachlorodibenzofuran	<1.05	2.48	<1.06	<1.53	53.6
123478-hexachlorodibenzofuran	<0.59	1.12	<0.48	<0.73	46.8
123678-hexachlorodibenzofuran	0.92	1.36	0.79	1.03	28.7
234678-hexachlorodibenzofuran	1.11	1.75	1.18	1.35	26.1
123789-hexachlorodibenzofuran	<0.40	<0.99	<0.35	<0.58	61.3
1234678-heptachlorodibenzofuran	2.83	4.35	<2.74	<3.31	27.3
1234789-heptachlorodibenzofuran	<0.61	1.09	0.49	<0.73	43.8
Octachlorodibenzofuran	2.75	<3.57	2.61	<2.98	17.4
PCB 81	<1.37	3.34	<1.77	<2.16	48.3
PCB 77	45.6	56.0	58.7	53.4	12.9
PCB 123	9.32	33.6	24.7	22.5	54.5
PCB 118	483	1883	1822	1396	56.7
PCB 114	12.7	49.0	45.3	35.7	56.0
PCB 105	149	614	496	420	57.6
PCB 126	<0.91	4.32	<1.77	<2.33	76.0
PCB 167	4.51	16.9	11.7	11.0	56.3
PCB 156/157	13.9	50.5	28.4	30.9	59.7
PCB 169	<1.07	1.37	1.16	<1.20	12.5
PCB 189	<0.48	<0.39	<0.40	<0.42	11.2
Total Dioxins & Furans Only	<51.5	<67.9	<48.2	<55.8	18.8
Total PCBs Only	<722	<2712	<2492	<1975	55.2
Total Dioxins & Furans and PCBs	<773	<2780	<2540	<2031	54.0

* At 25°C and 1 atmosphere

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

TABLE 41
Covanta - Durham York Energy Centre
Boiler No. 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	<0.0046	<0.0039	<0.0033	<0.0039	15.9
12378-pentachlorodibenzo-p-dioxin	0.012	0.013	0.013	0.013	6.1
123478-hexachlorodibenzo-p-dioxin	0.018	0.017	0.015	0.017	8.3
123678-hexachlorodibenzo-p-dioxin	<0.037	0.043	<0.033	<0.038	13.8
123789-hexachlorodibenzo-p-dioxin	0.025	0.024	0.021	0.023	10.8
1234678-heptachlorodibenzo-p-dioxin	0.29	0.35	0.28	0.31	11.0
Octachlorodibenzo-p-dioxin	0.35	0.46	0.33	0.38	18.0
2378-tetrachlorodibenzofuran	<0.0055	0.031	0.0072	<0.015	97.7
12378-pentachlorodibenzofuran	0.015	<0.020	<0.013	<0.016	21.1
23478-pentachlorodibenzofuran	<0.020	0.046	<0.020	<0.029	54.0
123478-hexachlorodibenzofuran	<0.011	0.021	<0.0090	<0.014	47.1
123678-hexachlorodibenzofuran	0.017	0.025	0.015	0.019	29.0
234678-hexachlorodibenzofuran	0.021	0.033	0.022	0.025	26.5
123789-hexachlorodibenzofuran	<0.0073	<0.019	<0.0066	<0.011	61.7
1234678-heptachlorodibenzofuran	0.052	0.081	<0.051	<0.062	27.7
1234789-heptachlorodibenzofuran	<0.011	0.020	0.0091	<0.014	44.1
Octachlorodibenzofuran	0.051	<0.067	0.049	<0.056	17.7
PCB 81	<0.025	0.063	<0.033	<0.040	48.7
PCB 77	0.84	1.05	1.10	1.00	13.5
PCB 123	0.17	0.63	0.46	0.42	54.8
PCB 118	8.93	35.2	34.1	26.1	57.0
PCB 114	0.24	0.92	0.85	0.67	56.3
PCB 105	2.76	11.5	9.28	7.84	57.8
PCB 126	<0.017	0.081	<0.033	<0.044	76.3
PCB 167	0.084	0.32	0.22	0.21	56.6
PCB 156/157	0.26	0.94	0.53	0.58	60.0
PCB 169	<0.020	0.026	0.022	<0.022	13.0
PCB 189	<0.0088	<0.0073	<0.0075	<0.0079	10.6
Total Dioxins & Furans Only	<0.95	<1.27	<0.90	<1.04	19.1
Total PCBs Only	<13.4	<50.7	<46.6	<36.9	55.5
Total Dioxins & Furans and PCBs	<14.3	<52.0	<47.5	<37.9	54.3

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	<0.15	<0.26	<0.20	<0.21	<0.0039
12378-pentachlorodibenzo-p-dioxin	0.48	0.82	0.64	0.68	0.013
123478-hexachlorodibenzo-p-dioxin	0.62	1.08	0.84	0.90	0.017
123678-hexachlorodibenzo-p-dioxin	<1.41	<2.44	<1.90	<2.02	<0.038
123789-hexachlorodibenzo-p-dioxin	0.87	1.51	1.17	1.25	0.023
1234678-heptachlorodibenzo-p-dioxin	11.5	19.9	15.5	16.5	0.31
Octachlorodibenzo-p-dioxin	14.2	24.6	19.1	20.4	0.38
2378-tetrachlorodibenzofuran	<0.54	<0.94	<0.73	<0.78	<0.015
12378-pentachlorodibenzofuran	<0.59	<1.03	<0.80	<0.86	<0.016
23478-pentachlorodibenzofuran	<1.07	<1.85	<1.44	<1.53	<0.029
123478-hexachlorodibenzofuran	<0.51	<0.88	<0.69	<0.73	<0.014
123678-hexachlorodibenzofuran	0.71	1.24	0.96	1.03	0.019
234678-hexachlorodibenzofuran	0.94	1.62	1.26	1.35	0.025
123789-hexachlorodibenzofuran	<0.40	<0.70	<0.54	<0.58	<0.011
1234678-heptachlorodibenzofuran	<2.30	<3.99	<3.10	<3.31	<0.062
1234789-heptachlorodibenzofuran	<0.51	<0.88	<0.68	<0.73	<0.014
Octachlorodibenzofuran	<2.07	<3.59	<2.79	<2.98	<0.056
PCB 81	<1.50	<2.61	<2.03	<2.16	<0.040
PCB 77	37.2	64.4	50.1	53.4	1.00
PCB 123	15.7	27.2	21.1	22.5	0.42
PCB 118	973	1683	1310	1396	26.1
PCB 114	24.9	43.0	33.5	35.7	0.67
PCB 105	292	506	394	420	7.84
PCB 126	<1.62	<2.81	<2.19	<2.33	<0.044
PCB 167	7.68	13.3	10.4	11.0	0.21
PCB 156/157	21.5	37.3	29.0	30.9	0.58
PCB 169	<0.83	<1.45	<1.12	<1.20	<0.022
PCB 189	<0.29	<0.51	<0.40	<0.42	<0.0079
Total Dioxins & Furans Only	<38.8	<67.3	<52.3	<55.8	<1.04
Total PCBs Only	<1376	<2382	<1854	<1975	<36.9
Total Dioxins & Furans and PCBs	<1415	<2449	<1906	<2031	<37.9

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

Specific Isomer	Blank Train pg	Method Blank pg
2378-tetrachlorodibenzo-p-dioxin	<0.61	<0.61
12378-pentachlorodibenzo-p-dioxin	<1.1	<0.85
123478-hexachlorodibenzo-p-dioxin	<1.1	<0.92
123678-hexachlorodibenzo-p-dioxin	<1.0	<0.89
123789-hexachlorodibenzo-p-dioxin	<0.99	<0.87
1234678-heptachlorodibenzo-p-dioxin	4.42	3.09
Octachlorodibenzo-p-dioxin	8.95	6.93
2378-tetrachlorodibenzofuran	<0.51	<0.53
12378-pentachlorodibenzofuran	2.95	<2.3
23478-pentachlorodibenzofuran	<0.85	<0.70
123478-hexachlorodibenzofuran	<0.53	<0.69
123678-hexachlorodibenzofuran	<0.52	<0.47
234678-hexachlorodibenzofuran	<0.54	<1.20
123789-hexachlorodibenzofuran	<0.65	<1.20
1234678-heptachlorodibenzofuran	<0.79	3.88
1234789-heptachlorodibenzofuran	<0.98	<0.69
Octachlorodibenzofuran	<2.7	<3.9
PCB 81	<3.9	<5.8
PCB 77	<6.4	<5.8
PCB 123	<4.3	<6.8
PCB 118	<30	<6.3
PCB 114	<4.2	<6.8
PCB 105	16.3	<6.2
PCB 126	<4.1	<6.4
PCB 167	<2.6	<5.3
PCB 156/157	6.89	<7.5
PCB 169	<2.6	<5.2
PCB 189	<2.0	<3.0
Total Dioxins & Furans Only	<29.2	<29.7
Total PCBs Only	<83.3	<65.1
Total Dioxins & Furans and PCBs	<112	<94.8

"<" 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 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	<0.17	<0.15	<0.12	<0.15
12378-pentachlorodibenzo-p-dioxin	1.00000	0.44	0.48	0.50	0.48
123478-hexachlorodibenzo-p-dioxin	0.10000	0.067	0.063	0.057	0.062
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.14	0.16	<0.12	<0.14
123789-hexachlorodibenzo-p-dioxin	0.10000	0.095	0.088	0.077	0.087
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.11	0.13	0.11	0.11
Octachlorodibenzo-p-dioxin	0.00030	0.0039	0.0051	0.0037	0.0043
2378-tetrachlorodibenzofuran	0.10000	<0.020	0.11	0.027	<0.054
12378-pentachlorodibenzofuran	0.03000	0.017	<0.022	<0.015	<0.018
23478-pentachlorodibenzofuran	0.30000	<0.22	0.52	<0.22	<0.32
123478-hexachlorodibenzofuran	0.10000	<0.041	0.078	<0.034	<0.051
123678-hexachlorodibenzofuran	0.10000	0.064	0.094	0.056	0.071
234678-hexachlorodibenzofuran	0.10000	0.077	0.12	0.083	0.094
123789-hexachlorodibenzofuran	0.10000	<0.027	<0.069	<0.025	<0.040
1234678-heptachlorodibenzofuran	0.01000	0.020	0.030	<0.019	<0.023
1234789-heptachlorodibenzofuran	0.01000	<0.0042	0.0075	0.0034	<0.0051
Octachlorodibenzofuran	0.00030	0.00057	<0.00074	0.00055	<0.00062
PCB 81	0.00030	<0.00028	0.00069	<0.00037	<0.00045
PCB 77	0.00010	0.0032	0.0039	0.0041	0.0037
PCB 123	0.00003	0.00019	0.00070	0.00052	0.00047
PCB 118	0.00003	0.010	0.039	0.038	0.029
PCB 114	0.00003	0.00026	0.0010	0.00096	0.00075
PCB 105	0.00003	0.0031	0.013	0.010	0.0088
PCB 126	0.10000	<0.063	0.30	<0.12	<0.16
PCB 167	0.00003	0.000093	0.00035	0.00025	0.00023
PCB 156/157	0.00003	0.00029	0.0010	0.00060	0.00064
PCB 169	0.03000	<0.022	0.028	0.025	<0.025
PCB 189	0.00003	<0.0000099	<0.0000081	<0.0000085	<0.0000088
Total Dioxins & Furans Only		<1.52	<2.12	<1.49	<1.71
Total PCBs Only		<0.10	<0.39	<0.20	<0.23
Total Dioxins & Furans and PCBs		<1.62	<2.51	<1.69	<1.94

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	<0.30	<0.25	<0.21	<0.26
12378-pentachlorodibenzo-p-dioxin	1.00000	0.77	0.83	0.87	0.82
123478-hexachlorodibenzo-p-dioxin	0.10000	0.12	0.11	0.098	0.11
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.24	0.28	<0.21	<0.24
123789-hexachlorodibenzo-p-dioxin	0.10000	0.17	0.15	0.13	0.15
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.19	0.22	0.18	0.20
Octachlorodibenzo-p-dioxin	0.00030	0.0068	0.0089	0.0064	0.0074
2378-tetrachlorodibenzofuran	0.10000	<0.036	0.20	0.047	<0.094
12378-pentachlorodibenzofuran	0.03000	0.029	<0.038	<0.026	<0.031
23478-pentachlorodibenzofuran	0.30000	<0.38	0.90	<0.39	<0.55
123478-hexachlorodibenzofuran	0.10000	<0.071	0.14	<0.058	<0.088
123678-hexachlorodibenzofuran	0.10000	0.11	0.16	0.096	0.12
234678-hexachlorodibenzofuran	0.10000	0.13	0.21	0.14	0.16
123789-hexachlorodibenzofuran	0.10000	<0.047	<0.12	<0.043	<0.070
1234678-heptachlorodibenzofuran	0.01000	0.034	0.052	<0.033	<0.040
1234789-heptachlorodibenzofuran	0.01000	<0.0073	0.013	0.0059	<0.0088
Octachlorodibenzofuran	0.00030	0.00099	<0.0013	0.00095	<0.0011
PCB 81	0.00030	<0.00049	0.0012	<0.00064	<0.00078
PCB 77	0.00010	0.0055	0.0068	0.0071	0.0064
PCB 123	0.00003	0.00034	0.0012	0.00089	0.00081
PCB 118	0.00003	0.017	0.068	0.066	0.050
PCB 114	0.00003	0.00046	0.0018	0.0016	0.0013
PCB 105	0.00003	0.0054	0.022	0.018	0.015
PCB 126	0.10000	<0.11	0.52	<0.21	<0.28
PCB 167	0.00003	0.00016	0.00061	0.00042	0.00040
PCB 156/157	0.00003	0.00050	0.0018	0.0010	0.0011
PCB 169	0.03000	<0.039	0.049	0.042	<0.043
PCB 189	0.00003	<0.000017	<0.000014	<0.000015	<0.000015
Total Dioxins & Furans Only		<2.64	<3.70	<2.55	<2.96
Total PCBs Only		<0.18	<0.67	<0.35	<0.40
Total Dioxins & Furans and PCBs		<2.81	<4.37	<2.90	<3.36

* 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	<0.23	<0.20	<0.17	<0.20
12378-pentachlorodibenzo-p-dioxin	1.00000	0.60	0.65	0.67	0.64
123478-hexachlorodibenzo-p-dioxin	0.10000	0.090	0.085	0.077	0.084
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.18	0.22	<0.17	<0.19
123789-hexachlorodibenzo-p-dioxin	0.10000	0.13	0.12	0.10	0.12
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.15	0.17	0.14	0.15
Octachlorodibenzo-p-dioxin	0.00030	0.0053	0.0069	0.0050	0.0057
2378-tetrachlorodibenzofuran	0.10000	<0.028	0.16	0.036	<0.073
12378-pentachlorodibenzofuran	0.03000	0.022	<0.030	<0.020	<0.024
23478-pentachlorodibenzofuran	0.30000	<0.29	0.70	<0.30	<0.43
123478-hexachlorodibenzofuran	0.10000	<0.055	0.11	<0.045	<0.069
123678-hexachlorodibenzofuran	0.10000	0.086	0.13	0.075	0.096
234678-hexachlorodibenzofuran	0.10000	0.10	0.16	0.11	0.13
123789-hexachlorodibenzofuran	0.10000	<0.037	<0.093	<0.033	<0.054
1234678-heptachlorodibenzofuran	0.01000	0.026	0.041	<0.026	<0.031
1234789-heptachlorodibenzofuran	0.01000	<0.0057	0.010	0.0046	<0.0068
Octachlorodibenzofuran	0.00030	0.00077	<0.0010	0.00074	<0.00084
PCB 81	0.00030	<0.00038	0.00094	<0.00050	<0.00061
PCB 77	0.00010	0.0042	0.0053	0.0055	0.0050
PCB 123	0.00003	0.00026	0.00095	0.00070	0.00063
PCB 118	0.00003	0.013	0.053	0.051	0.039
PCB 114	0.00003	0.00035	0.0014	0.0013	0.0010
PCB 105	0.00003	0.0042	0.017	0.014	0.012
PCB 126	0.10000	<0.084	0.41	<0.17	<0.22
PCB 167	0.00003	0.00013	0.00048	0.00033	0.00031
PCB 156/157	0.00003	0.00039	0.0014	0.00080	0.00087
PCB 169	0.03000	<0.030	0.038	0.033	<0.034
PCB 189	0.00003	<0.000013	<0.000011	<0.000011	<0.000012
Total Dioxins & Furans Only		<2.04	<2.88	<1.99	<2.30
Total PCBs Only		<0.14	<0.53	<0.27	<0.31
Total Dioxins & Furans and PCBs		<2.18	<3.40	<2.26	<2.61

* 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	0.11	0.099	0.083	0.099
12378-pentachlorodibenzo-p-dioxin	1.00000	0.60	0.65	0.67	0.64
123478-hexachlorodibenzo-p-dioxin	0.10000	0.090	0.085	0.077	0.084
123678-hexachlorodibenzo-p-dioxin	0.10000	0.092	0.22	0.083	0.13
123789-hexachlorodibenzo-p-dioxin	0.10000	0.13	0.12	0.10	0.12
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.15	0.17	0.14	0.15
Octachlorodibenzo-p-dioxin	0.00030	0.0053	0.0069	0.0050	0.0057
2378-tetrachlorodibenzofuran	0.10000	0.014	0.16	0.036	0.069
12378-pentachlorodibenzofuran	0.03000	0.022	0.015	0.010	0.016
23478-pentachlorodibenzofuran	0.30000	0.15	0.70	0.15	0.33
123478-hexachlorodibenzofuran	0.10000	0.028	0.11	0.023	0.052
123678-hexachlorodibenzofuran	0.10000	0.086	0.13	0.075	0.096
234678-hexachlorodibenzofuran	0.10000	0.10	0.16	0.11	0.13
123789-hexachlorodibenzofuran	0.10000	0.018	0.047	0.017	0.027
1234678-heptachlorodibenzofuran	0.01000	0.026	0.041	0.013	0.027
1234789-heptachlorodibenzofuran	0.01000	0.0028	0.010	0.0046	0.0059
Octachlorodibenzofuran	0.00030	0.00077	0.00050	0.00074	0.00067
PCB 81	0.00030	0.00019	0.00094	0.00025	0.00046
PCB 77	0.00010	0.0042	0.0053	0.0055	0.0050
PCB 123	0.00003	0.00026	0.00095	0.00070	0.00063
PCB 118	0.00003	0.013	0.053	0.051	0.039
PCB 114	0.00003	0.00035	0.0014	0.0013	0.0010
PCB 105	0.00003	0.0042	0.017	0.014	0.012
PCB 126	0.10000	0.042	0.41	0.083	0.18
PCB 167	0.00003	0.00013	0.00048	0.00033	0.00031
PCB 156/157	0.00003	0.00039	0.0014	0.00080	0.00087
PCB 169	0.03000	0.015	0.038	0.033	0.029
PCB 189	0.00003	0.0000067	0.0000055	0.0000057	0.0000059
Total Dioxins & Furans Only		1.62	2.7	1.61	1.98
Total PCBs Only		0.080	0.53	0.19	0.27
Total Dioxins & Furans and PCBs		1.70	3.24	1.80	2.25

* 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	<0.23	<0.20	<0.17	<0.20
12378-pentachlorodibenzo-p-dioxin	0.50	0.30	0.32	0.34	0.32
123478-hexachlorodibenzo-p-dioxin	0.10	0.090	0.085	0.077	0.084
123678-hexachlorodibenzo-p-dioxin	0.10	<0.18	0.22	<0.17	<0.19
123789-hexachlorodibenzo-p-dioxin	0.10	0.13	0.12	0.10	0.12
1234678-heptachlorodibenzo-p-dioxin	0.010	0.15	0.17	0.14	0.15
Octachlorodibenzo-p-dioxin	0.0010	0.018	0.023	0.017	0.019
2378-tetrachlorodibenzofuran	0.10	<0.028	0.16	0.036	<0.073
12378-pentachlorodibenzofuran	0.050	0.037	<0.050	<0.033	<0.040
23478-pentachlorodibenzofuran	0.50	<0.49	1.17	<0.50	<0.72
123478-hexachlorodibenzofuran	0.10	<0.055	0.11	<0.045	<0.069
123678-hexachlorodibenzofuran	0.10	0.086	0.13	0.075	0.096
234678-hexachlorodibenzofuran	0.10	0.10	0.16	0.11	0.13
123789-hexachlorodibenzofuran	0.10	<0.037	<0.093	<0.033	<0.054
1234678-heptachlorodibenzofuran	0.010	0.026	0.041	<0.026	<0.031
1234789-heptachlorodibenzofuran	0.010	<0.0057	0.010	0.0046	<0.0068
Octachlorodibenzofuran	0.0010	0.0026	<0.0034	0.0025	<0.0028
Total Dioxins & Furans		<1.97	<3.06	<1.88	<2.30
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	<0.25	<0.21	<0.18	<0.21
12378-pentachlorodibenzo-p-dioxin	1.00000	0.64	0.69	0.72	0.68
123478-hexachlorodibenzo-p-dioxin	0.10000	0.097	0.091	0.082	0.090
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.20	0.23	<0.18	<0.20
123789-hexachlorodibenzo-p-dioxin	0.10000	0.14	0.13	0.11	0.13
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.16	0.19	0.15	0.17
Octachlorodibenzo-p-dioxin	0.00030	0.0057	0.0074	0.0053	0.0061
2378-tetrachlorodibenzofuran	0.10000	<0.030	0.17	0.039	<0.078
12378-pentachlorodibenzofuran	0.03000	0.024	<0.032	<0.021	<0.026
23478-pentachlorodibenzofuran	0.30000	<0.32	0.75	<0.32	<0.46
123478-hexachlorodibenzofuran	0.10000	<0.059	0.11	<0.048	<0.073
123678-hexachlorodibenzofuran	0.10000	0.092	0.14	0.079	0.10
234678-hexachlorodibenzofuran	0.10000	0.11	0.18	0.12	0.13
123789-hexachlorodibenzofuran	0.10000	<0.040	<0.099	<0.035	<0.058
1234678-heptachlorodibenzofuran	0.01000	0.028	0.044	<0.027	<0.033
1234789-heptachlorodibenzofuran	0.01000	<0.0061	0.011	0.0049	<0.0073
Octachlorodibenzofuran	0.00030	0.00083	<0.0011	0.00078	<0.00089
PCB 81	0.00030	<0.00041	0.0010	<0.00053	<0.00065
PCB 77	0.00010	0.0046	0.0056	0.0059	0.0053
PCB 123	0.00003	0.00028	0.0010	0.00074	0.00068
PCB 118	0.00003	0.014	0.056	0.055	0.042
PCB 114	0.00003	0.00038	0.0015	0.0014	0.0011
PCB 105	0.00003	0.0045	0.018	0.015	0.013
PCB 126	0.10000	<0.091	0.43	<0.18	<0.23
PCB 167	0.00003	0.00014	0.00051	0.00035	0.00033
PCB 156/157	0.00003	0.00042	0.0015	0.00085	0.00093
PCB 169	0.03000	<0.032	0.041	0.035	<0.036
PCB 189	0.00003	<0.000014	<0.000012	<0.000012	<0.000013
Total Dioxins & Furans Only		<2.19	<3.06	<2.11	<2.46
Total PCBs Only		<0.15	<0.56	<0.29	<0.33
Total Dioxins & Furans and PCBs		<2.34	<3.62	<2.40	<2.79

* 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	<0.0046	<0.0039	<0.0033	<0.0039
12378-pentachlorodibenzo-p-dioxin	1.00000	0.012	0.013	0.013	0.013
123478-hexachlorodibenzo-p-dioxin	0.10000	0.0018	0.0017	0.0015	0.0017
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.0037	0.0043	<0.0033	<0.0038
123789-hexachlorodibenzo-p-dioxin	0.10000	0.0025	0.0024	0.0021	0.0023
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.0029	0.0035	0.0028	0.0031
Octachlorodibenzo-p-dioxin	0.00030	0.00011	0.00014	0.000099	0.00011
2378-tetrachlorodibenzofuran	0.10000	<0.00055	0.0031	0.00072	<0.0015
12378-pentachlorodibenzofuran	0.03000	0.00045	<0.00059	<0.00040	<0.00048
23478-pentachlorodibenzofuran	0.30000	<0.0059	0.014	<0.0060	<0.0086
123478-hexachlorodibenzofuran	0.10000	<0.0011	0.0021	<0.00090	<0.0014
123678-hexachlorodibenzofuran	0.10000	0.0017	0.0025	0.0015	0.0019
234678-hexachlorodibenzofuran	0.10000	0.0021	0.0033	0.0022	0.0025
123789-hexachlorodibenzofuran	0.10000	<0.00073	<0.0019	<0.00066	<0.0011
1234678-heptachlorodibenzofuran	0.01000	0.00052	0.00081	<0.00051	<0.00062
1234789-heptachlorodibenzofuran	0.01000	<0.00011	0.00020	0.000091	<0.00014
Octachlorodibenzofuran	0.00030	0.000015	<0.000020	0.000015	<0.000017
PCB 81	0.00030	<0.0000076	0.000019	<0.0000099	<0.000012
PCB 77	0.00010	0.000084	0.00010	0.00011	0.00010
PCB 123	0.00003	0.0000052	0.000019	0.000014	0.000013
PCB 118	0.00003	0.00027	0.0011	0.0010	0.00078
PCB 114	0.00003	0.0000071	0.000028	0.000025	0.000020
PCB 105	0.00003	0.000083	0.00034	0.00028	0.00024
PCB 126	0.10000	<0.0017	0.0081	<0.0033	<0.0044
PCB 167	0.00003	0.0000025	0.0000095	0.0000066	0.0000062
PCB 156/157	0.00003	0.0000077	0.000028	0.000016	0.000017
PCB 169	0.03000	<0.00059	0.00077	0.00065	<0.00067
PCB 189	0.00003	<0.00000027	<0.00000022	<0.00000023	<0.00000024
Total Dioxins & Furans Only		<0.041	<0.057	<0.040	<0.046
Total PCBs Only		<0.0027	<0.010	<0.0055	<0.0062
Total Dioxins & Furans and PCBs		<0.043	<0.068	<0.045	<0.052

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/m^3	Dry Reference Concentration pg TEQ/Rm^3*	Dry Adjusted Concentration pg TEQ/Rm^3**	Wet Reference Concentration pg TEQ/Rm^3*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	<0.15	<0.26	<0.20	<0.21	<0.0039
12378-pentachlorodibenzo-p-dioxin	0.48	0.82	0.64	0.68	0.013
123478-hexachlorodibenzo-p-dioxin	0.062	0.11	0.084	0.090	0.0017
123678-hexachlorodibenzo-p-dioxin	<0.14	<0.24	<0.19	<0.20	<0.0038
123789-hexachlorodibenzo-p-dioxin	0.087	0.15	0.12	0.13	0.0023
1234678-heptachlorodibenzo-p-dioxin	0.11	0.20	0.15	0.17	0.0031
Octachlorodibenzo-p-dioxin	0.0043	0.0074	0.0057	0.0061	0.00011
2378-tetrachlorodibenzofuran	<0.054	<0.094	<0.073	<0.078	<0.0015
12378-pentachlorodibenzofuran	<0.018	<0.031	<0.024	<0.026	<0.00048
23478-pentachlorodibenzofuran	<0.32	<0.55	<0.43	<0.46	<0.0086
123478-hexachlorodibenzofuran	<0.051	<0.088	<0.069	<0.073	<0.0014
123678-hexachlorodibenzofuran	0.071	0.12	0.096	0.10	0.0019
234678-hexachlorodibenzofuran	0.094	0.16	0.13	0.13	0.0025
123789-hexachlorodibenzofuran	<0.040	<0.070	<0.054	<0.058	<0.0011
1234678-heptachlorodibenzofuran	<0.023	<0.040	<0.031	<0.033	<0.00062
1234789-heptachlorodibenzofuran	<0.0051	<0.0088	<0.0068	<0.0073	<0.00014
Octachlorodibenzofuran	<0.00062	<0.0011	<0.00084	<0.00089	<0.000017
PCB 81	<0.00045	<0.00078	<0.00061	<0.00065	<0.000012
PCB 77	0.0037	0.0064	0.0050	0.0053	0.00010
PCB 123	0.00047	0.00081	0.00063	0.00068	0.000013
PCB 118	0.029	0.050	0.039	0.042	0.00078
PCB 114	0.00075	0.0013	0.0010	0.0011	0.000020
PCB 105	0.0088	0.015	0.012	0.013	0.00024
PCB 126	<0.16	<0.28	<0.22	<0.23	<0.0044
PCB 167	0.00023	0.00040	0.00031	0.00033	0.0000062
PCB 156/157	0.00064	0.0011	0.00087	0.00093	0.000017
PCB 169	<0.025	<0.043	<0.034	<0.036	<0.00067
PCB 189	<0.0000088	<0.000015	<0.000012	<0.000013	<0.00000024
Total Dioxins & Furans Only	<1.71	<2.96	<2.30	<2.46	<0.046
Total PCBs Only	<0.23	<0.40	<0.31	<0.33	<0.0062
Total Dioxins & Furans and PCBs	<1.94	<3.36	<2.61	<2.79	<0.052

* 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	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	0.074	0.13	0.099	0.11	0.0020
12378-pentachlorodibenzo-p-dioxin	0.48	0.82	0.64	0.68	0.013
123478-hexachlorodibenzo-p-dioxin	0.062	0.11	0.084	0.090	0.0017
123678-hexachlorodibenzo-p-dioxin	0.097	0.17	0.13	0.14	0.0026
123789-hexachlorodibenzo-p-dioxin	0.087	0.15	0.12	0.13	0.0023
1234678-heptachlorodibenzo-p-dioxin	0.11	0.20	0.15	0.17	0.0031
Octachlorodibenzo-p-dioxin	0.0043	0.0074	0.0057	0.0061	0.00011
2378-tetrachlorodibenzofuran	0.051	0.088	0.069	0.073	0.0014
12378-pentachlorodibenzofuran	0.012	0.020	0.016	0.017	0.00031
23478-pentachlorodibenzofuran	0.25	0.43	0.33	0.35	0.0066
123478-hexachlorodibenzofuran	0.038	0.067	0.052	0.055	0.0010
123678-hexachlorodibenzofuran	0.071	0.12	0.096	0.10	0.0019
234678-hexachlorodibenzofuran	0.094	0.16	0.13	0.13	0.0025
123789-hexachlorodibenzofuran	0.020	0.035	0.027	0.029	0.00054
1234678-heptachlorodibenzofuran	0.020	0.034	0.027	0.029	0.00053
1234789-heptachlorodibenzofuran	0.0044	0.0076	0.0059	0.0063	0.00012
Octachlorodibenzofuran	0.00050	0.00086	0.00067	0.00071	0.000013
PCB 81	0.00034	0.00059	0.00046	0.00049	0.0000092
PCB 77	0.0037	0.0064	0.0050	0.0053	0.00010
PCB 123	0.00047	0.00081	0.00063	0.00068	0.000013
PCB 118	0.029	0.050	0.039	0.042	0.00078
PCB 114	0.00075	0.0013	0.0010	0.0011	0.000020
PCB 105	0.0088	0.015	0.012	0.013	0.00024
PCB 126	0.13	0.23	0.18	0.19	0.0035
PCB 167	0.00023	0.00040	0.00031	0.00033	0.0000062
PCB 156/157	0.00064	0.0011	0.00087	0.00093	0.000017
PCB 169	0.021	0.037	0.029	0.031	0.00057
PCB 189	0.0000044	0.0000077	0.0000059	0.0000064	0.00000012
Total Dioxins & Furans Only	1.47	2.55	1.98	2.12	0.039
Total PCBs Only	0.20	0.34	0.27	0.28	0.0053
Total Dioxins & Furans and PCBs	1.67	2.89	2.25	2.40	0.045

* 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	516	58.7	102	79.0	85.0	1.57
1,3-Dichlorobenzene	55.8	6.35	11.0	8.55	9.19	0.17
1,4-Dichlorobenzene	50.5	5.74	9.99	7.73	8.32	0.15
1,2-Dichlorobenzene	30.6	3.48	6.06	4.69	5.04	0.093
Total Dichlorobenzene	137	15.6	27.1	21.0	22.6	0.42
1,3,5-trichlorobenzene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
1,2,4-trichlorobenzene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
1,2,3-trichlorobenzene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Total Trichlorobenzene	<36.0	<4.09	<7.12	<5.51	<5.93	<0.11
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.36	<2.37	<1.84	<1.98	<0.037
1,2,3,4-tetrachlorobenzene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Total Tetrachlorobenzene	<24.0	<2.73	<4.75	<3.68	<3.95	<0.073
Pentachlorobenzene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Hexachlorobenzene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Total Chlorobenzenes	<737	<83.8	<146	<113	<121	<2.25

Dry Gas Volume Sampled (Rm³*) :	5.053
Actual Flowrate (m³/s) :	26.8
Dry Reference Flowrate (Rm³/s*) :	15.4
Dry Adjusted Flowrate (Rm³/s**) :	19.9
Wet Reference Flowrate (Rm³/s*) :	18.5

* 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 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	418	47.0	81.9	63.8	67.9	1.27
1,3-Dichlorobenzene	58.2	6.54	11.4	8.88	9.45	0.18
1,4-Dichlorobenzene	60.0	6.75	11.8	9.15	9.74	0.18
1,2-Dichlorobenzene	32.7	3.68	6.40	4.99	5.31	0.099
Total Dichlorobenzene	151	17.0	29.6	23.0	24.5	0.46
1,3,5-trichlorobenzene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
1,2,4-trichlorobenzene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
1,2,3-trichlorobenzene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Total Trichlorobenzene	<36.0	<4.05	<7.05	<5.49	<5.84	<0.11
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.35	<2.35	<1.83	<1.95	<0.036
1,2,3,4-tetrachlorobenzene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Total Tetrachlorobenzene	<24.0	<2.70	<4.70	<3.66	<3.90	<0.073
Pentachlorobenzene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Hexachlorobenzene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Total Chlorobenzenes	<653	<73.4	<128	<99.6	<106	<1.98

Dry Gas Volume Sampled (Rm^3*) :	5.106
Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s*) :	15.5
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	572	64.8	111	86.6	92.2	1.72
1,3-Dichlorobenzene	80.8	9.16	15.7	12.2	13.0	0.24
1,4-Dichlorobenzene	56.3	6.38	10.9	8.53	9.08	0.17
1,2-Dichlorobenzene	37.5	4.25	7.29	5.68	6.04	0.11
Total Dichlorobenzene	175	19.8	34.0	26.4	28.1	0.53
1,3,5-trichlorobenzene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
1,2,4-trichlorobenzene	15.0	1.70	2.92	2.27	2.42	0.045
1,2,3-trichlorobenzene	16.4	1.86	3.19	2.48	2.64	0.049
Total Trichlorobenzene	<43.4	<4.92	<8.44	<6.57	<7.00	<0.13
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.36	<2.33	<1.82	<1.93	<0.036
1,2,3,4-tetrachlorobenzene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Total Tetrachlorobenzene	<24.0	<2.72	<4.67	<3.64	<3.87	<0.072
Pentachlorobenzene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Hexachlorobenzene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Total Chlorobenzenes	<838	<95.0	<163	<127	<135	<2.53

Dry Gas Volume Sampled (Rm^3*) :	5.142
Actual Flowrate (m^3/s) :	26.6
Dry Reference Flowrate (Rm^3/s*) :	15.5
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 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	58.7	47.0	64.8	56.8	15.9
1,3-Dichlorobenzene	6.35	6.54	9.16	7.35	21.3
1,4-Dichlorobenzene	5.74	6.75	6.38	6.29	8.1
1,2-Dichlorobenzene	3.48	3.68	4.25	3.80	10.5
Total Dichlorobenzene	15.6	17.0	19.8	17.4	12.3
1,3,5-trichlorobenzene	<1.36	<1.35	<1.36	<1.36	0.6
1,2,4-trichlorobenzene	<1.36	<1.35	1.70	<1.47	13.5
1,2,3-trichlorobenzene	<1.36	<1.35	1.86	<1.52	19.0
Total Trichlorobenzene	<4.09	<4.05	<4.92	<4.35	11.3
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.36	<1.35	<1.36	<1.36	0.6
1,2,3,4-tetrachlorobenzene	<1.36	<1.35	<1.36	<1.36	0.6
Total Tetrachlorobenzene	<2.73	<2.70	<2.72	<2.72	0.6
Pentachlorobenzene	<1.36	<1.35	<1.36	<1.36	0.6
Hexachlorobenzene	<1.36	<1.35	<1.36	<1.36	0.6
Total Chlorobenzenes	<83.8	<73.4	<95.0	<84.1	12.8

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	102	81.9	111	98.4	15.3
1,3-Dichlorobenzene	11.0	11.4	15.7	12.7	20.4
1,4-Dichlorobenzene	9.99	11.8	10.9	10.9	8.1
1,2-Dichlorobenzene	6.06	6.40	7.29	6.58	9.7
Total Dichlorobenzene	27.1	29.6	34.0	30.2	11.5
1,3,5-trichlorobenzene	<2.37	<2.35	<2.33	<2.35	0.9
1,2,4-trichlorobenzene	<2.37	<2.35	2.92	<2.55	12.6
1,2,3-trichlorobenzene	<2.37	<2.35	3.19	<2.64	18.1
Total Trichlorobenzene	<7.12	<7.05	<8.44	<7.54	10.4
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.37	<2.35	<2.33	<2.35	0.9
1,2,3,4-tetrachlorobenzene	<2.37	<2.35	<2.33	<2.35	0.9
Total Tetrachlorobenzene	<4.75	<4.70	<4.67	<4.71	0.9
Pentachlorobenzene	<2.37	<2.35	<2.33	<2.35	0.9
Hexachlorobenzene	<2.37	<2.35	<2.33	<2.35	0.9
Total Chlorobenzenes	<146	<128	<163	<146	12.1

* 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	79.0	63.8	86.6	76.5	15.2
1,3-Dichlorobenzene	8.55	8.88	12.2	9.89	20.7
1,4-Dichlorobenzene	7.73	9.15	8.53	8.47	8.4
1,2-Dichlorobenzene	4.69	4.99	5.68	5.12	10.0
Total Dichlorobenzene	21.0	23.0	26.4	23.5	11.8
1,3,5-trichlorobenzene	<1.84	<1.83	<1.82	<1.83	0.6
1,2,4-trichlorobenzene	<1.84	<1.83	2.27	<1.98	12.8
1,2,3-trichlorobenzene	<1.84	<1.83	2.48	<2.05	18.3
Total Trichlorobenzene	<5.51	<5.49	<6.57	<5.86	10.6
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.84	<1.83	<1.82	<1.83	0.6
1,2,3,4-tetrachlorobenzene	<1.84	<1.83	<1.82	<1.83	0.6
Total Tetrachlorobenzene	<3.68	<3.66	<3.64	<3.66	0.6
Pentachlorobenzene	<1.84	<1.83	<1.82	<1.83	0.6
Hexachlorobenzene	<1.84	<1.83	<1.82	<1.83	0.6
Total Chlorobenzenes	<113	<99.6	<127	<113	12.1

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

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

Specific Isomer	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Monochlorobenzene	85.0	67.9	92.2	81.7	15.3
1,3-Dichlorobenzene	9.19	9.45	13.0	10.6	20.3
1,4-Dichlorobenzene	8.32	9.74	9.08	9.04	7.9
1,2-Dichlorobenzene	5.04	5.31	6.04	5.46	9.5
Total Dichlorobenzene	22.6	24.5	28.1	25.1	11.3
1,3,5-trichlorobenzene	<1.98	<1.95	<1.93	<1.95	1.1
1,2,4-trichlorobenzene	<1.98	<1.95	2.42	<2.11	12.5
1,2,3-trichlorobenzene	<1.98	<1.95	2.64	<2.19	18.0
Total Trichlorobenzene	<5.93	<5.84	<7.00	<6.26	10.3
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.98	<1.95	<1.93	<1.95	1.1
1,2,3,4-tetrachlorobenzene	<1.98	<1.95	<1.93	<1.95	1.1
Total Tetrachlorobenzene	<3.95	<3.90	<3.87	<3.91	1.1
Pentachlorobenzene	<1.98	<1.95	<1.93	<1.95	1.1
Hexachlorobenzene	<1.98	<1.95	<1.93	<1.95	1.1
Total Chlorobenzenes	<121	<106	<135	<121	12.0

* 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	1.57	1.27	1.72	1.52	15.2
1,3-Dichlorobenzene	0.17	0.18	0.24	0.20	20.7
1,4-Dichlorobenzene	0.15	0.18	0.17	0.17	8.4
1,2-Dichlorobenzene	0.093	0.099	0.11	0.10	10.0
Total Dichlorobenzene	0.42	0.46	0.53	0.47	11.8
1,3,5-trichlorobenzene	<0.037	<0.036	<0.036	<0.036	0.6
1,2,4-trichlorobenzene	<0.037	<0.036	0.045	<0.039	12.8
1,2,3-trichlorobenzene	<0.037	<0.036	0.049	<0.041	18.3
Total Trichlorobenzene	<0.11	<0.11	<0.13	<0.12	10.6
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.037	<0.036	<0.036	<0.036	0.6
1,2,3,4-tetrachlorobenzene	<0.037	<0.036	<0.036	<0.036	0.6
Total Tetrachlorobenzene	<0.073	<0.073	<0.072	<0.073	0.6
Pentachlorobenzene	<0.037	<0.036	<0.036	<0.036	0.6
Hexachlorobenzene	<0.037	<0.036	<0.036	<0.036	0.6
Total Chlorobenzenes	<2.25	<1.98	<2.53	<2.25	12.1

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	56.8	98.4	76.5	81.7	1.52
1,3-Dichlorobenzene	7.35	12.7	9.89	10.6	0.20
1,4-Dichlorobenzene	6.29	10.9	8.47	9.04	0.17
1,2-Dichlorobenzene	3.80	6.58	5.12	5.46	0.10
Total Dichlorobenzene	17.4	30.2	23.5	25.1	0.47
1,3,5-trichlorobenzene	<1.36	<2.35	<1.83	<1.95	<0.036
1,2,4-trichlorobenzene	<1.47	<2.55	<1.98	<2.11	<0.039
1,2,3-trichlorobenzene	<1.52	<2.64	<2.05	<2.19	<0.041
Total Trichlorobenzene	<4.35	<7.54	<5.86	<6.26	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.36	<2.35	<1.83	<1.95	<0.036
1,2,3,4-tetrachlorobenzene	<1.36	<2.35	<1.83	<1.95	<0.036
Total Tetrachlorobenzene	<2.72	<4.71	<3.66	<3.91	<0.073
Pentachlorobenzene	<1.36	<2.35	<1.83	<1.95	<0.036
Hexachlorobenzene	<1.36	<2.35	<1.83	<1.95	<0.036
Total Chlorobenzenes	<84.1	<146	<113	<121	<2.25

* 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	<12	<12
1,3-Dichlorobenzene	<12	<12
1,4-Dichlorobenzene	17.7	13.3
1,2-Dichlorobenzene	<12	<12
Total Dichlorobenzene	<41.7	<37.3
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	<138	<133

"<" 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 - Indicates that this compound is not quantifiable due to spike recovery loss.

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	<300	<34.1	<59.4	<45.9	<49.4	<0.91
3 & 4-monochlorophenol	<300	<34.1	<59.4	<45.9	<49.4	<0.91
Total Monochlorophenols	<600	<68.2	<119	<91.9	<98.8	<1.83
2,6-dichlorophenol	<300	<34.1	<59.4	<45.9	<49.4	<0.91
2,4 & 2,5-dichlorophenol	<300	<34.1	<59.4	<45.9	<49.4	<0.91
3,5-dichlorophenol	<300	<34.1	<59.4	<45.9	<49.4	<0.91
2,3-dichlorophenol	<300	<34.1	<59.4	<45.9	<49.4	<0.91
3,4-dichlorophenol	787	89.5	156	121	130	2.40
Total Dichlorophenols	<1987	<226	<393	<304	<327	<6.06
2,4,6-trichlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
2,3,6-trichlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
2,3,5-trichlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
2,4,5-trichlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
2,3,4-trichlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
3,4,5-trichlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
Total Trichlorophenols	<360	<40.9	<71.2	<55.1	<59.3	<1.10
2,3,5,6/2,3,4,6-tetrachlorophenol	119	13.5	23.6	18.2	19.6	0.36
2,3,4,5-tetrachlorophenol	<60	<6.82	<11.9	<9.19	<9.88	<0.18
Total Tetrachlorophenols	<179	<20.4	<35.4	<27.4	<29.5	<0.55
Pentachlorophenol	278	31.6	55.0	42.6	45.8	0.85
Total Chlorophenols	<3404	<387	<674	<521	<561	<10.4

Dry Gas Volume Sampled (Rm^3*) :	5.053
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
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

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	<1000	<112	<196	<153	<162	<3.04
3 & 4-monochlorophenol	<1000	<112	<196	<153	<162	<3.04
Total Monochlorophenols	<2000	<225	<392	<305	<325	<6.07
2,6-dichlorophenol	<1000	<112	<196	<153	<162	<3.04
2,4 & 2,5-dichlorophenol	<1000	<112	<196	<153	<162	<3.04
3,5-dichlorophenol	<1000	<112	<196	<153	<162	<3.04
2,3-dichlorophenol	<1000	<112	<196	<153	<162	<3.04
3,4-dichlorophenol	3980	447	779	607	646	12.1
Total Dichlorophenols	<7980	<897	<1563	<1217	<1295	<24.2
2,4,6-trichlorophenol	<60	<6.75	<11.8	<9.15	<9.74	<0.18
2,3,6-trichlorophenol	<60	<6.75	<11.8	<9.15	<9.74	<0.18
2,3,5-trichlorophenol	<60	<6.75	<11.8	<9.15	<9.74	<0.18
2,4,5-trichlorophenol	<60	<6.75	<11.8	<9.15	<9.74	<0.18
2,3,4-trichlorophenol	<60	<6.75	<11.8	<9.15	<9.74	<0.18
3,4,5-trichlorophenol	<60	<6.75	<11.8	<9.15	<9.74	<0.18
Total Trichlorophenols	<360	<40.5	<70.5	<54.9	<58.4	<1.09
2,3,5,6/2,3,4,6-tetrachlorophenol	160	18.0	31.3	24.4	26.0	0.49
2,3,4,5-tetrachlorophenol	83.1	9.34	16.3	12.7	13.5	0.25
Total Tetrachlorophenols	243	27.3	47.6	37.1	39.5	0.74
Pentachlorophenol	1400	157	274	214	227	4.25
Total Chlorophenols	<11983	<1347	<2347	<1828	<1945	<36.4

Dry Gas Volume Sampled (Rm^3*) :	5.106
Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s*) :	15.5
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	NQ	NQ	NQ	NQ	NQ	NQ
3 & 4-monochlorophenol	NQ	NQ	NQ	NQ	NQ	NQ
Total Monochlorophenols	NQ	NQ	NQ	NQ	NQ	NQ
2,6-dichlorophenol	<1000	<113	<194	<151	<161	<3.01
2,4 & 2,5-dichlorophenol	<1000	<113	<194	<151	<161	<3.01
3,5-dichlorophenol	<1000	<113	<194	<151	<161	<3.01
2,3-dichlorophenol	<1000	<113	<194	<151	<161	<3.01
3,4-dichlorophenol	2570	291	500	389	414	7.75
Total Dichlorophenols	<6570	<745	<1278	<995	<1059	<19.8
2,4,6-trichlorophenol	<60	<6.80	<11.7	<9.09	<9.67	<0.18
2,3,6-trichlorophenol	<60	<6.80	<11.7	<9.09	<9.67	<0.18
2,3,5-trichlorophenol	<60	<6.80	<11.7	<9.09	<9.67	<0.18
2,4,5-trichlorophenol	<60	<6.80	<11.7	<9.09	<9.67	<0.18
2,3,4-trichlorophenol	<60	<6.80	<11.7	<9.09	<9.67	<0.18
3,4,5-trichlorophenol	<60	<6.80	<11.7	<9.09	<9.67	<0.18
Total Trichlorophenols	<360	<40.8	<70.0	<54.5	<58.0	<1.09
2,3,5,6/2,3,4,6-tetrachlorophenol	205	23.2	39.9	31.1	33.0	0.62
2,3,4,5-tetrachlorophenol	114	12.9	22.2	17.3	18.4	0.34
Total Tetrachlorophenols	319	36.2	62.0	48.3	51.4	0.96
Pentachlorophenol	273	30.9	53.1	41.4	44.0	0.82
Total Chlorophenols	<7522	<852	<1463	<1139	<1213	<22.7

Dry Gas Volume Sampled (Rm^3*) :	5.142
Actual Flowrate (m^3/s) :	26.6
Dry Reference Flowrate (Rm^3/s*) :	15.5
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.

NQ - Indicates that this compound is not quantifiable due to spike recovery loss.

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	<34.1	<112	NQ	<73.3	75.6
3 & 4-monochlorophenol	<34.1	<112	NQ	<73.3	75.6
Total Monochlorophenols	<68.2	<225	NQ	<147	75.6
2,6-dichlorophenol	<34.1	<112	<113	<86.6	52.5
2,4 & 2,5-dichlorophenol	<34.1	<112	<113	<86.6	52.5
3,5-dichlorophenol	<34.1	<112	<113	<86.6	52.5
2,3-dichlorophenol	<34.1	<112	<113	<86.6	52.5
3,4-dichlorophenol	89.5	447	291	276	65.0
Total Dichlorophenols	<226	<897	<745	<623	56.5
2,4,6-trichlorophenol	<6.82	<6.75	<6.80	<6.79	0.6
2,3,6-trichlorophenol	<6.82	<6.75	<6.80	<6.79	0.6
2,3,5-trichlorophenol	<6.82	<6.75	<6.80	<6.79	0.6
2,4,5-trichlorophenol	<6.82	<6.75	<6.80	<6.79	0.6
2,3,4-trichlorophenol	<6.82	<6.75	<6.80	<6.79	0.6
3,4,5-trichlorophenol	<6.82	<6.75	<6.80	<6.79	0.6
Total Trichlorophenols	<40.9	<40.5	<40.8	<40.7	0.6
2,3,5,6/2,3,4,6-tetrachlorophenol	13.5	18.0	23.2	18.3	26.6
2,3,4,5-tetrachlorophenol	<6.82	9.34	12.9	<9.70	31.6
Total Tetrachlorophenols	<20.4	27.3	36.2	<27.9	28.3
Pentachlorophenol	31.6	157	30.9	73.3	99.3
Total Chlorophenols	<387	<1347	<852	<862	55.7

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	<59.4	<196	NQ	<128	75.6
3 & 4-monochlorophenol	<59.4	<196	NQ	<128	75.6
Total Monochlorophenols	<119	<392	NQ	<255	75.6
2,6-dichlorophenol	<59.4	<196	<194	<150	52.3
2,4 & 2,5-dichlorophenol	<59.4	<196	<194	<150	52.3
3,5-dichlorophenol	<59.4	<196	<194	<150	52.3
2,3-dichlorophenol	<59.4	<196	<194	<150	52.3
3,4-dichlorophenol	156	779	500	478	65.3
Total Dichlorophenols	<393	<1563	<1278	<1078	56.6
2,4,6-trichlorophenol	<11.9	<11.8	<11.7	<11.8	0.9
2,3,6-trichlorophenol	<11.9	<11.8	<11.7	<11.8	0.9
2,3,5-trichlorophenol	<11.9	<11.8	<11.7	<11.8	0.9
2,4,5-trichlorophenol	<11.9	<11.8	<11.7	<11.8	0.9
2,3,4-trichlorophenol	<11.9	<11.8	<11.7	<11.8	0.9
3,4,5-trichlorophenol	<11.9	<11.8	<11.7	<11.8	0.9
Total Trichlorophenols	<71.2	<70.5	<70.0	<70.6	0.9
2,3,5,6/2,3,4,6-tetrachlorophenol	23.6	31.3	39.9	31.6	25.8
2,3,4,5-tetrachlorophenol	<11.9	16.3	22.2	<16.8	30.8
Total Tetrachlorophenols	<35.4	47.6	62.0	<48.4	27.5
Pentachlorophenol	55.0	274	53.1	127	99.7
Total Chlorophenols	<674	<2347	<1463	<1494	56.0

* 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	<45.9	<153	NQ	<99.2	76.0
3 & 4-monochlorophenol	<45.9	<153	NQ	<99.2	76.0
Total Monochlorophenols	<91.9	<305	NQ	<198	76.0
2,6-dichlorophenol	<45.9	<153	<151	<117	52.5
2,4 & 2,5-dichlorophenol	<45.9	<153	<151	<117	52.5
3,5-dichlorophenol	<45.9	<153	<151	<117	52.5
2,3-dichlorophenol	<45.9	<153	<151	<117	52.5
3,4-dichlorophenol	121	607	389	372	65.5
Total Dichlorophenols	<304	<1217	<995	<839	56.8
2,4,6-trichlorophenol	<9.19	<9.15	<9.09	<9.14	0.6
2,3,6-trichlorophenol	<9.19	<9.15	<9.09	<9.14	0.6
2,3,5-trichlorophenol	<9.19	<9.15	<9.09	<9.14	0.6
2,4,5-trichlorophenol	<9.19	<9.15	<9.09	<9.14	0.6
2,3,4-trichlorophenol	<9.19	<9.15	<9.09	<9.14	0.6
3,4,5-trichlorophenol	<9.19	<9.15	<9.09	<9.14	0.6
Total Trichlorophenols	<55.1	<54.9	<54.5	<54.9	0.6
2,3,5,6/2,3,4,6-tetrachlorophenol	18.2	24.4	31.1	24.6	26.1
2,3,4,5-tetrachlorophenol	<9.19	12.7	17.3	<13.0	31.1
Total Tetrachlorophenols	<27.4	37.1	48.3	<37.6	27.8
Pentachlorophenol	42.6	214	41.4	99.2	99.9
Total Chlorophenols	<521	<1828	<1139	<1163	56.2

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

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

Specific Isomer	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
2-monochlorophenol	<49.4	<162	NQ	<106	75.4
3 & 4-monochlorophenol	<49.4	<162	NQ	<106	75.4
Total Monochlorophenols	<98.8	<325	NQ	<212	75.4
2,6-dichlorophenol	<49.4	<162	<161	<124	52.2
2,4 & 2,5-dichlorophenol	<49.4	<162	<161	<124	52.2
3,5-dichlorophenol	<49.4	<162	<161	<124	52.2
2,3-dichlorophenol	<49.4	<162	<161	<124	52.2
3,4-dichlorophenol	130	646	414	397	65.2
Total Dichlorophenols	<327	<1295	<1059	<894	56.5
2,4,6-trichlorophenol	<9.88	<9.74	<9.67	<9.77	1.1
2,3,6-trichlorophenol	<9.88	<9.74	<9.67	<9.77	1.1
2,3,5-trichlorophenol	<9.88	<9.74	<9.67	<9.77	1.1
2,4,5-trichlorophenol	<9.88	<9.74	<9.67	<9.77	1.1
2,3,4-trichlorophenol	<9.88	<9.74	<9.67	<9.77	1.1
3,4,5-trichlorophenol	<9.88	<9.74	<9.67	<9.77	1.1
Total Trichlorophenols	<59.3	<58.4	<58.0	<58.6	1.1
2,3,5,6/2,3,4,6-tetrachlorophenol	19.6	26.0	33.0	26.2	25.7
2,3,4,5-tetrachlorophenol	<9.88	13.5	18.4	<13.9	30.6
Total Tetrachlorophenols	<29.5	39.5	51.4	<40.1	27.4
Pentachlorophenol	45.8	227	44.0	106	99.6
Total Chlorophenols	<561	<1945	<1213	<1240	55.9

* 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				Coefficient of Variation
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	%
2-monochlorophenol	<0.91	<3.04	NQ	<1.97	76.0
3 & 4-monochlorophenol	<0.91	<3.04	NQ	<1.97	76.0
Total Monochlorophenols	<1.83	<6.07	NQ	<3.95	76.0
2,6-dichlorophenol	<0.91	<3.04	<3.01	<2.32	52.5
2,4 & 2,5-dichlorophenol	<0.91	<3.04	<3.01	<2.32	52.5
3,5-dichlorophenol	<0.91	<3.04	<3.01	<2.32	52.5
2,3-dichlorophenol	<0.91	<3.04	<3.01	<2.32	52.5
3,4-dichlorophenol	2.40	12.1	7.75	7.41	65.5
Total Dichlorophenols	<6.06	<24.2	<19.8	<16.7	56.8
2,4,6-trichlorophenol	<0.18	<0.18	<0.18	<0.18	0.6
2,3,6-trichlorophenol	<0.18	<0.18	<0.18	<0.18	0.6
2,3,5-trichlorophenol	<0.18	<0.18	<0.18	<0.18	0.6
2,4,5-trichlorophenol	<0.18	<0.18	<0.18	<0.18	0.6
2,3,4-trichlorophenol	<0.18	<0.18	<0.18	<0.18	0.6
3,4,5-trichlorophenol	<0.18	<0.18	<0.18	<0.18	0.6
Total Trichlorophenols	<1.10	<1.09	<1.09	<1.09	0.6
2,3,5,6/2,3,4,6-tetrachlorophenol	0.36	0.49	0.62	0.49	26.1
2,3,4,5-tetrachlorophenol	<0.18	0.25	0.34	<0.26	31.1
Total Tetrachlorophenols	<0.55	0.74	0.96	<0.75	27.8
Pentachlorophenol	0.85	4.25	0.82	1.97	99.9
Total Chlorophenols	<10.4	<36.4	<22.7	<23.1	56.2

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	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ng/m³	ng/Rm³*	ng/Rm³**	ng/Rm³*	µg/s
2-monochlorophenol	<73.3	<128	<99.2	<106	<1.97
3 & 4-monochlorophenol	<73.3	<128	<99.2	<106	<1.97
Total Monochlorophenols	<147	<255	<198	<212	<3.95
2,6-dichlorophenol	<86.6	<150	<117	<124	<2.32
2,4 & 2,5-dichlorophenol	<86.6	<150	<117	<124	<2.32
3,5-dichlorophenol	<86.6	<150	<117	<124	<2.32
2,3-dichlorophenol	<86.6	<150	<117	<124	<2.32
3,4-dichlorophenol	276	478	372	397	7.41
Total Dichlorophenols	<623	<1078	<839	<894	<16.7
2,4,6-trichlorophenol	<6.79	<11.8	<9.14	<9.77	<0.18
2,3,6-trichlorophenol	<6.79	<11.8	<9.14	<9.77	<0.18
2,3,5-trichlorophenol	<6.79	<11.8	<9.14	<9.77	<0.18
2,4,5-trichlorophenol	<6.79	<11.8	<9.14	<9.77	<0.18
2,3,4-trichlorophenol	<6.79	<11.8	<9.14	<9.77	<0.18
3,4,5-trichlorophenol	<6.79	<11.8	<9.14	<9.77	<0.18
Total Trichlorophenols	<40.7	<70.6	<54.9	<58.6	<1.09
2,3,5,6/2,3,4,6-tetrachlorophenol	18.3	31.6	24.6	26.2	0.49
2,3,4,5-tetrachlorophenol	<9.70	<16.8	<13.0	<13.9	<0.26
Total Tetrachlorophenols	<27.9	<48.4	<37.6	<40.1	<0.75
Pentachlorophenol	73.3	127	99.2	106	1.97
Total Chlorophenols	<862	<1494	<1163	<1240	<23.1

* At 25°C and 1 atmosphere

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

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

Congener Group	Media Blank Total ng	Blank Train Total ng
2-monochlorophenol	<60	NQ
3 & 4-monochlorophenol	<60	NQ
Total Monochlorophenols	<120	NQ
2,6-dichlorophenol	<200	<500
2,4 & 2,5-dichlorophenol	<60	<500
3,5-dichlorophenol	<200	1210
2,3-dichlorophenol	<200	<500
3,4-dichlorophenol	<200	1930
Total Dichlorophenols	<860	<4640
2,4,6-trichlorophenol	<60	<60
2,3,6-trichlorophenol	<60	<60
2,3,5-trichlorophenol	<60	<60
2,4,5-trichlorophenol	<60	82.6
2,3,4-trichlorophenol	<60	<60
3,4,5-trichlorophenol	<60	249
Total Trichlorophenols	<360	<572
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	146
2,3,4,5-tetrachlorophenol	<60	60.4
Total Tetrachlorophenols	<120	206
Pentachlorophenol	<60	215
Total Chlorophenols	<1520	<5633

"<" 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 - Indicates that this compound is not quantifiable due to spike recovery loss.

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	<1.36	<2.37	<1.84	<1.98	<0.037
Acenaphthylene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Anthracene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(a)Anthracene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(b)Fluoranthene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(k)Fluoranthene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(a)fluorene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(b)fluorene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(g,h,i)Perylene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(a)Pyrene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Benzo(e)Pyrene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Biphenyl	41.2	4.69	8.15	6.31	6.79	0.126
2-Chloronaphthalene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Chrysene/Triphenylene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Coronene	<60	<6.82	<11.9	<9.19	<9.88	<0.18
Dibenzo(a,c/a,h)Anthracene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Dibenzo(a,e)pyrene	<60	<6.82	<11.9	<9.19	<9.88	<0.18
9,10-dimethylanthracene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
7,12-Dimethylbenzo(a)anthracene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Fluoranthene	71.8	8.17	14.2	11.0	11.8	0.22
Fluorene	39.1	4.45	7.74	5.99	6.44	0.12
Indeno(1,2,3-cd)Pyrene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
2-methylanthracene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
3-Methylcholanthrene	<60	<6.82	<11.9	<9.19	<9.88	<0.18
1-Methylnaphthalene	26.8	3.05	5.30	4.10	4.42	0.082
2-Methylnaphthalene	38.3	4.36	7.58	5.87	6.31	0.12
1-Methylphenanthrene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
9-Methylphenanthrene	27.7	3.15	5.48	4.24	4.56	0.084
Naphthalene	102	11.6	20.2	15.6	16.8	0.31
Perylene	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Phenanthrene	444	50.5	87.9	68.0	73.1	1.35
Picene	<60	<6.82	<11.9	<9.19	<9.88	<0.18
Pyrene	98.4	11.2	19.5	15.1	16.2	0.30
Tetralin	41.5	4.72	8.21	6.36	6.84	0.13
m-terphenyl	<12	<1.36	<2.37	<1.84	<1.98	<0.037
o-Terphenyl	<12	<1.36	<2.37	<1.84	<1.98	<0.037
p-terphenyl	<12	<1.36	<2.37	<1.84	<1.98	<0.037
Total	<1447	<165	<286	<222	<238	<4.41

Dry Gas Volume Sampled (Rm³*) :	5.053
Actual Flowrate (m³/s) :	26.8
Dry Reference Flowrate (Rm³/s*) :	15.4
Dry Adjusted Flowrate (Rm³/s**) :	19.9
Wet Reference Flowrate (Rm³/s*) :	18.5

* 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 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	21.2	2.38	4.15	3.23	3.44	0.064
Acenaphthylene	15.8	1.78	3.09	2.41	2.56	0.048
Anthracene	17.3	1.95	3.39	2.64	2.81	0.053
Benzo(a)Anthracene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Benzo(b)Fluoranthene	32.3	3.63	6.33	4.93	5.24	0.098
Benzo(k)Fluoranthene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Benzo(a)fluorene	16.4	1.84	3.21	2.50	2.66	0.050
Benzo(b)fluorene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Benzo(g,h,i)Perylene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Benzo(a)Pyrene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Benzo(e)Pyrene	25.8	2.90	5.05	3.94	4.19	0.078
Biphenyl	89.6	10.1	17.5	13.7	14.5	0.27
2-Chloronaphthalene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Chrysene/Triphenylene	177	19.9	34.7	27.0	28.7	0.54
Coronene	<60	<6.75	<11.8	<9.15	<9.74	<0.18
Dibenzo(a,c/a,h)Anthracene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Dibenzo(a,e)pyrene	<60	<6.75	<11.8	<9.15	<9.74	<0.18
9,10-dimethylanthracene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
7,12-Dimethylbenzo(a)anthracene	60.0	6.75	11.8	9.15	9.74	0.18
Fluoranthene	153	17.2	30.0	23.3	24.8	0.46
Fluorene	60.2	6.77	11.8	9.18	9.77	0.18
Indeno(1,2,3-cd)Pyrene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
2-methylanthracene	23.1	2.60	4.52	3.52	3.75	0.070
3-Methylcholanthrene	<60	<6.75	<11.8	<9.15	<9.74	<0.18
1-Methylnaphthalene	71.3	8.02	14.0	10.9	11.6	0.22
2-Methylnaphthalene	123	13.8	24.1	18.8	20.0	0.37
1-Methylphenanthrene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
9-Methylphenanthrene	67.7	7.61	13.3	10.3	11.0	0.21
Naphthalene	308	34.6	60.3	47.0	50.0	0.93
Perylene	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Phenanthrene	766	86.1	150	117	124	2.33
Picene	<60	<6.75	<11.8	<9.15	<9.74	<0.18
Pyrene	150	16.9	29.4	22.9	24.4	0.46
Tetralin	32.8	3.69	6.42	5.00	5.32	0.10
m-terphenyl	<12	<1.35	<2.35	<1.83	<1.95	<0.036
o-Terphenyl	12.0	1.35	2.35	1.83	1.95	0.036
p-terphenyl	<12	<1.35	<2.35	<1.83	<1.95	<0.036
Total	<2619	<294	<513	<399	<425	<7.95

Dry Gas Volume Sampled (Rm^3*) :	5.106
Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s*) :	15.5
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 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	1.37	2.35	1.83	1.95	0.036
Acenaphthylene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Anthracene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(a)Anthracene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(b)Fluoranthene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(k)Fluoranthene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(a)fluorene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(b)fluorene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(g,h,i)Perylene	15.7	1.78	3.05	2.38	2.53	0.047
Benzo(a)Pyrene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Benzo(e)Pyrene	20.4	2.31	3.97	3.09	3.29	0.061
Biphenyl	458	51.9	89.1	69.4	73.8	1.38
2-Chloronaphthalene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Chrysene/Triphenylene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Coronene	<60	<6.80	<11.7	<9.09	<9.67	<0.18
Dibenzo(a,c/a,h)Anthracene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Dibenzo(a,e)pyrene	<60	<6.80	<11.7	<9.09	<9.67	<0.18
9,10-dimethylanthracene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
7,12-Dimethylbenzo(a)anthracene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Fluoranthene	88.3	10.0	17.2	13.4	14.2	0.27
Fluorene	55.1	6.24	10.7	8.35	8.88	0.17
Indeno(1,2,3-cd)Pyrene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
2-methylanthracene	15.1	1.71	2.94	2.29	2.43	0.046
3-Methylcholanthrene	<60	<6.80	<11.7	<9.09	<9.67	<0.18
1-Methylnaphthalene	54.8	6.21	10.7	8.30	8.83	0.17
2-Methylnaphthalene	96.5	10.9	18.8	14.6	15.6	0.29
1-Methylphenanthrene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
9-Methylphenanthrene	42.0	4.76	8.17	6.36	6.77	0.13
Naphthalene	172	19.5	33.5	26.1	27.7	0.52
Perylene	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Phenanthrene	644	73.0	125	97.6	103.8	1.94
Picene	<60	<6.80	<11.7	<9.09	<9.67	<0.18
Pyrene	75.8	8.59	14.7	11.5	12.2	0.23
Tetralin	42.0	4.76	8.17	6.36	6.77	0.13
m-terphenyl	<12	<1.36	<2.33	<1.82	<1.93	<0.036
o-Terphenyl	17.5	1.98	3.40	2.65	2.82	0.053
p-terphenyl	<12	<1.36	<2.33	<1.82	<1.93	<0.036
Total	<2265	<257	<441	<343	<365	<6.83

Dry Gas Volume Sampled (Rm³*) :	5.142
Actual Flowrate (m³/s) :	26.6
Dry Reference Flowrate (Rm³/s*) :	15.5
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 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	<1.36	2.38	1.37	<1.71	34.4
Acenaphthylene	<1.36	1.78	<1.36	<1.50	15.9
Anthracene	<1.36	1.95	<1.36	<1.56	21.6
Benzo(a)Anthracene	<1.36	<1.35	<1.36	<1.36	0.6
Benzo(b)Fluoranthene	<1.36	3.63	<1.36	<2.12	61.8
Benzo(k)Fluoranthene	<1.36	<1.35	<1.36	<1.36	0.6
Benzo(a)fluorene	<1.36	1.84	<1.36	<1.52	18.3
Benzo(b)fluorene	<1.36	<1.35	<1.36	<1.36	0.6
Benzo(g,h,i)Perylene	<1.36	<1.35	1.78	<1.50	16.3
Benzo(a)Pyrene	<1.36	<1.35	<1.36	<1.36	0.6
Benzo(e)Pyrene	<1.36	2.90	2.31	<2.19	35.3
Biphenyl	4.69	10.1	51.9	22.2	116
2-Chloronaphthalene	<1.36	<1.35	<1.36	<1.36	0.6
Chrysene/Triphenylene	<1.36	19.9	<1.36	<7.54	142
Coronene	<6.82	<6.75	<6.80	<6.79	0.6
Dibenzo(a,c/a,h)Anthracene	<1.36	<1.35	<1.36	<1.36	0.6
Dibenzo(a,e)pyrene	<6.82	<6.75	<6.80	<6.79	0.6
9,10-dimethylanthracene	<1.36	<1.35	<1.36	<1.36	0.6
7,12-Dimethylbenzo(a)anthracene	<1.36	6.75	<1.36	<3.16	98.5
Fluoranthene	8.17	17.2	10.0	11.8	40.5
Fluorene	4.45	6.77	6.24	5.82	20.9
Indeno(1,2,3-cd)Pyrene	<1.36	<1.35	<1.36	<1.36	0.6
2-methylanthracene	<1.36	2.60	1.71	<1.89	33.6
3-Methylcholanthrene	<6.82	<6.75	<6.80	<6.79	0.6
1-Methylnaphthalene	3.05	8.02	6.21	5.76	43.7
2-Methylnaphthalene	4.36	13.8	10.9	9.71	50.0
1-Methylphenanthrene	<1.36	<1.35	<1.36	<1.36	0.6
9-Methylphenanthrene	3.15	7.61	4.76	5.17	43.7
Naphthalene	11.6	34.6	19.5	21.9	53.4
Perylene	<1.36	<1.35	<1.36	<1.36	0.6
Phenanthrene	50.5	86.1	73.0	69.9	25.8
Picene	<6.82	<6.75	<6.80	<6.79	0.6
Pyrene	11.2	16.9	8.59	12.2	34.6
Tetralin	4.72	3.69	4.76	4.39	13.8
m-terphenyl	<1.36	<1.35	<1.36	<1.36	0.6
o-Terphenyl	<1.36	1.35	1.98	<1.57	23.1
p-terphenyl	<1.36	<1.35	<1.36	<1.36	0.6
Total	<165	<294	<257	<239	28.0

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	<2.37	4.15	2.35	<2.96	34.9
Acenaphthylene	<2.37	3.09	<2.33	<2.60	16.4
Anthracene	<2.37	3.39	<2.33	<2.70	22.1
Benzo(a)Anthracene	<2.37	<2.35	<2.33	<2.35	0.9
Benzo(b)Fluoranthene	<2.37	6.33	<2.33	<3.68	62.3
Benzo(k)Fluoranthene	<2.37	<2.35	<2.33	<2.35	0.9
Benzo(a)fluorene	<2.37	3.21	<2.33	<2.64	18.8
Benzo(b)fluorene	<2.37	<2.35	<2.33	<2.35	0.9
Benzo(g,h,i)Perylene	<2.37	<2.35	3.05	<2.59	15.4
Benzo(a)Pyrene	<2.37	<2.35	<2.33	<2.35	0.9
Benzo(e)Pyrene	<2.37	5.05	3.97	<3.80	35.5
Biphenyl	8.15	17.5	89.1	38.3	116
2-Chloronaphthalene	<2.37	<2.35	<2.33	<2.35	0.9
Chrysene/Triphenylene	<2.37	34.7	<2.33	<13.1	142
Coronene	<11.9	<11.8	<11.7	<11.8	0.9
Dibenzo(a,c/a,h)Anthracene	<2.37	<2.35	<2.33	<2.35	0.9
Dibenzo(a,e)pyrene	<11.9	<11.8	<11.7	<11.8	0.9
9,10-dimethylanthracene	<2.37	<2.35	<2.33	<2.35	0.9
7,12-Dimethylbenzo(a)anthracene	<2.37	11.8	<2.33	<5.49	98.9
Fluoranthene	14.2	30.0	17.2	20.4	40.9
Fluorene	7.74	11.8	10.7	10.1	20.8
Indeno(1,2,3-cd)Pyrene	<2.37	<2.35	<2.33	<2.35	0.9
2-methylanthracene	<2.37	4.52	2.94	<3.28	34.0
3-Methylcholanthrene	<11.9	<11.8	<11.7	<11.8	0.9
1-Methylnaphthalene	5.30	14.0	10.7	9.98	43.8
2-Methylnaphthalene	7.58	24.1	18.8	16.8	50.1
1-Methylphenanthrene	<2.37	<2.35	<2.33	<2.35	0.9
9-Methylphenanthrene	5.48	13.3	8.17	8.97	44.0
Naphthalene	20.2	60.3	33.5	38.0	53.8
Perylene	<2.37	<2.35	<2.33	<2.35	0.9
Phenanthrene	87.9	150	125	121	25.8
Picene	<11.9	<11.8	<11.7	<11.8	0.9
Pyrene	19.5	29.4	14.7	21.2	35.2
Tetralin	8.21	6.42	8.17	7.60	13.4
m-terphenyl	<2.37	<2.35	<2.33	<2.35	0.9
o-Terphenyl	<2.37	2.35	3.40	<2.71	22.2
p-terphenyl	<2.37	<2.35	<2.33	<2.35	0.9
Total	<286	<513	<441	<413	28.0

* 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 of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Acenaphthene	<1.84	3.23	1.83	<2.30	35.1
Acenaphthylene	<1.84	2.41	<1.82	<2.02	16.6
Anthracene	<1.84	2.64	<1.82	<2.10	22.3
Benzo(a)Anthracene	<1.84	<1.83	<1.82	<1.83	0.6
Benzo(b)Fluoranthene	<1.84	4.93	<1.82	<2.86	62.5
Benzo(k)Fluoranthene	<1.84	<1.83	<1.82	<1.83	0.6
Benzo(a)fluorene	<1.84	2.50	<1.82	<2.05	19.0
Benzo(b)fluorene	<1.84	<1.83	<1.82	<1.83	0.6
Benzo(g,h,i)Perylene	<1.84	<1.83	2.38	<2.02	15.6
Benzo(a)Pyrene	<1.84	<1.83	<1.82	<1.83	0.6
Benzo(e)Pyrene	<1.84	3.94	3.09	<2.95	35.7
Biphenyl	6.31	13.7	69.4	29.8	116
2-Chloronaphthalene	<1.84	<1.83	<1.82	<1.83	0.6
Chrysene/Triphenylene	<1.84	27.0	<1.82	<10.2	142
Coronene	<9.19	<9.15	<9.09	<9.14	0.6
Dibenzo(a,c/a,h)Anthracene	<1.84	<1.83	<1.82	<1.83	0.6
Dibenzo(a,e)pyrene	<9.19	<9.15	<9.09	<9.14	0.6
9,10-dimethylanthracene	<1.84	<1.83	<1.82	<1.83	0.6
7,12-Dimethylbenzo(a)anthracene	<1.84	9.15	<1.82	<4.27	99.1
Fluoranthene	11.0	23.3	13.4	15.9	41.2
Fluorene	5.99	9.18	8.35	7.84	21.1
Indeno(1,2,3-cd)Pyrene	<1.84	<1.83	<1.82	<1.83	0.6
2-methylanthracene	<1.84	3.52	2.29	<2.55	34.2
3-Methylcholanthrene	<9.19	<9.15	<9.09	<9.14	0.6
1-Methylnaphthalene	4.10	10.9	8.30	7.76	44.0
2-Methylnaphthalene	5.87	18.8	14.6	13.1	50.3
1-Methylphenanthrene	<1.84	<1.83	<1.82	<1.83	0.6
9-Methylphenanthrene	4.24	10.3	6.36	6.98	44.3
Naphthalene	15.6	47.0	26.1	29.6	54.0
Perylene	<1.84	<1.83	<1.82	<1.83	0.6
Phenanthrene	68.0	117	97.6	94.1	26.1
Picene	<9.19	<9.15	<9.09	<9.14	0.6
Pyrene	15.1	22.9	11.5	16.5	35.4
Tetralin	6.36	5.00	6.36	5.91	13.2
m-terphenyl	<1.84	<1.83	<1.82	<1.83	0.6
o-Terphenyl	<1.84	1.83	2.65	<2.11	22.4
p-terphenyl	<1.84	<1.83	<1.82	<1.83	0.6
Total	<222	<399	<343	<321	28.3

* 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	<1.98	3.44	1.95	<2.46	34.7
Acenaphthylene	<1.98	2.56	<1.93	<2.16	16.3
Anthracene	<1.98	2.81	<1.93	<2.24	22.0
Benzo(a)Anthracene	<1.98	<1.95	<1.93	<1.95	1.1
Benzo(b)Fluoranthene	<1.98	5.24	<1.93	<3.05	62.2
Benzo(k)Fluoranthene	<1.98	<1.95	<1.93	<1.95	1.1
Benzo(a)fluorene	<1.98	2.66	<1.93	<2.19	18.6
Benzo(b)fluorene	<1.98	<1.95	<1.93	<1.95	1.1
Benzo(g,h,i)Perylene	<1.98	<1.95	2.53	<2.15	15.3
Benzo(a)Pyrene	<1.98	<1.95	<1.93	<1.95	1.1
Benzo(e)Pyrene	<1.98	4.19	3.29	<3.15	35.3
Biphenyl	6.79	14.5	73.8	31.7	116
2-Chloronaphthalene	<1.98	<1.95	<1.93	<1.95	1.1
Chrysene/Triphenylene	<1.98	28.7	<1.93	<10.9	142
Coronene	<9.88	<9.74	<9.67	<9.77	1.1
Dibenzo(a,c/a,h)Anthracene	<1.98	<1.95	<1.93	<1.95	1.1
Dibenzo(a,e)pyrene	<9.88	<9.74	<9.67	<9.77	1.1
9,10-dimethylanthracene	<1.98	<1.95	<1.93	<1.95	1.1
7,12-Dimethylbenzo(a)anthracene	<1.98	9.74	<1.93	<4.55	98.8
Fluoranthene	11.8	24.8	14.2	17.0	40.8
Fluorene	6.44	9.77	8.88	8.37	20.6
Indeno(1,2,3-cd)Pyrene	<1.98	<1.95	<1.93	<1.95	1.1
2-methylanthracene	<1.98	3.75	2.43	<2.72	33.8
3-Methylcholanthrene	<9.88	<9.74	<9.67	<9.77	1.1
1-Methylnaphthalene	4.42	11.6	8.83	8.27	43.7
2-Methylnaphthalene	6.31	20.0	15.6	13.9	50.0
1-Methylphenanthrene	<1.98	<1.95	<1.93	<1.95	1.1
9-Methylphenanthrene	4.56	11.0	6.77	7.44	43.9
Naphthalene	16.8	50.0	27.7	31.5	53.7
Perylene	<1.98	<1.95	<1.93	<1.95	1.1
Phenanthrene	73.1	124	103.8	100	25.7
Picene	<9.88	<9.74	<9.67	<9.77	1.1
Pyrene	16.2	24.4	12.2	17.6	35.1
Tetralin	6.84	5.32	6.77	6.31	13.5
m-terphenyl	<1.98	<1.95	<1.93	<1.95	1.1
o-Terphenyl	<1.98	1.95	2.82	<2.25	22.1
p-terphenyl	<1.98	<1.95	<1.93	<1.95	1.1
Total	<238	<425	<365	<343	27.8

* 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	<0.037	0.064	0.036	<0.046	35.1
Acenaphthylene	<0.037	0.048	<0.036	<0.040	16.6
Anthracene	<0.037	0.053	<0.036	<0.042	22.3
Benzo(a)Anthracene	<0.037	<0.036	<0.036	<0.036	0.6
Benzo(b)Fluoranthene	<0.037	0.098	<0.036	<0.057	62.5
Benzo(k)Fluoranthene	<0.037	<0.036	<0.036	<0.036	0.6
Benzo(a)fluorene	<0.037	0.050	<0.036	<0.041	19.0
Benzo(b)fluorene	<0.037	<0.036	<0.036	<0.036	0.6
Benzo(g,h,i)Perylene	<0.037	<0.036	0.047	<0.040	15.6
Benzo(a)Pyrene	<0.037	<0.036	<0.036	<0.036	0.6
Benzo(e)Pyrene	<0.037	0.078	0.061	<0.059	35.7
Biphenyl	0.126	0.27	1.38	0.59	116
2-Chloronaphthalene	<0.037	<0.036	<0.036	<0.036	0.6
Chrysene/Triphenylene	<0.037	0.54	<0.036	<0.20	142
Coronene	<0.18	<0.18	<0.18	<0.18	0.6
Dibenzo(a,c/a,h)Anthracene	<0.037	<0.036	<0.036	<0.036	0.6
Dibenzo(a,e)pyrene	<0.18	<0.18	<0.18	<0.18	0.6
9,10-dimethylanthracene	<0.037	<0.036	<0.036	<0.036	0.6
7,12-Dimethylbenzo(a)anthracene	<0.037	0.18	<0.036	<0.085	99.1
Fluoranthene	0.22	0.46	0.27	0.32	41.2
Fluorene	0.12	0.18	0.17	0.16	21.1
Indeno(1,2,3-cd)Pyrene	<0.037	<0.036	<0.036	<0.036	0.6
2-methylanthracene	<0.037	0.070	0.046	<0.051	34.2
3-Methylcholanthrene	<0.18	<0.18	<0.18	<0.18	0.6
1-Methylnaphthalene	0.082	0.22	0.17	0.15	44.0
2-Methylnaphthalene	0.12	0.37	0.29	0.26	50.3
1-Methylphenanthrene	<0.037	<0.036	<0.036	<0.036	0.6
9-Methylphenanthrene	0.084	0.21	0.13	0.14	44.3
Naphthalene	0.31	0.93	0.52	0.59	54.0
Perylene	<0.037	<0.036	<0.036	<0.036	0.6
Phenanthrene	1.35	2.33	1.94	1.87	26.1
Picene	<0.18	<0.18	<0.18	<0.18	0.6
Pyrene	0.30	0.46	0.23	0.33	35.4
Tetralin	0.13	0.10	0.13	0.12	13.2
m-terphenyl	<0.037	<0.036	<0.036	<0.036	0.6
o-Terphenyl	<0.037	0.036	0.053	<0.042	22.4
p-terphenyl	<0.037	<0.036	<0.036	<0.036	0.6
Total	<4.41	<7.95	<6.83	<6.40	28.3

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	<1.71	<2.96	<2.30	<2.46	<0.046
Acenaphthylene	<1.50	<2.60	<2.02	<2.16	<0.040
Anthracene	<1.56	<2.70	<2.10	<2.24	<0.042
Benzo(a)Anthracene	<1.36	<2.35	<1.83	<1.95	<0.036
Benzo(b)Fluoranthene	<2.12	<3.68	<2.86	<3.05	<0.057
Benzo(k)Fluoranthene	<1.36	<2.35	<1.83	<1.95	<0.036
Benzo(a)fluorene	<1.52	<2.64	<2.05	<2.19	<0.041
Benzo(b)fluorene	<1.36	<2.35	<1.83	<1.95	<0.036
Benzo(g,h,i)Perylene	<1.50	<2.59	<2.02	<2.15	<0.040
Benzo(a)Pyrene	<1.36	<2.35	<1.83	<1.95	<0.036
Benzo(e)Pyrene	<2.19	<3.80	<2.95	<3.15	<0.059
Biphenyl	22.2	38.3	29.8	31.7	0.59
2-Chloronaphthalene	<1.36	<2.35	<1.83	<1.95	<0.036
Chrysene/Triphenylene	<7.54	<13.1	<10.2	<10.9	<0.20
Coronene	<6.79	<11.8	<9.14	<9.77	<0.18
Dibenzo(a,c/a,h)Anthracene	<1.36	<2.35	<1.83	<1.95	<0.036
Dibenzo(a,e)pyrene	<6.79	<11.8	<9.14	<9.77	<0.18
9,10-dimethylanthracene	<1.36	<2.35	<1.83	<1.95	<0.036
7,12-Dimethylbenzo(a)anthracene	<3.16	<5.49	<4.27	<4.55	<0.085
Fluoranthene	11.8	20.4	15.9	17.0	0.32
Fluorene	5.82	10.1	7.84	8.37	0.16
Indeno(1,2,3-cd)Pyrene	<1.36	<2.35	<1.83	<1.95	<0.036
2-methylanthracene	<1.89	<3.28	<2.55	<2.72	<0.051
3-Methylcholanthrene	<6.79	<11.8	<9.14	<9.77	<0.18
1-Methylnaphthalene	5.76	9.98	7.76	8.27	0.15
2-Methylnaphthalene	9.71	16.8	13.1	13.9	0.26
1-Methylphenanthrene	<1.36	<2.35	<1.83	<1.95	<0.036
9-Methylphenanthrene	5.17	8.97	6.98	7.44	0.14
Naphthalene	21.9	38.0	29.6	31.5	0.59
Perylene	<1.36	<2.35	<1.83	<1.95	<0.036
Phenanthrene	69.9	121	94.1	100	1.87
Picene	<6.79	<11.8	<9.14	<9.77	<0.18
Pyrene	12.2	21.2	16.5	17.6	0.33
Tetralin	4.39	7.60	5.91	6.31	0.12
m-terphenyl	<1.36	<2.35	<1.83	<1.95	<0.036
o-Terphenyl	<1.57	<2.71	<2.11	<2.25	<0.042
p-terphenyl	<1.36	<2.35	<1.83	<1.95	<0.036
Total	<239	<413	<321	<343	<6.40

* 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	<12
3-Methylcholanthrene	<60	<60
1-Methylnaphthalene	<12	<12
2-Methylnaphthalene	14.6	<12
1-Methylphenanthrene	<12	<12
9-Methylphenanthrene	<12	<12
Naphthalene	63.2	74.5
Perylene	<12	<12
Phenanthrene	26.5	<12
Picene	<60	<60
Pyrene	<12	<12
Tetralin	19.1	20.3
m-terphenyl	<12	<12
o-Terphenyl	<12	<12
p-terphenyl	<12	<12
Total	<711	<707

"<" 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 µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Acetaldehyde Emission Rate mg/s
1	0.37	0.1175	1.81	3.15	2.44	2.62	0.048
2	0.44	0.1214	2.08	3.63	2.82	3.00	0.056
3	0.33	0.1210	1.56	2.73	2.12	2.26	0.042
Average			1.82	3.17	2.46	2.63	0.049
Blank Train	<0.1						
Method Blank	12.6						

Formaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Formaldehyde Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Formaldehyde Emission Rate mg/s
1	12.0	0.1175	58.6	102	79.0	85.0	1.57
2	1.88	0.1214	8.87	15.5	12.0	12.8	0.24
3	7.72	0.1210	36.5	63.8	49.5	52.8	0.99
Average			34.7	60.5	46.9	50.2	0.93
Blank Train	8.92						
Method Blank	5.44						

Acrolein

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Acrolein Concentration Actual µg/m^3	Dry Reference µg/Rm^3*	Dry Adjusted µg/Rm^3**	Wet Reference µg/Rm^3*	Acrolein Emission Rate mg/s
1	<0.1	0.1175	<0.49	<0.85	<0.66	<0.71	<0.013
2	<0.1	0.1214	<0.47	<0.82	<0.64	<0.68	<0.013
3	<0.1	0.1210	<0.47	<0.83	<0.64	<0.68	<0.013
Average			<0.48	<0.83	<0.65	<0.69	<0.013
Blank Train	<0.1						
Method Blank	0.21						

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. 1

Compound	Total Collected µg	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3**	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	0.087	2.56	4.45	3.45	3.71	0.069
Benzene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Bromodichloromethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Bromoform	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Bromomethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
1,3-Butadiene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
2-Butanone	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Carbon Tetrachloride	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Chloroform	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Cumene (Isopropylbenzene)	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Dibromochloromethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Dichlorodifluoromethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
1,2-Dichloroethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
trans,1,2-Dichloroethene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
1,1-Dichloroethene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
1,2-Dichloropropane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Ethylbenzene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Ethylene Dibromide	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Methylene Chloride	0.10	2.94	5.12	3.96	4.26	0.079
Styrene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Tetrachloroethene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Toluene	1.37	40.3	70.1	54.3	58.4	1.08
1,1,1-Trichloroethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Trichloroethene/1,1,2-Trichloroethene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Trichlorotrifluoroethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Trichlorofluoromethane	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
M&P-Xylene	<0.10	<2.94	<5.12	<3.96	<4.26	<0.079
O-Xylene	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Vinyl Chloride	<0.050	<1.47	<2.56	<1.98	<2.13	<0.039
Total	<2.96	<87.0	<151	<117	<126	<2.33

Dry Gas Volume Sampled (Rm^3*) :	0.0195
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
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

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.

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

Compound	Total Collected µg	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3**	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	0.075	2.09	3.63	2.81	3.03	0.056
Benzene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Bromodichloromethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Bromoform	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Bromomethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
1,3-Butadiene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
2-Butanone	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Carbon Tetrachloride	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Chloroform	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Cumene (Isopropylbenzene)	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Dibromochloromethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Dichlorodifluoromethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
1,2-Dichloroethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
trans,1,2-Dichloroethene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
1,1-Dichloroethene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
1,2-Dichloropropane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Ethylbenzene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Ethylene Dibromide	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Methylene Chloride	0.12	3.31	5.77	4.46	4.80	0.089
Styrene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Tetrachloroethene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Toluene	0.070	1.95	3.39	2.62	2.82	0.052
1,1,1-Trichloroethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Trichloroethene/1,1,2-Trichloroethene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Trichlorotrifluoroethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Trichlorofluoromethane	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
M&P-Xylene	<0.10	<2.78	<4.85	<3.75	<4.03	<0.075
O-Xylene	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Vinyl Chloride	<0.050	<1.39	<2.42	<1.87	<2.02	<0.037
Total	<1.66	<46.3	<80.6	<62.4	<67.1	<1.24

Dry Gas Volume Sampled (Rm^3*) :	0.0206
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
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

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.

TABLE 84
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	0.078	2.07	3.60	2.78	2.99	0.055
Benzene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Bromodichloromethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Bromoform	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Bromomethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
1,3-Butadiene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
2-Butanone	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Carbon Tetrachloride	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Chloroform	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Cumene (Isopropylbenzene)	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Dibromochloromethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Dichlorodifluoromethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
1,2-Dichloroethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
trans,1,2-Dichloroethene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
1,1-Dichloroethene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
1,2-Dichloropropane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Ethylbenzene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Ethylene Dibromide	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Methylene Chloride	0.097	2.57	4.47	3.46	3.72	0.069
Styrene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Tetrachloroethene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Toluene	0.48	12.8	22.3	17.3	18.6	0.34
1,1,1-Trichloroethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Trichloroethene/1,1,2-Trichloroethene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Trichlorotrifluoroethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Trichlorofluoromethane	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
M&P-Xylene	<0.10	<2.65	<4.61	<3.57	<3.84	<0.071
O-Xylene	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Vinyl Chloride	<0.050	<1.32	<2.30	<1.78	<1.92	<0.035
Total	<2.06	<54.5	<94.9	<73.4	<79.0	<1.46

Dry Gas Volume Sampled (Rm^3*) :	0.0217
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.4
Dry Adjusted Flowrate (Rm^3/s**) :	19.9
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

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.

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

Compound	Actual Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	µg/m³	µg/m³	µg/m³	µg/m³	%
Acetone	2.56	2.09	2.07	2.24	12.5
Benzene	<1.47	<1.39	<1.32	<1.40	5.3
Bromodichloromethane	<1.47	<1.39	<1.32	<1.40	5.3
Bromoform	<1.47	<1.39	<1.32	<1.40	5.3
Bromomethane	<1.47	<1.39	<1.32	<1.40	5.3
1,3-Butadiene	<1.47	<1.39	<1.32	<1.40	5.3
2-Butanone	<1.47	<1.39	<1.32	<1.40	5.3
Carbon Tetrachloride	<1.47	<1.39	<1.32	<1.40	5.3
Chloroform	<1.47	<1.39	<1.32	<1.40	5.3
Cumene (Isopropylbenzene)	<1.47	<1.39	<1.32	<1.40	5.3
Dibromochloromethane	<1.47	<1.39	<1.32	<1.40	5.3
Dichlorodifluoromethane	<1.47	<1.39	<1.32	<1.40	5.3
1,2-Dichloroethane	<1.47	<1.39	<1.32	<1.40	5.3
trans,1,2-Dichloroethene	<1.47	<1.39	<1.32	<1.40	5.3
1,1-Dichloroethene	<1.47	<1.39	<1.32	<1.40	5.3
1,2-Dichloropropane	<1.47	<1.39	<1.32	<1.40	5.3
Ethylbenzene	<1.47	<1.39	<1.32	<1.40	5.3
Ethylene Dibromide	<1.47	<1.39	<1.32	<1.40	5.3
Mesitylene (1,3,5-Trimethylbenzene)	<1.47	<1.39	<1.32	<1.40	5.3
Methylene Chloride	2.94	3.31	2.57	2.94	12.7
Styrene	<1.47	<1.39	<1.32	<1.40	5.3
Tetrachloroethene	<1.47	<1.39	<1.32	<1.40	5.3
Toluene	40.3	1.95	12.8	18.4	108
1,1,1-Trichloroethane	<1.47	<1.39	<1.32	<1.40	5.3
Trichloroethene/1,1,2-Trichloroethene	<1.47	<1.39	<1.32	<1.40	5.3
Trichlorotrifluoroethane	<1.47	<1.39	<1.32	<1.40	5.3
Trichlorofluoromethane	<1.47	<1.39	<1.32	<1.40	5.3
M&P-Xylene	<2.94	<2.78	<2.65	<2.79	5.3
O-Xylene	<1.47	<1.39	<1.32	<1.40	5.3
Vinyl Chloride	<1.47	<1.39	<1.32	<1.40	5.3
Total	<87.0	<46.3	<54.5	<62.6	34.3

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. 1	Test No. 2	Test No. 3	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	4.45	3.63	3.60	3.89	12.5
Benzene	<2.56	<2.42	<2.30	<2.43	5.3
Bromodichloromethane	<2.56	<2.42	<2.30	<2.43	5.3
Bromoform	<2.56	<2.42	<2.30	<2.43	5.3
Bromomethane	<2.56	<2.42	<2.30	<2.43	5.3
1,3-Butadiene	<2.56	<2.42	<2.30	<2.43	5.3
2-Butanone	<2.56	<2.42	<2.30	<2.43	5.3
Carbon Tetrachloride	<2.56	<2.42	<2.30	<2.43	5.3
Chloroform	<2.56	<2.42	<2.30	<2.43	5.3
Cumene (Isopropylbenzene)	<2.56	<2.42	<2.30	<2.43	5.3
Dibromochloromethane	<2.56	<2.42	<2.30	<2.43	5.3
Dichlorodifluoromethane	<2.56	<2.42	<2.30	<2.43	5.3
1,2-Dichloroethane	<2.56	<2.42	<2.30	<2.43	5.3
trans,1,2-Dichloroethene	<2.56	<2.42	<2.30	<2.43	5.3
1,1-Dichloroethene	<2.56	<2.42	<2.30	<2.43	5.3
1,2-Dichloropropane	<2.56	<2.42	<2.30	<2.43	5.3
Ethylbenzene	<2.56	<2.42	<2.30	<2.43	5.3
Ethylene Dibromide	<2.56	<2.42	<2.30	<2.43	5.3
Mesitylene (1,3,5-Trimethylbenzene)	<2.56	<2.42	<2.30	<2.43	5.3
Methylene Chloride	5.12	5.77	4.47	5.12	12.7
Styrene	<2.56	<2.42	<2.30	<2.43	5.3
Tetrachloroethene	<2.56	<2.42	<2.30	<2.43	5.3
Toluene	70.1	3.39	22.3	31.9	108
1,1,1-Trichloroethane	<2.56	<2.42	<2.30	<2.43	5.3
Trichloroethene/1,1,2-Trichloroethene	<2.56	<2.42	<2.30	<2.43	5.3
Trichlorotrifluoroethane	<2.56	<2.42	<2.30	<2.43	5.3
Trichlorofluoromethane	<2.56	<2.42	<2.30	<2.43	5.3
M&P-Xylene	<5.12	<4.85	<4.61	<4.86	5.3
O-Xylene	<2.56	<2.42	<2.30	<2.43	5.3
Vinyl Chloride	<2.56	<2.42	<2.30	<2.43	5.3
Total	<151	<80.6	<94.9	<109	34.3

* 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. 1	Test No. 2	Test No. 3	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	3.45	2.81	2.78	3.01	12.5
Benzene	<1.98	<1.87	<1.78	<1.88	5.3
Bromodichloromethane	<1.98	<1.87	<1.78	<1.88	5.3
Bromoform	<1.98	<1.87	<1.78	<1.88	5.3
Bromomethane	<1.98	<1.87	<1.78	<1.88	5.3
1,3-Butadiene	<1.98	<1.87	<1.78	<1.88	5.3
2-Butanone	<1.98	<1.87	<1.78	<1.88	5.3
Carbon Tetrachloride	<1.98	<1.87	<1.78	<1.88	5.3
Chloroform	<1.98	<1.87	<1.78	<1.88	5.3
Cumene (Isopropylbenzene)	<1.98	<1.87	<1.78	<1.88	5.3
Dibromochloromethane	<1.98	<1.87	<1.78	<1.88	5.3
Dichlorodifluoromethane	<1.98	<1.87	<1.78	<1.88	5.3
1,2-Dichloroethane	<1.98	<1.87	<1.78	<1.88	5.3
trans,1,2-Dichloroethene	<1.98	<1.87	<1.78	<1.88	5.3
1,1-Dichloroethene	<1.98	<1.87	<1.78	<1.88	5.3
1,2-Dichloropropane	<1.98	<1.87	<1.78	<1.88	5.3
Ethylbenzene	<1.98	<1.87	<1.78	<1.88	5.3
Ethylene Dibromide	<1.98	<1.87	<1.78	<1.88	5.3
Mesitylene (1,3,5-Trimethylbenzene)	<1.98	<1.87	<1.78	<1.88	5.3
Methylene Chloride	3.96	4.46	3.46	3.96	12.7
Styrene	<1.98	<1.87	<1.78	<1.88	5.3
Tetrachloroethene	<1.98	<1.87	<1.78	<1.88	5.3
Toluene	54.3	2.62	17.3	24.7	108
1,1,1-Trichloroethane	<1.98	<1.87	<1.78	<1.88	5.3
Trichloroethene/1,1,2-Trichloroethene	<1.98	<1.87	<1.78	<1.88	5.3
Trichlorotrifluoroethane	<1.98	<1.87	<1.78	<1.88	5.3
Trichlorofluoromethane	<1.98	<1.87	<1.78	<1.88	5.3
M&P-Xylene	<3.96	<3.75	<3.57	<3.76	5.3
O-Xylene	<1.98	<1.87	<1.78	<1.88	5.3
Vinyl Chloride	<1.98	<1.87	<1.78	<1.88	5.3
Total	<117	<62.4	<73.4	<84.3	34.3

* 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. 1	Test No. 2	Test No. 3	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	3.71	3.03	2.99	3.24	12.5
Benzene	<2.13	<2.02	<1.92	<2.02	5.3
Bromodichloromethane	<2.13	<2.02	<1.92	<2.02	5.3
Bromoform	<2.13	<2.02	<1.92	<2.02	5.3
Bromomethane	<2.13	<2.02	<1.92	<2.02	5.3
1,3-Butadiene	<2.13	<2.02	<1.92	<2.02	5.3
2-Butanone	<2.13	<2.02	<1.92	<2.02	5.3
Carbon Tetrachloride	<2.13	<2.02	<1.92	<2.02	5.3
Chloroform	<2.13	<2.02	<1.92	<2.02	5.3
Cumene (Isopropylbenzene)	<2.13	<2.02	<1.92	<2.02	5.3
Dibromochloromethane	<2.13	<2.02	<1.92	<2.02	5.3
Dichlorodifluoromethane	<2.13	<2.02	<1.92	<2.02	5.3
1,2-Dichloroethane	<2.13	<2.02	<1.92	<2.02	5.3
trans,1,2-Dichloroethene	<2.13	<2.02	<1.92	<2.02	5.3
1,1-Dichloroethene	<2.13	<2.02	<1.92	<2.02	5.3
1,2-Dichloropropane	<2.13	<2.02	<1.92	<2.02	5.3
Ethylbenzene	<2.13	<2.02	<1.92	<2.02	5.3
Ethylene Dibromide	<2.13	<2.02	<1.92	<2.02	5.3
Mesitylene (1,3,5-Trimethylbenzene)	<2.13	<2.02	<1.92	<2.02	5.3
Methylene Chloride	4.26	4.80	3.72	4.26	12.7
Styrene	<2.13	<2.02	<1.92	<2.02	5.3
Tetrachloroethene	<2.13	<2.02	<1.92	<2.02	5.3
Toluene	58.4	2.82	18.6	26.6	108
1,1,1-Trichloroethane	<2.13	<2.02	<1.92	<2.02	5.3
Trichloroethene/1,1,2-Trichloroethene	<2.13	<2.02	<1.92	<2.02	5.3
Trichlorotrifluoroethane	<2.13	<2.02	<1.92	<2.02	5.3
Trichlorofluoromethane	<2.13	<2.02	<1.92	<2.02	5.3
M&P-Xylene	<4.26	<4.03	<3.84	<4.04	5.3
O-Xylene	<2.13	<2.02	<1.92	<2.02	5.3
Vinyl Chloride	<2.13	<2.02	<1.92	<2.02	5.3
Total	<126	<67.1	<79.0	<90.7	34.3

* 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. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	%
Acetone	0.069	0.056	0.055	0.060	12.5
Benzene	<0.039	<0.037	<0.035	<0.037	5.3
Bromodichloromethane	<0.039	<0.037	<0.035	<0.037	5.3
Bromoform	<0.039	<0.037	<0.035	<0.037	5.3
Bromomethane	<0.039	<0.037	<0.035	<0.037	5.3
1,3-Butadiene	<0.039	<0.037	<0.035	<0.037	5.3
2-Butanone	<0.039	<0.037	<0.035	<0.037	5.3
Carbon Tetrachloride	<0.039	<0.037	<0.035	<0.037	5.3
Chloroform	<0.039	<0.037	<0.035	<0.037	5.3
Cumene (Isopropylbenzene)	<0.039	<0.037	<0.035	<0.037	5.3
Dibromochloromethane	<0.039	<0.037	<0.035	<0.037	5.3
Dichlorodifluoromethane	<0.039	<0.037	<0.035	<0.037	5.3
1,2-Dichloroethane	<0.039	<0.037	<0.035	<0.037	5.3
trans,1,2-Dichloroethene	<0.039	<0.037	<0.035	<0.037	5.3
1,1-Dichloroethene	<0.039	<0.037	<0.035	<0.037	5.3
1,2-Dichloropropane	<0.039	<0.037	<0.035	<0.037	5.3
Ethylbenzene	<0.039	<0.037	<0.035	<0.037	5.3
Ethylene Dibromide	<0.039	<0.037	<0.035	<0.037	5.3
Mesitylene (1,3,5-Trimethylbenzene)	<0.039	<0.037	<0.035	<0.037	5.3
Methylene Chloride	0.079	0.089	0.069	0.079	12.7
Styrene	<0.039	<0.037	<0.035	<0.037	5.3
Tetrachloroethene	<0.039	<0.037	<0.035	<0.037	5.3
Toluene	1.08	0.052	0.34	0.49	108
1,1,1-Trichloroethane	<0.039	<0.037	<0.035	<0.037	5.3
Trichloroethene/1,1,2-Trichloroethene	<0.039	<0.037	<0.035	<0.037	5.3
Trichlorotrifluoroethane	<0.039	<0.037	<0.035	<0.037	5.3
Trichlorofluoromethane	<0.039	<0.037	<0.035	<0.037	5.3
M&P-Xylene	<0.079	<0.075	<0.071	<0.075	5.3
O-Xylene	<0.039	<0.037	<0.035	<0.037	5.3
Vinyl Chloride	<0.039	<0.037	<0.035	<0.037	5.3
Total	<2.33	<1.24	<1.46	<1.68	34.3

TABLE 90
Covanta - Durham York Energy Centre
Boiler No. 1 BH Outlet
Summary of Volatile Organic Emission Data

Compound	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3*	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	2.24	3.89	3.01	3.24	0.060
Benzene	<1.40	<2.43	<1.88	<2.02	<0.037
Bromodichloromethane	<1.40	<2.43	<1.88	<2.02	<0.037
Bromoform	<1.40	<2.43	<1.88	<2.02	<0.037
Bromomethane	<1.40	<2.43	<1.88	<2.02	<0.037
1,3-Butadiene	<1.40	<2.43	<1.88	<2.02	<0.037
2-Butanone	<1.40	<2.43	<1.88	<2.02	<0.037
Carbon Tetrachloride	<1.40	<2.43	<1.88	<2.02	<0.037
Chloroform	<1.40	<2.43	<1.88	<2.02	<0.037
Cumene (Isopropylbenzene)	<1.40	<2.43	<1.88	<2.02	<0.037
Dibromochloromethane	<1.40	<2.43	<1.88	<2.02	<0.037
Dichlorodifluoromethane	<1.40	<2.43	<1.88	<2.02	<0.037
1,2-Dichloroethane	<1.40	<2.43	<1.88	<2.02	<0.037
trans,1,2-Dichloroethene	<1.40	<2.43	<1.88	<2.02	<0.037
1,1-Dichloroethene	<1.40	<2.43	<1.88	<2.02	<0.037
1,2-Dichloropropane	<1.40	<2.43	<1.88	<2.02	<0.037
Ethylbenzene	<1.40	<2.43	<1.88	<2.02	<0.037
Ethylene Dibromide	<1.40	<2.43	<1.88	<2.02	<0.037
Mesitylene (1,3,5-Trimethylbenzene)	<1.40	<2.43	<1.88	<2.02	<0.037
Methylene Chloride	2.94	5.12	3.96	4.26	0.079
Styrene	<1.40	<2.43	<1.88	<2.02	<0.037
Tetrachloroethene	<1.40	<2.43	<1.88	<2.02	<0.037
Toluene	18.4	31.9	24.7	26.6	0.49
1,1,1-Trichloroethane	<1.40	<2.43	<1.88	<2.02	<0.037
Trichloroethene/1,1,2-Trichloroethene	<1.40	<2.43	<1.88	<2.02	<0.037
Trichlorotrifluoroethane	<1.40	<2.43	<1.88	<2.02	<0.037
Trichlorofluoromethane	<1.40	<2.43	<1.88	<2.02	<0.037
M&P-Xylene	<2.79	<4.86	<3.76	<4.04	<0.075
O-Xylene	<1.40	<2.43	<1.88	<2.02	<0.037
Vinyl Chloride	<1.40	<2.43	<1.88	<2.02	<0.037
Total	<62.6	<109	<84.3	<90.7	<1.68

* 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 Tube 5A/5B µg	Trip Blank Tube 15A/15B µg	Method Blank µg
Acetone	<0.050	<0.050	<0.050
Benzene	<0.050	<0.050	<0.050
Bromodichloromethane	<0.050	<0.050	<0.050
Bromoform	<0.050	<0.050	<0.050
Bromomethane	<0.050	<0.050	<0.050
1,3-Butadiene	<0.050	<0.050	<0.050
2-Butanone	<0.050	<0.050	<0.050
Carbon Tetrachloride	<0.050	<0.050	<0.050
Chloroform	<0.050	<0.050	<0.050
Cumene (Isopropylbenzene)	<0.050	<0.050	<0.050
Dibromochloromethane	<0.050	<0.050	<0.050
Dichlorodifluoromethane	<0.050	<0.050	<0.050
1,2-Dichloroethane	<0.050	<0.050	<0.050
trans,1,2-Dichloroethene	<0.050	<0.050	<0.050
1,1-Dichloroethene	<0.050	<0.050	<0.050
1,2-Dichloropropane	<0.050	<0.050	<0.050
Ethylbenzene	<0.050	<0.050	<0.050
Ethylene Dibromide	<0.050	<0.050	<0.050
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<0.050	<0.050
Methylene Chloride	<0.050	<0.050	<0.050
Styrene	<0.050	<0.050	<0.050
Tetrachloroethene	<0.050	<0.050	<0.050
Toluene	0.77	<0.050	<0.050
1,1,1-Trichloroethane	<0.050	<0.050	<0.050
Trichloroethene/1,1,2-Trichloroethene	<0.050	<0.050	<0.050
Trichlorotrifluoroethane	<0.050	<0.050	<0.050
Trichlorofluoromethane	<0.050	<0.050	<0.050
M&P-Xylene	<0.10	<0.10	<0.10
O-Xylene	<0.050	<0.050	<0.050
Vinyl Chloride	<0.050	<0.050	<0.050
Total	<2.27	<1.55	<1.55

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.

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	March 19, 2024	8:12	11:25	180
2	March 19, 2024	11:59	15:07	180
3	March 19, 2024	15:38	18:46	180

Particle Size Distribution Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	March 18, 2024	10:27	12:30	120
2	March 18, 2024	14:21	16:24	120
3	March 18, 2024	16:57	18:59	120

Acid Gases Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	March 19, 2024	8:13	9:13	60
2	March 19, 2024	9:56	10:56	60
3	March 19, 2024	11:07	12:07	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time*
		Start	Finish	min
1	March 20, 2024	8:13	12:28	240
2	March 20, 2024	13:13	17:26	240
3	March 21, 2024	11:31	15:54	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		Sampling Time
		Start	Finish	min
1	March 20, 2024	12:00	13:00	60
2	March 20, 2024	13:17	14:17	60
3	March 20, 2024	14:36	15:36	60

Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time
		Start	Finish	min
1	March 20, 2024	7:59	8:39	40
2	March 20, 2024	8:48	9:28	40
3	March 20, 2024	9:39	10:19	40
4	March 20, 2024	10:32	11:12	40

Total Hydrocarbons Trains

Sampling Location	Test Number	Test Date	Sampling Period		Sampling Time
			Start	Finish	min
BH Outlet	1	March 19, 2024	8:12	9:12	60
BH Outlet	2	March 19, 2024	9:20	10:20	60
BH Outlet	3	March 19, 2024	10:30	11:30	60
Quench Inlet	1	March 19, 2024	8:12	9:12	60
Quench Inlet	2	March 19, 2024	9:20	10:20	60
Quench Inlet	3	March 19, 2024	10:30	11:30	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	0.986	6.34	3.616	101.2
2	0.843	0.986	6.34	3.411	99.8
3	0.843	0.986	6.34	3.448	101.1

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	0.843	0.987	4.51	1.192	101.9
2	0.843	0.987	4.51	1.188	92.7
3	0.843	0.987	4.51	1.194	98.0

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm^3 *	Percentage of Isokineticity %
1	0.844	1.018	6.57	1.277	101.4
2	0.844	1.018	6.57	1.290	99.4
3	0.844	1.018	6.57	1.281	100.0

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	0.843	0.986	6.34	4.506	100.4
2	0.843	0.986	6.34	4.674	100.9
3	0.843	0.986	6.34	4.592	101.3

* Dry at 25°C and 1 atmosphere

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

Particulate and Metals Trains

Test No.	Gas Temp.	Moisture by Volume	Gas Velocity	Static Pressure	Absolute Pressure	Carbon Dioxide by Volume	Oxygen by Volume
	°C	%	m/s	kPa	kPa	% *	% *
1	138	16.8	18.2	-2.81	96.8	10.8	8.55
2	135	16.0	17.1	-2.81	96.4	11.1	8.20
3	138	17.4	17.5	-2.81	96.3	11.0	8.14
Average	137	16.7	17.6	-2.81	96.5	11.0	8.30

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	139	17.2	17.6	-2.94	96.8	10.8	8.57
2	139	16.8	19.3	-2.94	96.8	11.1	8.30
3	138	17.1	18.2	-2.94	96.8	11.1	8.13
Average	139	17.0	18.4	-2.94	96.8	11.0	8.33

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	18.1	18.2	-2.81	96.9	10.7	8.63
2	139	15.4	18.2	-2.81	96.8	10.7	8.64
3	139	16.1	18.2	-2.81	96.6	11.2	8.10
Average	139	16.5	18.2	-2.81	96.8	10.9	8.46

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	141	16.9	17.3	-2.92	96.3	11.1	8.20
2	140	17.5	17.9	-2.92	96.6	11.2	8.01
3	140	16.5	17.0	-2.92	98.4	11.0	8.45
Average	140	17.0	17.4	-2.92	97.1	11.1	8.22

* 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	26.8	15.5	19.3	18.6
2	25.3	14.8	19.0	17.6
3	25.9	14.8	19.0	17.9
Average	26.0	15.0	19.1	18.0

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	26.1	14.9	18.6	18.0
2	28.6	16.5	21.0	19.8
3	27.0	15.5	20.0	18.7
Average	27.2	15.6	19.9	18.8

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	26.9	15.2	18.9	18.6
2	26.9	15.7	19.5	18.6
3	26.8	15.5	20.1	18.5
Average	26.9	15.5	19.5	18.6

Semi-Volatile Organics Trains

Test No.	Actual Flowrate m^3/s	Dry Reference Flowrate Rm^3/s *	Dry Adjusted Flowrate Rm^3/s **	Wet Reference Flowrate Rm^3/s*
1	25.6	14.6	18.7	17.5
2	26.5	15.0	19.6	18.2
3	25.2	14.7	18.5	17.6
Average	25.7	14.8	18.9	17.8

* 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 Dry Reference	Dry Adjusted	Wet Reference	Particulate Emission Rate
	Probe Rinse	Main Filter	Total						
	mg	mg	mg	Rm^3*	mg/m^3	mg/Rm^3*	mg/Rm^3**	mg/Rm^3*	mg/s
1	4.9	2.9	7.8	3.616	1.24	2.16	1.73	1.80	33.3
2	3.9	2.4	6.3	3.411	1.08	1.85	1.44	1.55	27.3
3	2.7	3.0	5.7	3.448	0.94	1.65	1.28	1.37	24.4
Average					1.09	1.89	1.48	1.57	28.3
Blank	0.3	4.4	4.7						

* 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	<1.0	1.192	<0.48	<0.84	<0.67	<0.69	<12.5
2	<1.7	1.188	<0.83	<1.43	<1.12	<1.19	<23.6
3	<1.2	1.194	<0.58	<1.01	<0.78	<0.83	<15.6
Average			<0.63	<1.09	<0.86	<0.91	<17.2
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	<1.6	1.192	<0.77	<1.34	<1.08	<1.11	<20.0
2	<1.8	1.188	<0.87	<1.52	<1.19	<1.26	<25.0
3	<1.5	1.194	<0.72	<1.26	<0.97	<1.04	<19.5
Average			<0.79	<1.37	<1.08	<1.14	<21.5
Blank	0.5						

* 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				Emission Rate mg/s
			Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	
1	3.0	1.192	1.44	2.52	2.02	2.08	37.5
2	3.7	1.188	1.80	3.11	2.45	2.60	51.4
3	3.2	1.194	1.54	2.68	2.08	2.22	41.5
Average			1.59	2.77	2.18	2.30	43.5
Blank	0.4						

Organic Condensable Particulate

Test No.	Total Collected mg	Dry Volume Sampled Rm^3*	Organic Condensable Particulate Concentration				Emission Rate mg/s
			Actual mg/m^3	Dry Reference mg/Rm^3*	Dry Adjusted mg/Rm^3**	Wet Reference mg/Rm^3*	
1	3.4	1.192	1.63	2.85	2.29	2.36	42.5
2	4.4	1.188	2.14	3.70	2.91	3.09	61.1
3	3.3	1.194	1.59	2.76	2.14	2.29	42.8
Average			1.78	3.11	2.45	2.58	48.8
Blank	3.5						

* 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 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	5.92	1.277	2.67	4.64	3.71	3.85	71.6
2	4.99	1.290	2.23	3.87	3.10	3.22	59.8
3	5.22	1.281	2.38	4.07	3.18	3.42	60.3
Average			2.43	4.19	3.33	3.50	63.9
Blank	<0.154						

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	<0.168	1.277	<0.076	<0.13	<0.11	<0.11	<2.03
2	<0.158	1.290	<0.071	<0.12	<0.098	<0.10	<1.89
3	<0.160	1.281	<0.073	<0.12	<0.097	<0.10	<1.85
Average			<0.073	<0.13	<0.10	<0.11	<1.92
Blank	<0.106						

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	0.586	1.277	0.26	0.46	0.37	0.38	7.09
2	0.485	1.290	0.22	0.38	0.30	0.31	5.81
3	0.463	1.281	0.21	0.36	0.28	0.30	5.35
Average			0.23	0.40	0.32	0.33	6.08
Blank	<0.020						

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 March 18 to March 21, 2024

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (%, 1 hr Avg)	7.48	8.37	9.59
BH Outlet	Carbon Monoxide (mg/Rm^3, 1 hr Avg) *	4	8	33
BH Outlet	Carbon Monoxide (mg/Rm^3, 4 hr Avg) *	5.5	8.0	12.4
BH Outlet	Sulphur Dioxide (mg/Rm^3, 1 hr Avg) *	0	0.77	29
BH Outlet	Sulphur Dioxide (mg/Rm^3, 24 hr Avg) *	0	0.39	2.4
BH Outlet	Nitrogen Oxides (mg/Rm^3, 1 hr Avg) *	76	108	119
BH Outlet	Nitrogen Oxides (mg/Rm^3, 24 hr Avg) *	106	108	109
BH Outlet	Hydrogen Chloride (mg/Rm^3, 1 hr Avg) *	1	2	3
BH Outlet	Hydrogen Chloride (mg/Rm^3, 24 hr Avg) *	2.1	2.2	2.4
BH Outlet	Total Hydrocarbons (mg/Rm^3, 1 hr Avg) *	0	0	0
Quench Inlet	Oxygen (%, 1 hr Avg)	6	7	9

Data measured by the ORTECH CEMS on March 19, 2024

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0.2	0.6	1.2
BH Outlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.2	4.7
BH Outlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.1	1.1
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.3	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.6	1.8
Quench Inlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.1	2.1
Quench Inlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.2	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.6	1.2
Quench Inlet	2	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.1	0.6
Quench Inlet	3	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0	0
Average		Total Hydrocarbons (ppm dry, 10-min Avg)		0.2	

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	47.0	0.60	47.6
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	0.063	0.063
Chromium	3.42	0.63	4.05
Cobalt	<0.2	0.19	0.19
Copper	4.24	1.79	6.03
Lead	0.71	0.28	0.99
Mercury *	<0.015	1.97	1.97
Molybdenum	18.2	<0.1	18.2
Nickel	1.64	0.63	2.27
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	40.2	4.60	44.8
Total			<128

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	47.9	0.68	48.6
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.24	<0.05	0.24
Chromium	3.26	0.59	3.85
Cobalt	<0.2	<0.1	<0.10
Copper	3.75	2.87	6.62
Lead	0.62	0.31	0.94
Mercury *	<0.015	5.32	5.32
Molybdenum	18.4	<0.1	18.4
Nickel	1.96	0.64	2.60
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	40.9	6.65	47.6
Total			<136

* 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	<0.2	<0.1	<0.20
Arsenic	<1	<0.2	<0.20
Barium	50.2	0.98	51.2
Beryllium	<0.2	<0.1	<0.20
Cadmium	0.34	0.11	0.45
Chromium	3.49	0.70	4.19
Cobalt	<0.2	<0.1	<0.10
Copper	2.13	2.87	5.00
Lead	0.76	0.71	1.46
Mercury *	<0.015	<0.40	<0.40
Molybdenum	18.1	<0.1	18.1
Nickel	1.95	0.64	2.59
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	39.5	5.02	44.5
Total			<130

* 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	<0.20	<0.032	<0.055	<0.044	<0.046	<0.00086
Arsenic	<0.20	<0.032	<0.055	<0.044	<0.046	<0.00086
Barium	47.6	7.61	13.2	10.6	11.0	0.20
Beryllium	<0.20	<0.032	<0.055	<0.044	<0.046	<0.00086
Cadmium	0.063	0.010	0.017	0.014	0.015	0.00027
Chromium	4.05	0.65	1.12	0.90	0.93	0.017
Cobalt	0.19	0.031	0.053	0.042	0.044	0.00082
Copper	6.03	0.96	1.67	1.34	1.39	0.026
Lead	0.99	0.16	0.27	0.22	0.23	0.0043
Mercury	1.97	0.32	0.55	0.44	0.45	0.0084
Molybdenum	18.2	2.91	5.03	4.04	4.19	0.078
Nickel	2.27	0.36	0.63	0.50	0.52	0.0097
Selenium	<1.00	<0.16	<0.28	<0.22	<0.23	<0.0043
Silver	<0.20	<0.032	<0.055	<0.044	<0.046	<0.00086
Thallium	<0.20	<0.032	<0.055	<0.044	<0.046	<0.00086
Vanadium	<0.10	<0.016	<0.028	<0.022	<0.023	<0.00043
Zinc	44.8	7.17	12.4	9.95	10.3	0.19
Total	<128	<20.5	<35.5	<28.5	<29.6	<0.55

Dry Gas Volume Sampled (Rm^3*) :	3.616
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s*) :	15.5
Dry Adjusted Flowrate (Rm^3/s**) :	19.3
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 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	<0.20	<0.034	<0.059	<0.046	<0.049	<0.00087
Arsenic	<0.20	<0.034	<0.059	<0.046	<0.049	<0.00087
Barium	48.6	8.33	14.2	11.1	12.0	0.21
Beryllium	<0.20	<0.034	<0.059	<0.046	<0.049	<0.00087
Cadmium	0.24	0.042	0.071	0.055	0.060	0.0011
Chromium	3.85	0.66	1.13	0.88	0.95	0.017
Cobalt	<0.10	<0.017	<0.029	<0.023	<0.025	<0.00043
Copper	6.62	1.14	1.94	1.51	1.63	0.029
Lead	0.94	0.16	0.27	0.21	0.23	0.0041
Mercury	5.32	0.91	1.56	1.21	1.31	0.023
Molybdenum	18.4	3.16	5.39	4.20	4.54	0.080
Nickel	2.60	0.45	0.76	0.59	0.64	0.011
Selenium	<1.00	<0.17	<0.29	<0.23	<0.25	<0.0043
Silver	<0.20	<0.034	<0.059	<0.046	<0.049	<0.00087
Thallium	<0.20	<0.034	<0.059	<0.046	<0.049	<0.00087
Vanadium	<0.10	<0.017	<0.029	<0.023	<0.025	<0.00043
Zinc	47.6	8.15	13.9	10.9	11.7	0.21
Total	<136	<23.4	<40.0	<31.1	<33.6	<0.59

Dry Gas Volume Sampled (Rm^3*) :	3.411
Actual Flowrate (m^3/s) :	25.3
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.0
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere

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

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	<0.20	<0.033	<0.058	<0.045	<0.048	<0.00086
Arsenic	<0.20	<0.033	<0.058	<0.045	<0.048	<0.00086
Barium	51.2	8.48	14.8	11.6	12.3	0.22
Beryllium	<0.20	<0.033	<0.058	<0.045	<0.048	<0.00086
Cadmium	0.45	0.074	0.13	0.10	0.11	0.0019
Chromium	4.19	0.69	1.21	0.95	1.00	0.018
Cobalt	<0.10	<0.017	<0.029	<0.023	<0.024	<0.00043
Copper	5.00	0.83	1.45	1.13	1.20	0.021
Lead	1.46	0.24	0.42	0.33	0.35	0.0063
Mercury	<0.40	<0.065	<0.11	<0.089	<0.095	<0.0017
Molybdenum	18.1	3.00	5.25	4.09	4.34	0.078
Nickel	2.59	0.43	0.75	0.58	0.62	0.011
Selenium	<1.00	<0.17	<0.29	<0.23	<0.24	<0.0043
Silver	<0.20	<0.033	<0.058	<0.045	<0.048	<0.00086
Thallium	<0.20	<0.033	<0.058	<0.045	<0.048	<0.00086
Vanadium	<0.10	<0.017	<0.029	<0.023	<0.024	<0.00043
Zinc	44.5	7.38	12.9	10.1	10.7	0.19
Total	<130	<21.6	<37.7	<29.4	<31.2	<0.56

Dry Gas Volume Sampled (Rm^3*) :	3.448
Actual Flowrate (m^3/s) :	25.9
Dry Reference Flowrate (Rm^3/s*) :	14.8
Dry Adjusted Flowrate (Rm^3/s**) :	19.0
Wet Reference Flowrate (Rm^3/s*) :	17.9

* 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	<0.032	<0.034	<0.033	<0.033	3.5
Arsenic	<0.032	<0.034	<0.033	<0.033	3.5
Barium	7.61	8.33	8.48	8.14	5.7
Beryllium	<0.032	<0.034	<0.033	<0.033	3.5
Cadmium	0.010	0.042	0.074	0.042	76.3
Chromium	0.65	0.66	0.69	0.67	3.6
Cobalt	0.031	<0.017	<0.017	<0.021	36.9
Copper	0.96	1.14	0.83	0.98	15.7
Lead	0.16	0.16	0.24	0.19	25.5
Mercury	0.32	0.91	<0.065	<0.43	101
Molybdenum	2.91	3.16	3.00	3.02	4.1
Nickel	0.36	0.45	0.43	0.41	10.5
Selenium	<0.16	<0.17	<0.17	<0.17	3.5
Silver	<0.032	<0.034	<0.033	<0.033	3.5
Thallium	<0.032	<0.034	<0.033	<0.033	3.5
Vanadium	<0.016	<0.017	<0.017	<0.017	3.5
Zinc	7.17	8.15	7.38	7.57	6.9
Total	<20.5	<23.4	<21.6	<21.8	6.6

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	<0.055	<0.059	<0.058	<0.057	3.1
Arsenic	<0.055	<0.059	<0.058	<0.057	3.1
Barium	13.2	14.2	14.8	14.1	6.0
Beryllium	<0.055	<0.059	<0.058	<0.057	3.1
Cadmium	0.017	0.071	0.13	0.073	77.1
Chromium	1.12	1.13	1.21	1.15	4.5
Cobalt	0.053	<0.029	<0.029	<0.037	36.9
Copper	1.67	1.94	1.45	1.69	14.6
Lead	0.27	0.27	0.42	0.32	26.6
Mercury	0.55	1.56	<0.11	<0.74	100
Molybdenum	5.03	5.39	5.25	5.23	3.5
Nickel	0.63	0.76	0.75	0.71	10.4
Selenium	<0.28	<0.29	<0.29	<0.29	3.1
Silver	<0.055	<0.059	<0.058	<0.057	3.1
Thallium	<0.055	<0.059	<0.058	<0.057	3.1
Vanadium	<0.028	<0.029	<0.029	<0.029	3.1
Zinc	12.4	13.9	12.9	13.1	6.0
Total	<35.5	<40.0	<37.7	<37.7	5.9

* 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	<0.044	<0.046	<0.045	<0.045	1.4
Arsenic	<0.044	<0.046	<0.045	<0.045	1.4
Barium	10.6	11.1	11.6	11.1	4.5
Beryllium	<0.044	<0.046	<0.045	<0.045	1.4
Cadmium	0.014	0.055	0.10	0.057	76.6
Chromium	0.90	0.88	0.95	0.91	3.8
Cobalt	0.042	<0.023	<0.023	<0.029	38.9
Copper	1.34	1.51	1.13	1.33	14.4
Lead	0.22	0.21	0.33	0.26	25.7
Mercury	0.44	1.21	<0.089	<0.58	99.2
Molybdenum	4.04	4.20	4.09	4.11	2.0
Nickel	0.50	0.59	0.58	0.56	8.7
Selenium	<0.22	<0.23	<0.23	<0.23	1.4
Silver	<0.044	<0.046	<0.045	<0.045	1.4
Thallium	<0.044	<0.046	<0.045	<0.045	1.4
Vanadium	<0.022	<0.023	<0.023	<0.023	1.4
Zinc	9.95	10.9	10.1	10.3	4.8
Total	<28.5	<31.1	<29.4	<29.7	4.5

** 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	<0.046	<0.049	<0.048	<0.048	3.4
Arsenic	<0.046	<0.049	<0.048	<0.048	3.4
Barium	11.0	12.0	12.3	11.7	5.8
Beryllium	<0.046	<0.049	<0.048	<0.048	3.4
Cadmium	0.015	0.060	0.11	0.061	76.5
Chromium	0.93	0.95	1.00	0.96	3.9
Cobalt	0.044	<0.025	<0.024	<0.031	36.8
Copper	1.39	1.63	1.20	1.41	15.4
Lead	0.23	0.23	0.35	0.27	25.8
Mercury	0.45	1.31	<0.095	<0.62	101
Molybdenum	4.19	4.54	4.34	4.36	3.9
Nickel	0.52	0.64	0.62	0.59	10.5
Selenium	<0.23	<0.25	<0.24	<0.24	3.4
Silver	<0.046	<0.049	<0.048	<0.048	3.4
Thallium	<0.046	<0.049	<0.048	<0.048	3.4
Vanadium	<0.023	<0.025	<0.024	<0.024	3.4
Zinc	10.3	11.7	10.7	10.9	6.7
Total	<29.6	<33.6	<31.2	<31.5	6.5

* 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	<0.00086	<0.00087	<0.00086	<0.00086	0.7
Arsenic	<0.00086	<0.00087	<0.00086	<0.00086	0.7
Barium	0.20	0.21	0.22	0.21	3.7
Beryllium	<0.00086	<0.00087	<0.00086	<0.00086	0.7
Cadmium	0.00027	0.0011	0.0019	0.0011	76.3
Chromium	0.017	0.017	0.018	0.017	3.7
Cobalt	0.00082	<0.00043	<0.00043	<0.00056	39.9
Copper	0.026	0.029	0.021	0.025	14.4
Lead	0.0043	0.0041	0.0063	0.0049	25.2
Mercury	0.0084	0.023	<0.0017	<0.011	98.7
Molybdenum	0.078	0.080	0.078	0.079	1.5
Nickel	0.0097	0.011	0.011	0.011	7.9
Selenium	<0.0043	<0.0043	<0.0043	<0.0043	0.7
Silver	<0.00086	<0.00087	<0.00086	<0.00086	0.7
Thallium	<0.00086	<0.00087	<0.00086	<0.00086	0.7
Vanadium	<0.00043	<0.00043	<0.00043	<0.00043	0.7
Zinc	0.19	0.21	0.19	0.20	4.3
Total	<0.55	<0.59	<0.56	<0.57	3.9

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	<0.033	<0.057	<0.045	<0.048	<0.00086
Arsenic	<0.033	<0.057	<0.045	<0.048	<0.00086
Barium	8.14	14.1	11.1	11.7	0.21
Beryllium	<0.033	<0.057	<0.045	<0.048	<0.00086
Cadmium	0.042	0.073	0.057	0.061	0.0011
Chromium	0.67	1.15	0.91	0.96	0.017
Cobalt	<0.021	<0.037	<0.029	<0.031	<0.00056
Copper	0.98	1.69	1.33	1.41	0.025
Lead	0.19	0.32	0.26	0.27	0.0049
Mercury	<0.43	<0.74	<0.58	<0.62	<0.011
Molybdenum	3.02	5.23	4.11	4.36	0.079
Nickel	0.41	0.71	0.56	0.59	0.011
Selenium	<0.17	<0.29	<0.23	<0.24	<0.0043
Silver	<0.033	<0.057	<0.045	<0.048	<0.00086
Thallium	<0.033	<0.057	<0.045	<0.048	<0.00086
Vanadium	<0.017	<0.029	<0.023	<0.024	<0.00043
Zinc	7.57	13.1	10.3	10.9	0.20
Total	<21.8	<37.7	<29.7	<31.5	<0.57

* 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	46.8	0.52	47.3
Beryllium	<0.2	<0.1	<0.20
Cadmium	<0.1	<0.05	<0.10
Chromium	4.85	0.45	5.30
Cobalt	<0.2	<0.1	<0.10
Copper	2.85	2.37	5.22
Lead	<0.5	0.18	0.18
Mercury *	<0.015	<0.15	<0.15
Molybdenum	21.2	<0.1	21.2
Nickel	2.30	0.30	2.60
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	33.3	<3	33.3
Total			<118

* 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	86.6	0.011	0.019	0.015	0.016	0.28
Pentachlorodibenzo-p-dioxins	152	0.019	0.034	0.026	0.028	0.49
Hexachlorodibenzo-p-dioxins	215	0.027	0.048	0.037	0.040	0.70
Heptachlorodibenzo-p-dioxins	156	0.020	0.035	0.027	0.029	0.51
Octachlorodibenzo-p-dioxin	81.9	0.010	0.018	0.014	0.015	0.27
Total	692	0.088	0.15	0.12	0.13	2.24

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	16.6	0.0021	0.0037	0.0029	0.0031	0.054
Pentachlorodibenzofurans	15.6	0.0020	0.0035	0.0027	0.0029	0.051
Hexachlorodibenzofurans	32.9	0.0042	0.0073	0.0057	0.0061	0.11
Heptachlorodibenzofurans	14.4	0.0018	0.0032	0.0025	0.0027	0.047
Octachlorodibenzofuran	<9.1	<0.0012	<0.0020	<0.0016	<0.0017	<0.029
Total	<88.6	<0.011	<0.020	<0.015	<0.016	<0.29

Dry Gas Volume Sampled (Rm^3*) :	4.506
Actual Flowrate (m^3/s) :	25.6
Dry Reference Flowrate (Rm^3/s*) :	14.6
Dry Adjusted Flowrate (Rm^3/s**) :	18.7
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

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

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	69.5	0.0084	0.015	0.011	0.012	0.22
Pentachlorodibenzo-p-dioxins	153	0.019	0.033	0.025	0.027	0.49
Hexachlorodibenzo-p-dioxins	239	0.029	0.051	0.039	0.042	0.77
Heptachlorodibenzo-p-dioxins	218	0.026	0.047	0.036	0.038	0.70
Octachlorodibenzo-p-dioxin	132	0.016	0.028	0.022	0.023	0.42
Total	812	0.098	0.17	0.13	0.14	2.60

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	31.4	0.0038	0.0067	0.0051	0.0055	0.10
Pentachlorodibenzofurans	40.9	0.0050	0.0088	0.0067	0.0072	0.13
Hexachlorodibenzofurans	45.0	0.0054	0.0096	0.0074	0.0079	0.14
Heptachlorodibenzofurans	28.0	0.0034	0.0060	0.0046	0.0049	0.090
Octachlorodibenzofuran	20.3	0.0025	0.0043	0.0033	0.0036	0.065
Total	166	0.020	0.035	0.027	0.029	0.53

Dry Gas Volume Sampled (Rm^3*) :	4.674
Actual Flowrate (m^3/s) :	26.5
Dry Reference Flowrate (Rm^3/s*) :	15.0
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.2

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	86.3	0.011	0.019	0.015	0.016	0.28
Pentachlorodibenzo-p-dioxins	44.6	0.0057	0.0097	0.0077	0.0081	0.14
Hexachlorodibenzo-p-dioxins	266	0.034	0.058	0.046	0.048	0.85
Heptachlorodibenzo-p-dioxins	194	0.025	0.042	0.034	0.035	0.62
Octachlorodibenzo-p-dioxin	123	0.016	0.027	0.021	0.022	0.39
Total	714	0.091	0.16	0.12	0.13	2.29

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	32.3	0.0041	0.0070	0.0056	0.0059	0.10
Pentachlorodibenzofurans	25.6	0.0033	0.0056	0.0044	0.0047	0.082
Hexachlorodibenzofurans	28.1	0.0036	0.0061	0.0049	0.0051	0.090
Heptachlorodibenzofurans	30.0	0.0038	0.0065	0.0052	0.0055	0.096
Octachlorodibenzofuran	18.2	0.0023	0.0040	0.0031	0.0033	0.058
Total	134	0.017	0.029	0.023	0.024	0.43

Dry Gas Volume Sampled (Rm^3*) :	4.592
Actual Flowrate (m^3/s) :	25.2
Dry Reference Flowrate (Rm^3/s*) :	14.7
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	0.011	0.0084	0.011	0.010	14.5
Pentachlorodibenzo-p-dioxins	0.019	0.019	0.0057	0.014	52.8
Hexachlorodibenzo-p-dioxins	0.027	0.029	0.034	0.030	11.4
Heptachlorodibenzo-p-dioxins	0.020	0.026	0.025	0.024	14.6
Octachlorodibenzo-p-dioxin	0.010	0.016	0.016	0.014	22.5
Total	0.088	0.098	0.091	0.092	6.0

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	0.0021	0.0038	0.0041	0.0033	32.4
Pentachlorodibenzofurans	0.0020	0.0050	0.0033	0.0034	44.0
Hexachlorodibenzofurans	0.0042	0.0054	0.0036	0.0044	21.9
Heptachlorodibenzofurans	0.0018	0.0034	0.0038	0.0030	34.8
Octachlorodibenzofuran	<0.0012	0.0025	0.0023	<0.0020	36.3
Total	<0.011	0.020	0.017	<0.016	27.9

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	0.019	0.015	0.019	0.018	13.6
Pentachlorodibenzo-p-dioxins	0.034	0.033	0.0097	0.025	53.5
Hexachlorodibenzo-p-dioxins	0.048	0.051	0.058	0.052	9.9
Heptachlorodibenzo-p-dioxins	0.035	0.047	0.042	0.041	14.8
Octachlorodibenzo-p-dioxin	0.018	0.028	0.027	0.024	22.3
Total	0.15	0.17	0.16	0.16	6.9

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	0.0037	0.0067	0.0070	0.0058	31.8
Pentachlorodibenzofurans	0.0035	0.0088	0.0056	0.0059	44.9
Hexachlorodibenzofurans	0.0073	0.0096	0.0061	0.0077	23.2
Heptachlorodibenzofurans	0.0032	0.0060	0.0065	0.0052	34.2
Octachlorodibenzofuran	<0.0020	0.0043	0.0040	<0.0034	36.2
Total	<0.020	0.035	0.029	<0.028	28.3

* 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	0.015	0.011	0.015	0.014	15.0
Pentachlorodibenzo-p-dioxins	0.026	0.025	0.0077	0.020	52.8
Hexachlorodibenzo-p-dioxins	0.037	0.039	0.046	0.041	11.3
Heptachlorodibenzo-p-dioxins	0.027	0.036	0.034	0.032	14.1
Octachlorodibenzo-p-dioxin	0.014	0.022	0.021	0.019	22.0
Total	0.12	0.13	0.12	0.13	5.4

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	0.0029	0.0051	0.0056	0.0045	32.1
Pentachlorodibenzofurans	0.0027	0.0067	0.0044	0.0046	43.5
Hexachlorodibenzofurans	0.0057	0.0074	0.0049	0.0060	21.3
Heptachlorodibenzofurans	0.0025	0.0046	0.0052	0.0041	34.6
Octachlorodibenzofuran	<0.0016	0.0033	0.0031	<0.0027	35.9
Total	<0.015	0.027	0.023	<0.022	27.4

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

TABLE 30
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Wet Reference Concentrations

Dioxins

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm³*	ng/Rm³*	ng/Rm³*	ng/Rm³*	%
Tetrachlorodibenzo-p-dioxins	0.016	0.012	0.016	0.015	14.3
Pentachlorodibenzo-p-dioxins	0.028	0.027	0.0081	0.021	53.3
Hexachlorodibenzo-p-dioxins	0.040	0.042	0.048	0.043	10.2
Heptachlorodibenzo-p-dioxins	0.029	0.038	0.035	0.034	14.2
Octachlorodibenzo-p-dioxin	0.015	0.023	0.022	0.020	21.9
Total	0.13	0.14	0.13	0.13	6.2

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	0.0031	0.0055	0.0059	0.0048	31.7
Pentachlorodibenzofurans	0.0029	0.0072	0.0047	0.0049	44.2
Hexachlorodibenzofurans	0.0061	0.0079	0.0051	0.0064	22.5
Heptachlorodibenzofurans	0.0027	0.0049	0.0055	0.0044	34.1
Octachlorodibenzofuran	<0.0017	0.0036	0.0033	<0.0029	35.9
Total	<0.016	0.029	0.024	<0.023	27.7

* 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				Coefficient of Variation
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	%
Tetrachlorodibenzo-p-dioxins	0.28	0.22	0.28	0.26	12.3
Pentachlorodibenzo-p-dioxins	0.49	0.49	0.14	0.38	53.7
Hexachlorodibenzo-p-dioxins	0.70	0.77	0.85	0.77	10.0
Heptachlorodibenzo-p-dioxins	0.51	0.70	0.62	0.61	16.0
Octachlorodibenzo-p-dioxin	0.27	0.42	0.39	0.36	23.3
Total	2.24	2.60	2.29	2.38	8.3

Furans

Congener Group	Emission Rate				Coefficient of Variation
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s	Average ng/s	%
Tetrachlorodibenzofurans	0.054	0.10	0.10	0.086	32.5
Pentachlorodibenzofurans	0.051	0.13	0.082	0.088	46.3
Hexachlorodibenzofurans	0.11	0.14	0.090	0.11	24.6
Heptachlorodibenzofurans	0.047	0.090	0.096	0.078	34.7
Octachlorodibenzofuran	<0.029	0.065	0.058	<0.051	37.1
Total	<0.29	0.53	0.43	<0.42	29.5

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	0.010	0.018	0.014	0.015	0.26
Pentachlorodibenzo-p-dioxins	0.014	0.025	0.020	0.021	0.38
Hexachlorodibenzo-p-dioxins	0.030	0.052	0.041	0.043	0.77
Heptachlorodibenzo-p-dioxins	0.024	0.041	0.032	0.034	0.61
Octachlorodibenzo-p-dioxin	0.014	0.024	0.019	0.020	0.36
Total	0.092	0.16	0.13	0.13	2.38

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	0.0033	0.0058	0.0045	0.0048	0.086
Pentachlorodibenzofurans	0.0034	0.0059	0.0046	0.0049	0.088
Hexachlorodibenzofurans	0.0044	0.0077	0.0060	0.0064	0.11
Heptachlorodibenzofurans	0.0030	0.0052	0.0041	0.0044	0.078
Octachlorodibenzofuran	<0.0020	<0.0034	<0.0027	<0.0029	<0.051
Total	<0.016	<0.028	<0.022	<0.023	<0.42

* At 25°C and 1 atmosphere

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

TABLE 33
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Blank Dioxin and Furan Congener Group Analyses

Dioxins

Congener Group	Blank Train pg	Method Blank pg
Tetrachlorodibenzo-p-dioxins	<0.78	<0.61
Pentachlorodibenzo-p-dioxins	<0.97	<0.74
Hexachlorodibenzo-p-dioxins	<0.96	<0.92
Heptachlorodibenzo-p-dioxins	2.37	3.09
Octachlorodibenzo-p-dioxin	4.89	6.93
Total	<9.97	<12.3

Furans

Congener Group	Blank Train pg	Laboratory Blank pg
Tetrachlorodibenzofurans	<0.47	<0.53
Pentachlorodibenzofurans	2.19	<0.74
Hexachlorodibenzofurans	<0.59	<0.52
Heptachlorodibenzofurans	<0.65	3.88
Octachlorodibenzofuran	2.49	<3.9
Total	<6.39	<9.57

"<" 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	<1.0	<0.13	<0.22	<0.17	<0.19	<0.0032
12378-pentachlorodibenzo-p-dioxin	2.96	0.37	0.66	0.51	0.55	0.0096
123478-hexachlorodibenzo-p-dioxin	4.47	0.57	0.99	0.77	0.83	0.014
123678-hexachlorodibenzo-p-dioxin	<9.8	<1.24	<2.17	<1.70	<1.81	<0.032
123789-hexachlorodibenzo-p-dioxin	5.74	0.73	1.27	0.99	1.06	0.019
1234678-heptachlorodibenzo-p-dioxin	78.1	9.88	17.3	13.5	14.5	0.25
Octachlorodibenzo-p-dioxin	81.9	10.4	18.2	14.2	15.2	0.27
2378-tetrachlorodibenzofuran	<1.2	<0.15	<0.27	<0.21	<0.22	<0.0039
12378-pentachlorodibenzofuran	<4.1	<0.52	<0.91	<0.71	<0.76	<0.013
23478-pentachlorodibenzofuran	<6.3	<0.80	<1.40	<1.09	<1.17	<0.020
123478-hexachlorodibenzofuran	<2.5	<0.32	<0.55	<0.43	<0.46	<0.0081
123678-hexachlorodibenzofuran	3.64	0.46	0.81	0.63	0.67	0.012
234678-hexachlorodibenzofuran	6.63	0.84	1.47	1.15	1.23	0.021
123789-hexachlorodibenzofuran	<2.0	<0.25	<0.44	<0.35	<0.37	<0.0065
1234678-heptachlorodibenzofuran	12.0	1.52	2.66	2.08	2.22	0.039
1234789-heptachlorodibenzofuran	2.44	0.31	0.54	0.42	0.45	0.0079
Octachlorodibenzofuran	<9.1	<1.15	<2.02	<1.58	<1.68	<0.029
PCB 81	<6.0	<0.76	<1.33	<1.04	<1.11	<0.019
PCB 77	49.3	6.24	10.9	8.54	9.13	0.16
PCB 123	<15	<1.90	<3.33	<2.60	<2.78	<0.049
PCB 118	1200	152	266	208	222	3.89
PCB 114	33.2	4.20	7.37	5.75	6.15	0.11
PCB 105	364	46.1	80.8	63.1	67.4	1.18
PCB 126	<6.8	<0.86	<1.51	<1.18	<1.26	<0.022
PCB 167	13.4	1.70	2.97	2.32	2.48	0.043
PCB 156/157	<30	<3.80	<6.66	<5.20	<5.55	<0.097
PCB 169	<3.7	<0.47	<0.82	<0.64	<0.69	<0.012
PCB 189	<1.5	<0.19	<0.33	<0.26	<0.28	<0.0049
Total Dioxins & Furans Only	<234	<29.6	<51.9	<40.5	<43.3	<0.76
Total PCBs Only	<1723	<218	<382	<299	<319	<5.58
Total Dioxins & Furans and PCBs	<1957	<248	<434	<339	<362	<6.34

Dry Gas Volume Sampled (Rm³*) :	4.506
Actual Flowrate (m³/s) :	25.6
Dry Reference Flowrate (Rm³/s*) :	14.6
Dry Adjusted Flowrate (Rm³/s**) :	18.7
Wet Reference Flowrate (Rm³/s*) :	17.5

* 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 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	<0.72	<0.087	<0.15	<0.12	<0.13	<0.0023
12378-pentachlorodibenzo-p-dioxin	<2.0	<0.24	<0.43	<0.33	<0.35	<0.0064
123478-hexachlorodibenzo-p-dioxin	<4.3	<0.52	<0.92	<0.70	<0.76	<0.014
123678-hexachlorodibenzo-p-dioxin	13.5	1.63	2.89	2.21	2.38	0.043
123789-hexachlorodibenzo-p-dioxin	6.28	0.76	1.34	1.03	1.11	0.020
1234678-heptachlorodibenzo-p-dioxin	108	13.1	23.1	17.7	19.0	0.35
Octachlorodibenzo-p-dioxin	132	16.0	28.2	21.6	23.3	0.42
2378-tetrachlorodibenzofuran	<3.1	<0.38	<0.66	<0.51	<0.55	<0.0099
12378-pentachlorodibenzofuran	<4.2	<0.51	<0.90	<0.69	<0.74	<0.013
23478-pentachlorodibenzofuran	8.27	1.00	1.77	1.35	1.46	0.027
123478-hexachlorodibenzofuran	<3.6	<0.44	<0.77	<0.59	<0.63	<0.012
123678-hexachlorodibenzofuran	5.47	0.66	1.17	0.90	0.96	0.018
234678-hexachlorodibenzofuran	<7.4	<0.90	<1.58	<1.21	<1.30	<0.024
123789-hexachlorodibenzofuran	3.24	0.39	0.69	0.53	0.57	0.010
1234678-heptachlorodibenzofuran	20.6	2.49	4.41	3.37	3.63	0.066
1234789-heptachlorodibenzofuran	<4.4	<0.53	<0.94	<0.72	<0.78	<0.014
Octachlorodibenzofuran	20.3	2.46	4.34	3.32	3.58	0.065
PCB 81	49.9	6.04	10.7	8.17	8.80	0.16
PCB 77	1300	157	278	213	229	4.17
PCB 123	624	75.6	134	102	110	2.00
PCB 118	46300	5607	9906	7581	8164	149
PCB 114	1150	139	246	188	203	3.69
PCB 105	11900	1441	2546	1948	2098	38.2
PCB 126	30.1	3.65	6.44	4.93	5.31	0.097
PCB 167	278	33.7	59.5	45.5	49.0	0.89
PCB 156/157	626	75.8	133.9	102	110	2.01
PCB 169	<8.7	<1.05	<1.86	<1.42	<1.53	<0.028
PCB 189	<3.4	<0.41	<0.73	<0.56	<0.60	<0.011
Total Dioxins & Furans Only	<347	<42.1	<74.3	<56.9	<61.3	<1.11
Total PCBs Only	<62270	<7541	<13323	<10196	<10980	<200
Total Dioxins & Furans and PCBs	<62617	<7583	<13397	<10253	<11041	<201

Dry Gas Volume Sampled (Rm³*) :	4.674
Actual Flowrate (m³/s) :	26.5
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.2

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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/m^3	pg/Rm^3*	pg/Rm^3**	pg/Rm^3*	ng/s
2378-tetrachlorodibenzo-p-dioxin	<0.85	<0.11	<0.19	<0.15	<0.15	<0.0027
12378-pentachlorodibenzo-p-dioxin	<2.4	<0.30	<0.52	<0.42	<0.44	<0.0077
123478-hexachlorodibenzo-p-dioxin	4.33	0.55	0.94	0.75	0.79	0.014
123678-hexachlorodibenzo-p-dioxin	11.2	1.42	2.44	1.94	2.04	0.036
123789-hexachlorodibenzo-p-dioxin	6.67	0.85	1.45	1.15	1.21	0.021
1234678-heptachlorodibenzo-p-dioxin	100	12.7	21.8	17.3	18.2	0.32
Octachlorodibenzo-p-dioxin	123	15.6	26.8	21.3	22.4	0.39
2378-tetrachlorodibenzofuran	2.36	0.30	0.51	0.41	0.43	0.0076
12378-pentachlorodibenzofuran	<2.7	<0.34	<0.59	<0.47	<0.49	<0.0086
23478-pentachlorodibenzofuran	5.32	0.68	1.16	0.92	0.97	0.017
123478-hexachlorodibenzofuran	3.30	0.42	0.72	0.57	0.60	0.011
123678-hexachlorodibenzofuran	4.84	0.61	1.05	0.84	0.88	0.015
234678-hexachlorodibenzofuran	8.50	1.08	1.85	1.47	1.55	0.027
123789-hexachlorodibenzofuran	<2.9	<0.37	<0.63	<0.50	<0.53	<0.0093
1234678-heptachlorodibenzofuran	16.9	2.15	3.68	2.92	3.07	0.054
1234789-heptachlorodibenzofuran	<3.2	<0.41	<0.70	<0.55	<0.58	<0.010
Octachlorodibenzofuran	18.2	2.31	3.96	3.15	3.31	0.058
PCB 81	<10	<1.27	<2.18	<1.73	<1.82	<0.032
PCB 77	162	20.6	35.3	28.0	29.5	0.52
PCB 123	78.9	10.0	17.2	13.7	14.4	0.25
PCB 118	6020	765	1311	1042	1095	19.3
PCB 114	168	21.3	36.6	29.1	30.6	0.54
PCB 105	2050	260	446	355	373	6.56
PCB 126	<9.6	<1.22	<2.09	<1.66	<1.75	<0.031
PCB 167	60.6	7.70	13.2	10.5	11.0	0.19
PCB 156/157	183	23.2	39.9	31.7	33.3	0.59
PCB 169	<4.3	<0.55	<0.94	<0.74	<0.78	<0.014
PCB 189	3.37	0.43	0.73	0.58	0.61	0.011
Total Dioxins & Furans Only	<317	<40.2	<69.0	<54.8	<57.6	<1.01
Total PCBs Only	<8750	<1112	<1905	<1514	<1591	<28.0
Total Dioxins & Furans and PCBs	<9066	<1152	<1974	<1569	<1649	<29.0

Dry Gas Volume Sampled (Rm^3*) :	4.592
Actual Flowrate (m^3/s) :	25.2
Dry Reference Flowrate (Rm^3/s*) :	14.7
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	<0.13	<0.087	<0.11	<0.11	18.4
12378-pentachlorodibenzo-p-dioxin	0.37	<0.24	<0.30	<0.31	21.6
123478-hexachlorodibenzo-p-dioxin	0.57	<0.52	0.55	<0.55	4.2
123678-hexachlorodibenzo-p-dioxin	<1.24	1.63	1.42	<1.43	13.8
123789-hexachlorodibenzo-p-dioxin	0.73	0.76	0.85	0.78	8.0
1234678-heptachlorodibenzo-p-dioxin	9.88	13.1	12.7	11.9	14.7
Octachlorodibenzo-p-dioxin	10.4	16.0	15.6	14.0	22.5
2378-tetrachlorodibenzofuran	<0.15	<0.38	0.30	<0.28	41.2
12378-pentachlorodibenzofuran	<0.52	<0.51	<0.34	<0.46	21.6
23478-pentachlorodibenzofuran	<0.80	1.00	0.68	<0.82	20.0
123478-hexachlorodibenzofuran	<0.32	<0.44	0.42	<0.39	16.6
123678-hexachlorodibenzofuran	0.46	0.66	0.61	0.58	18.2
234678-hexachlorodibenzofuran	0.84	<0.90	1.08	<0.94	13.4
123789-hexachlorodibenzofuran	<0.25	0.39	<0.37	<0.34	22.0
1234678-heptachlorodibenzofuran	1.52	2.49	2.15	2.05	24.1
1234789-heptachlorodibenzofuran	0.31	<0.53	<0.41	<0.42	27.0
Octachlorodibenzofuran	<1.15	2.46	2.31	<1.97	36.3
PCB 81	<0.76	6.04	<1.27	<2.69	108
PCB 77	6.24	157	20.6	61.4	136
PCB 123	<1.90	75.6	10.0	<29.2	139
PCB 118	152	5607	765	2175	137
PCB 114	4.20	139	21.3	54.9	134
PCB 105	46.1	1441	260	583	129
PCB 126	<0.86	3.65	<1.22	<1.91	79.4
PCB 167	1.70	33.7	7.70	14.4	118
PCB 156/157	<3.80	75.8	23.2	<34.3	109
PCB 169	<0.47	<1.05	<0.55	<0.69	46.1
PCB 189	<0.19	<0.41	0.43	<0.34	38.8
Total Dioxins & Furans Only	<29.6	<42.1	<40.2	<37.3	18.0
Total PCBs Only	<218	<7541	<1112	<2957	135
Total Dioxins & Furans and PCBs	<248	<7583	<1152	<2994	134

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	<0.22	<0.15	<0.19	<0.19	18.2
12378-pentachlorodibenzo-p-dioxin	0.66	<0.43	<0.52	<0.54	21.5
123478-hexachlorodibenzo-p-dioxin	0.99	<0.92	0.94	<0.95	3.9
123678-hexachlorodibenzo-p-dioxin	<2.17	2.89	2.44	<2.50	14.4
123789-hexachlorodibenzo-p-dioxin	1.27	1.34	1.45	1.36	6.6
1234678-heptachlorodibenzo-p-dioxin	17.3	23.1	21.8	20.7	14.6
Octachlorodibenzo-p-dioxin	18.2	28.2	26.8	24.4	22.3
2378-tetrachlorodibenzofuran	<0.27	<0.66	0.51	<0.48	41.7
12378-pentachlorodibenzofuran	<0.91	<0.90	<0.59	<0.80	22.9
23478-pentachlorodibenzofuran	<1.40	1.77	1.16	<1.44	21.3
123478-hexachlorodibenzofuran	<0.55	<0.77	0.72	<0.68	16.5
123678-hexachlorodibenzofuran	0.81	1.17	1.05	1.01	18.3
234678-hexachlorodibenzofuran	1.47	<1.58	1.85	<1.64	11.9
123789-hexachlorodibenzofuran	<0.44	0.69	<0.63	<0.59	22.0
1234678-heptachlorodibenzofuran	2.66	4.41	3.68	3.58	24.4
1234789-heptachlorodibenzofuran	0.54	<0.94	<0.70	<0.73	27.7
Octachlorodibenzofuran	<2.02	4.34	3.96	<3.44	36.2
PCB 81	<1.33	10.7	<2.18	<4.73	109
PCB 77	10.9	278	35.3	108	137
PCB 123	<3.33	134	17.2	<51.3	139
PCB 118	266	9906	1311	3828	138
PCB 114	7.37	246	36.6	96.7	135
PCB 105	80.8	2546	446	1024	130
PCB 126	<1.51	6.44	<2.09	<3.35	80.5
PCB 167	2.97	59.5	13.2	25.2	119
PCB 156/157	<6.66	133.9	39.9	<60.1	110
PCB 169	<0.82	<1.86	<0.94	<1.21	47.3
PCB 189	<0.33	<0.73	0.73	<0.60	38.4
Total Dioxins & Furans Only	<51.9	<74.3	<69.0	<65.1	18.0
Total PCBs Only	<382	<13323	<1905	<5203	136
Total Dioxins & Furans and PCBs	<434	<13397	<1974	<5269	134

* 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	<0.17	<0.12	<0.15	<0.15	19.0
12378-pentachlorodibenzo-p-dioxin	0.51	<0.33	<0.42	<0.42	22.2
123478-hexachlorodibenzo-p-dioxin	0.77	<0.70	0.75	<0.74	4.8
123678-hexachlorodibenzo-p-dioxin	<1.70	2.21	1.94	<1.95	13.2
123789-hexachlorodibenzo-p-dioxin	0.99	1.03	1.15	1.06	7.9
1234678-heptachlorodibenzo-p-dioxin	13.5	17.7	17.3	16.2	14.2
Octachlorodibenzo-p-dioxin	14.2	21.6	21.3	19.0	22.0
2378-tetrachlorodibenzofuran	<0.21	<0.51	0.41	<0.37	40.7
12378-pentachlorodibenzofuran	<0.71	<0.69	<0.47	<0.62	21.6
23478-pentachlorodibenzofuran	<1.09	1.35	0.92	<1.12	19.5
123478-hexachlorodibenzofuran	<0.43	<0.59	0.57	<0.53	16.1
123678-hexachlorodibenzofuran	0.63	0.90	0.84	0.79	17.7
234678-hexachlorodibenzofuran	1.15	<1.21	1.47	<1.28	13.4
123789-hexachlorodibenzofuran	<0.35	0.53	<0.50	<0.46	21.5
1234678-heptachlorodibenzofuran	2.08	3.37	2.92	2.79	23.5
1234789-heptachlorodibenzofuran	0.42	<0.72	<0.55	<0.57	26.4
Octachlorodibenzofuran	<1.58	3.32	3.15	<2.68	35.9
PCB 81	<1.04	8.17	<1.73	<3.65	108
PCB 77	8.54	213	28.0	83.1	136
PCB 123	<2.60	102	13.7	<39.5	138
PCB 118	208	7581	1042	2944	137
PCB 114	5.75	188	29.1	74.4	134
PCB 105	63.1	1948	355	789	129
PCB 126	<1.18	4.93	<1.66	<2.59	78.8
PCB 167	2.32	45.5	10.5	19.4	118
PCB 156/157	<5.20	102	31.7	<46.5	108
PCB 169	<0.64	<1.42	<0.74	<0.94	45.5
PCB 189	<0.26	<0.56	0.58	<0.47	38.5
Total Dioxins & Furans Only	<40.5	<56.9	<54.8	<50.7	17.5
Total PCBs Only	<299	<10196	<1514	<4003	135
Total Dioxins & Furans and PCBs	<339	<10253	<1569	<4054	133

* 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	<0.19	<0.13	<0.15	<0.16	18.7
12378-pentachlorodibenzo-p-dioxin	0.55	<0.35	<0.44	<0.45	22.0
123478-hexachlorodibenzo-p-dioxin	0.83	<0.76	0.79	<0.79	4.4
123678-hexachlorodibenzo-p-dioxin	<1.81	2.38	2.04	<2.08	13.7
123789-hexachlorodibenzo-p-dioxin	1.06	1.11	1.21	1.13	6.9
1234678-heptachlorodibenzo-p-dioxin	14.5	19.0	18.2	17.2	14.1
Octachlorodibenzo-p-dioxin	15.2	23.3	22.4	20.3	21.9
2378-tetrachlorodibenzofuran	<0.22	<0.55	0.43	<0.40	41.1
12378-pentachlorodibenzofuran	<0.76	<0.74	<0.49	<0.66	22.6
23478-pentachlorodibenzofuran	<1.17	1.46	0.97	<1.20	20.6
123478-hexachlorodibenzofuran	<0.46	<0.63	0.60	<0.57	16.1
123678-hexachlorodibenzofuran	0.67	0.96	0.88	0.84	17.8
234678-hexachlorodibenzofuran	1.23	<1.30	1.55	<1.36	12.2
123789-hexachlorodibenzofuran	<0.37	0.57	<0.53	<0.49	21.6
1234678-heptachlorodibenzofuran	2.22	3.63	3.07	2.98	23.9
1234789-heptachlorodibenzofuran	0.45	<0.78	<0.58	<0.60	27.0
Octachlorodibenzofuran	<1.68	3.58	3.31	<2.86	35.9
PCB 81	<1.11	8.80	<1.82	<3.91	109
PCB 77	9.13	229	29.5	89.3	136
PCB 123	<2.78	110	14.4	<42.4	139
PCB 118	222	8164	1095	3160	138
PCB 114	6.15	203	30.6	79.8	134
PCB 105	67.4	2098	373	846	129
PCB 126	<1.26	5.31	<1.75	<2.77	79.8
PCB 167	2.48	49.0	11.0	20.8	119
PCB 156/157	<5.55	110	33.3	<49.7	109
PCB 169	<0.69	<1.53	<0.78	<1.00	46.5
PCB 189	<0.28	<0.60	0.61	<0.50	38.2
Total Dioxins & Furans Only	<43.3	<61.3	<57.6	<54.1	17.6
Total PCBs Only	<319	<10980	<1591	<4297	136
Total Dioxins & Furans and PCBs	<362	<11041	<1649	<4351	134

* 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	<0.0032	<0.0023	<0.0027	<0.0028	16.9
12378-pentachlorodibenzo-p-dioxin	0.0096	<0.0064	<0.0077	<0.0079	20.2
123478-hexachlorodibenzo-p-dioxin	0.014	<0.014	0.014	<0.014	2.7
123678-hexachlorodibenzo-p-dioxin	<0.032	0.043	0.036	<0.037	15.9
123789-hexachlorodibenzo-p-dioxin	0.019	0.020	0.021	0.020	6.9
1234678-heptachlorodibenzo-p-dioxin	0.25	0.35	0.32	0.31	15.7
Octachlorodibenzo-p-dioxin	0.27	0.42	0.39	0.36	23.3
2378-tetrachlorodibenzofuran	<0.0039	<0.0099	0.0076	<0.0071	42.8
12378-pentachlorodibenzofuran	<0.013	<0.013	<0.0086	<0.012	23.2
23478-pentachlorodibenzofuran	<0.020	0.027	0.017	<0.021	22.6
123478-hexachlorodibenzofuran	<0.0081	<0.012	0.011	<0.010	17.7
123678-hexachlorodibenzofuran	0.012	0.018	0.015	0.015	19.5
234678-hexachlorodibenzofuran	0.021	<0.024	0.027	<0.024	11.9
123789-hexachlorodibenzofuran	<0.0065	0.010	<0.0093	<0.0087	23.1
1234678-heptachlorodibenzofuran	0.039	0.066	0.054	0.053	25.7
1234789-heptachlorodibenzofuran	0.0079	<0.014	<0.010	<0.011	29.2
Octachlorodibenzofuran	<0.029	0.065	0.058	<0.051	37.1
PCB 81	<0.019	0.16	<0.032	<0.071	110
PCB 77	0.16	4.17	0.52	1.62	137
PCB 123	<0.049	2.00	0.25	<0.77	140
PCB 118	3.89	149	19.3	57.2	139
PCB 114	0.11	3.69	0.54	1.45	135
PCB 105	1.18	38.2	6.56	15.3	131
PCB 126	<0.022	0.097	<0.031	<0.050	81.9
PCB 167	0.043	0.89	0.19	0.38	120
PCB 156/157	<0.097	2.01	0.59	<0.90	111
PCB 169	<0.012	<0.028	<0.014	<0.018	48.8
PCB 189	<0.0049	<0.011	0.011	<0.0089	39.1
Total Dioxins & Furans Only	<0.76	<1.11	<1.01	<0.96	19.1
Total PCBs Only	<5.58	<200	<28.0	<77.8	137
Total Dioxins & Furans and PCBs	<6.34	<201	<29.0	<78.8	135

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	<0.11	<0.19	<0.15	<0.16	<0.0028
12378-pentachlorodibenzo-p-dioxin	<0.31	<0.54	<0.42	<0.45	<0.0079
123478-hexachlorodibenzo-p-dioxin	<0.55	<0.95	<0.74	<0.79	<0.014
123678-hexachlorodibenzo-p-dioxin	<1.43	<2.50	<1.95	<2.08	<0.037
123789-hexachlorodibenzo-p-dioxin	0.78	1.36	1.06	1.13	0.020
1234678-heptachlorodibenzo-p-dioxin	11.9	20.7	16.2	17.2	0.31
Octachlorodibenzo-p-dioxin	14.0	24.4	19.0	20.3	0.36
2378-tetrachlorodibenzofuran	<0.28	<0.48	<0.37	<0.40	<0.0071
12378-pentachlorodibenzofuran	<0.46	<0.80	<0.62	<0.66	<0.012
23478-pentachlorodibenzofuran	<0.82	<1.44	<1.12	<1.20	<0.021
123478-hexachlorodibenzofuran	<0.39	<0.68	<0.53	<0.57	<0.010
123678-hexachlorodibenzofuran	0.58	1.01	0.79	0.84	0.015
234678-hexachlorodibenzofuran	<0.94	<1.64	<1.28	<1.36	<0.024
123789-hexachlorodibenzofuran	<0.34	<0.59	<0.46	<0.49	<0.0087
1234678-heptachlorodibenzofuran	2.05	3.58	2.79	2.98	0.053
1234789-heptachlorodibenzofuran	<0.42	<0.73	<0.57	<0.60	<0.011
Octachlorodibenzofuran	<1.97	<3.44	<2.68	<2.86	<0.051
PCB 81	<2.69	<4.73	<3.65	<3.91	<0.071
PCB 77	61.4	108	83.1	89.3	1.62
PCB 123	<29.2	<51.3	<39.5	<42.4	<0.77
PCB 118	2175	3828	2944	3160	57.2
PCB 114	54.9	96.7	74.4	79.8	1.45
PCB 105	583	1024	789	846	15.3
PCB 126	<1.91	<3.35	<2.59	<2.77	<0.050
PCB 167	14.4	25.2	19.4	20.8	0.38
PCB 156/157	<34.3	<60.1	<46.5	<49.7	<0.90
PCB 169	<0.69	<1.21	<0.94	<1.00	<0.018
PCB 189	<0.34	<0.60	<0.47	<0.50	<0.0089
Total Dioxins & Furans Only	<37.3	<65.1	<50.7	<54.1	<0.96
Total PCBs Only	<2957	<5203	<4003	<4297	<77.8
Total Dioxins & Furans and PCBs	<2994	<5269	<4054	<4351	<78.8

* 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	<0.78	<0.61
12378-pentachlorodibenzo-p-dioxin	<0.97	<0.85
123478-hexachlorodibenzo-p-dioxin	<0.96	<0.92
123678-hexachlorodibenzo-p-dioxin	<0.93	<0.89
123789-hexachlorodibenzo-p-dioxin	<0.91	<0.87
1234678-heptachlorodibenzo-p-dioxin	2.37	3.09
Octachlorodibenzo-p-dioxin	4.89	6.93
2378-tetrachlorodibenzofuran	<0.47	<0.53
12378-pentachlorodibenzofuran	2.19	<2.3
23478-pentachlorodibenzofuran	<0.67	<0.70
123478-hexachlorodibenzofuran	<0.48	<0.69
123678-hexachlorodibenzofuran	<0.47	<0.47
234678-hexachlorodibenzofuran	<0.48	<1.20
123789-hexachlorodibenzofuran	<0.59	<1.20
1234678-heptachlorodibenzofuran	<0.53	3.88
1234789-heptachlorodibenzofuran	<0.65	<0.69
Octachlorodibenzofuran	2.49	<3.9
PCB 81	<4.7	<5.8
PCB 77	<4.8	<5.8
PCB 123	<5.2	<6.8
PCB 118	<16	<6.3
PCB 114	<5.3	<6.8
PCB 105	<5.5	<6.2
PCB 126	<5.2	<6.4
PCB 167	<3.1	<5.3
PCB 156/157	<4.5	<7.5
PCB 169	<3.2	<5.2
PCB 189	<2.5	<3.0
Total Dioxins & Furans Only	<20.8	<29.7
Total PCBs Only	<60.0	<65.1
Total Dioxins & Furans and PCBs	<80.8	<94.8

"<" 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 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	<0.13	<0.087	<0.11	<0.11
12378-pentachlorodibenzo-p-dioxin	1.00000	0.37	<0.24	<0.30	<0.31
123478-hexachlorodibenzo-p-dioxin	0.10000	0.057	<0.052	0.055	<0.055
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.12	0.16	0.14	<0.14
123789-hexachlorodibenzo-p-dioxin	0.10000	0.073	0.076	0.085	0.078
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.099	0.13	0.13	0.12
Octachlorodibenzo-p-dioxin	0.00030	0.0031	0.0048	0.0047	0.0042
2378-tetrachlorodibenzofuran	0.10000	<0.015	<0.038	0.030	<0.028
12378-pentachlorodibenzofuran	0.03000	<0.016	<0.015	<0.010	<0.014
23478-pentachlorodibenzofuran	0.30000	<0.24	0.30	0.20	<0.25
123478-hexachlorodibenzofuran	0.10000	<0.032	<0.044	0.042	<0.039
123678-hexachlorodibenzofuran	0.10000	0.046	0.066	0.061	0.058
234678-hexachlorodibenzofuran	0.10000	0.084	<0.090	0.11	<0.094
123789-hexachlorodibenzofuran	0.10000	<0.025	0.039	<0.037	<0.034
1234678-heptachlorodibenzofuran	0.01000	0.015	0.025	0.021	0.021
1234789-heptachlorodibenzofuran	0.01000	0.0031	<0.0053	<0.0041	<0.0042
Octachlorodibenzofuran	0.00030	<0.00035	0.00074	0.00069	<0.00059
PCB 81	0.00030	<0.00023	0.0018	<0.00038	<0.00081
PCB 77	0.00010	0.00062	0.016	0.0021	0.0061
PCB 123	0.00003	<0.000057	0.0023	0.00030	<0.00087
PCB 118	0.00003	0.0046	0.17	0.023	0.065
PCB 114	0.00003	0.00013	0.0042	0.00064	0.0016
PCB 105	0.00003	0.0014	0.043	0.0078	0.017
PCB 126	0.10000	<0.086	0.36	<0.12	<0.19
PCB 167	0.00003	0.000051	0.0010	0.00023	0.00043
PCB 156/157	0.00003	<0.00011	0.0023	0.00070	<0.0010
PCB 169	0.03000	<0.014	<0.032	<0.016	<0.021
PCB 189	0.00003	<0.0000057	<0.000012	0.000013	<0.000010
Total Dioxins & Furans Only		<1.33	<1.38	<1.34	<1.35
Total PCBs Only		<0.11	<0.63	<0.17	<0.31
Total Dioxins & Furans and PCBs		<1.44	<2.01	<1.52	<1.66

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	<0.22	<0.15	<0.19	<0.19
12378-pentachlorodibenzo-p-dioxin	1.00000	0.66	<0.43	<0.52	<0.54
123478-hexachlorodibenzo-p-dioxin	0.10000	0.099	<0.092	0.094	<0.095
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.22	0.29	0.24	<0.25
123789-hexachlorodibenzo-p-dioxin	0.10000	0.13	0.13	0.15	0.14
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.17	0.23	0.22	0.21
Octachlorodibenzo-p-dioxin	0.00030	0.0055	0.0085	0.0080	0.0073
2378-tetrachlorodibenzofuran	0.10000	<0.027	<0.066	0.051	<0.048
12378-pentachlorodibenzofuran	0.03000	<0.027	<0.027	<0.018	<0.024
23478-pentachlorodibenzofuran	0.30000	<0.42	0.53	0.35	<0.43
123478-hexachlorodibenzofuran	0.10000	<0.055	<0.077	0.072	<0.068
123678-hexachlorodibenzofuran	0.10000	0.081	0.12	0.11	0.10
234678-hexachlorodibenzofuran	0.10000	0.15	<0.16	0.19	<0.16
123789-hexachlorodibenzofuran	0.10000	<0.044	0.069	<0.063	<0.059
1234678-heptachlorodibenzofuran	0.01000	0.027	0.044	0.037	0.036
1234789-heptachlorodibenzofuran	0.01000	0.0054	<0.0094	<0.0070	<0.0073
Octachlorodibenzofuran	0.00030	<0.00061	0.0013	0.0012	<0.0010
PCB 81	0.00030	<0.00040	0.0032	<0.00065	<0.0014
PCB 77	0.00010	0.0011	0.028	0.0035	0.011
PCB 123	0.00003	<0.00010	0.0040	0.00052	<0.0015
PCB 118	0.00003	0.0080	0.30	0.039	0.11
PCB 114	0.00003	0.00022	0.0074	0.0011	0.0029
PCB 105	0.00003	0.0024	0.076	0.013	0.031
PCB 126	0.10000	<0.15	0.64	<0.21	<0.33
PCB 167	0.00003	0.000089	0.0018	0.00040	0.00076
PCB 156/157	0.00003	<0.00020	0.0040	0.0012	<0.0018
PCB 169	0.03000	<0.025	<0.056	<0.028	<0.036
PCB 189	0.00003	<0.000010	<0.000022	0.000022	<0.000018
Total Dioxins & Furans Only		<2.34	<2.44	<2.30	<2.36
Total PCBs Only		<0.19	<1.12	<0.30	<0.54
Total Dioxins & Furans and PCBs		<2.52	<3.56	<2.60	<2.89

* 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	<0.17	<0.12	<0.15	<0.15
12378-pentachlorodibenzo-p-dioxin	1.00000	0.51	<0.33	<0.42	<0.42
123478-hexachlorodibenzo-p-dioxin	0.10000	0.077	<0.070	0.075	<0.074
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.17	0.22	0.19	<0.19
123789-hexachlorodibenzo-p-dioxin	0.10000	0.099	0.10	0.12	0.11
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.14	0.18	0.17	0.16
Octachlorodibenzo-p-dioxin	0.00030	0.0043	0.0065	0.0064	0.0057
2378-tetrachlorodibenzofuran	0.10000	<0.021	<0.051	0.041	<0.037
12378-pentachlorodibenzofuran	0.03000	<0.021	<0.021	<0.014	<0.019
23478-pentachlorodibenzofuran	0.30000	<0.33	0.41	0.28	<0.34
123478-hexachlorodibenzofuran	0.10000	<0.043	<0.059	0.057	<0.053
123678-hexachlorodibenzofuran	0.10000	0.063	0.090	0.084	0.079
234678-hexachlorodibenzofuran	0.10000	0.11	<0.12	0.15	<0.13
123789-hexachlorodibenzofuran	0.10000	<0.035	0.053	<0.050	<0.046
1234678-heptachlorodibenzofuran	0.01000	0.021	0.034	0.029	0.028
1234789-heptachlorodibenzofuran	0.01000	0.0042	<0.0072	<0.0055	<0.0057
Octachlorodibenzofuran	0.00030	<0.00047	0.0010	0.00094	<0.00080
PCB 81	0.00030	<0.00031	0.0025	<0.00052	<0.0011
PCB 77	0.00010	0.00085	0.021	0.0028	0.0083
PCB 123	0.00003	<0.000078	0.0031	0.00041	<0.0012
PCB 118	0.00003	0.0062	0.23	0.031	0.088
PCB 114	0.00003	0.00017	0.0056	0.00087	0.0022
PCB 105	0.00003	0.0019	0.058	0.011	0.024
PCB 126	0.10000	<0.12	0.49	<0.17	<0.26
PCB 167	0.00003	0.000070	0.0014	0.00031	0.00058
PCB 156/157	0.00003	<0.00016	0.0031	0.00095	<0.0014
PCB 169	0.03000	<0.019	<0.043	<0.022	<0.028
PCB 189	0.00003	<0.0000078	<0.000017	0.000017	<0.000014
Total Dioxins & Furans Only		<1.82	<1.87	<1.83	<1.84
Total PCBs Only		<0.15	<0.86	<0.24	<0.41
Total Dioxins & Furans and PCBs		<1.97	<2.72	<2.07	<2.25

* 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	0.087	0.059	0.074	0.073
12378-pentachlorodibenzo-p-dioxin	1.00000	0.51	0.16	0.21	0.29
123478-hexachlorodibenzo-p-dioxin	0.10000	0.077	0.035	0.075	0.063
123678-hexachlorodibenzo-p-dioxin	0.10000	0.085	0.22	0.19	0.17
123789-hexachlorodibenzo-p-dioxin	0.10000	0.099	0.10	0.12	0.11
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.14	0.18	0.17	0.16
Octachlorodibenzo-p-dioxin	0.00030	0.0043	0.0065	0.0064	0.0057
2378-tetrachlorodibenzofuran	0.10000	0.010	0.025	0.041	0.026
12378-pentachlorodibenzofuran	0.03000	0.011	0.010	0.0070	0.0093
23478-pentachlorodibenzofuran	0.30000	0.16	0.41	0.28	0.28
123478-hexachlorodibenzofuran	0.10000	0.022	0.029	0.057	0.036
123678-hexachlorodibenzofuran	0.10000	0.063	0.090	0.084	0.079
234678-hexachlorodibenzofuran	0.10000	0.11	0.061	0.15	0.11
123789-hexachlorodibenzofuran	0.10000	0.017	0.053	0.025	0.032
1234678-heptachlorodibenzofuran	0.01000	0.021	0.034	0.029	0.028
1234789-heptachlorodibenzofuran	0.01000	0.0042	0.0036	0.0028	0.0035
Octachlorodibenzofuran	0.00030	0.00024	0.0010	0.00094	0.00073
PCB 81	0.00030	0.00016	0.0025	0.00026	0.00096
PCB 77	0.00010	0.00085	0.021	0.0028	0.0083
PCB 123	0.00003	0.000039	0.0031	0.00041	0.0012
PCB 118	0.00003	0.0062	0.23	0.031	0.088
PCB 114	0.00003	0.00017	0.0056	0.00087	0.0022
PCB 105	0.00003	0.0019	0.058	0.011	0.024
PCB 126	0.10000	0.059	0.49	0.083	0.21
PCB 167	0.00003	0.000070	0.0014	0.00031	0.00058
PCB 156/157	0.00003	0.000078	0.0031	0.00095	0.0014
PCB 169	0.03000	0.0096	0.021	0.011	0.014
PCB 189	0.00003	0.0000039	0.0000084	0.000017	0.0000099
Total Dioxins & Furans Only		1.43	1.48	1.51	1.47
Total PCBs Only		0.078	0.84	0.14	0.35
Total Dioxins & Furans and PCBs		1.51	2.32	1.66	1.83

* 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	<0.17	<0.12	<0.15	<0.15
12378-pentachlorodibenzo-p-dioxin	0.50	0.26	<0.16	<0.21	<0.21
123478-hexachlorodibenzo-p-dioxin	0.10	0.077	<0.070	0.075	<0.074
123678-hexachlorodibenzo-p-dioxin	0.10	<0.17	0.22	0.19	<0.19
123789-hexachlorodibenzo-p-dioxin	0.10	0.099	0.10	0.12	0.11
1234678-heptachlorodibenzo-p-dioxin	0.01	0.14	0.18	0.17	0.16
Octachlorodibenzo-p-dioxin	0.001	0.014	0.022	0.021	0.019
2378-tetrachlorodibenzofuran	0.10	<0.021	<0.051	0.041	<0.037
12378-pentachlorodibenzofuran	0.05	<0.036	<0.034	<0.023	<0.031
23478-pentachlorodibenzofuran	0.50	<0.55	0.68	0.46	<0.56
123478-hexachlorodibenzofuran	0.10	<0.043	<0.059	0.057	<0.053
123678-hexachlorodibenzofuran	0.10	0.063	0.090	0.084	0.079
234678-hexachlorodibenzofuran	0.10	0.11	<0.12	0.15	<0.13
123789-hexachlorodibenzofuran	0.10	<0.035	0.053	<0.050	<0.046
1234678-heptachlorodibenzofuran	0.01	0.021	0.034	0.029	0.028
1234789-heptachlorodibenzofuran	0.01	0.0042	<0.0072	<0.0055	<0.0057
Octachlorodibenzofuran	0.001	<0.0016	0.0033	0.0031	<0.0027
Total Dioxins & Furans		<1.81	<2.00	<1.83	<1.88
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	<0.19	<0.13	<0.15	<0.16
12378-pentachlorodibenzo-p-dioxin	1.00000	0.55	<0.35	<0.44	<0.45
123478-hexachlorodibenzo-p-dioxin	0.10000	0.083	<0.076	0.079	<0.079
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.18	0.24	0.20	<0.21
123789-hexachlorodibenzo-p-dioxin	0.10000	0.11	0.11	0.12	0.11
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.14	0.19	0.18	0.17
Octachlorodibenzo-p-dioxin	0.00030	0.0045	0.0070	0.0067	0.0061
2378-tetrachlorodibenzofuran	0.10000	<0.022	<0.055	0.043	<0.040
12378-pentachlorodibenzofuran	0.03000	<0.023	<0.022	<0.015	<0.020
23478-pentachlorodibenzofuran	0.30000	<0.35	0.44	0.29	<0.36
123478-hexachlorodibenzofuran	0.10000	<0.046	<0.063	0.060	<0.057
123678-hexachlorodibenzofuran	0.10000	0.067	0.096	0.088	0.084
234678-hexachlorodibenzofuran	0.10000	0.12	<0.13	0.15	<0.14
123789-hexachlorodibenzofuran	0.10000	<0.037	0.057	<0.053	<0.049
1234678-heptachlorodibenzofuran	0.01000	0.022	0.036	0.031	0.030
1234789-heptachlorodibenzofuran	0.01000	0.0045	<0.0078	<0.0058	<0.0060
Octachlorodibenzofuran	0.00030	<0.00051	0.0011	0.00099	<0.00086
PCB 81	0.00030	<0.00033	0.0026	<0.00055	<0.0012
PCB 77	0.00010	0.00091	0.023	0.0029	0.0089
PCB 123	0.00003	<0.000083	0.0033	0.00043	<0.0013
PCB 118	0.00003	0.0067	0.24	0.033	0.095
PCB 114	0.00003	0.00018	0.0061	0.00092	0.0024
PCB 105	0.00003	0.0020	0.063	0.011	0.025
PCB 126	0.10000	<0.13	0.53	<0.17	<0.28
PCB 167	0.00003	0.000074	0.0015	0.00033	0.00063
PCB 156/157	0.00003	<0.00017	0.0033	0.0010	<0.0015
PCB 169	0.03000	<0.021	<0.046	<0.023	<0.030
PCB 189	0.00003	<0.0000083	<0.000018	0.000018	<0.000015
Total Dioxins & Furans Only		<1.95	<2.01	<1.92	<1.96
Total PCBs Only		<0.16	<0.92	<0.25	<0.44
Total Dioxins & Furans and PCBs		<2.11	<2.93	<2.17	<2.40

* 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	<0.0032	<0.0023	<0.0027	<0.0028
12378-pentachlorodibenzo-p-dioxin	1.00000	0.0096	<0.0064	<0.0077	<0.0079
123478-hexachlorodibenzo-p-dioxin	0.10000	0.0014	<0.0014	0.0014	<0.0014
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.0032	0.0043	0.0036	<0.0037
123789-hexachlorodibenzo-p-dioxin	0.10000	0.0019	0.0020	0.0021	0.0020
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.0025	0.0035	0.0032	0.0031
Octachlorodibenzo-p-dioxin	0.00030	0.000080	0.00013	0.00012	0.00011
2378-tetrachlorodibenzofuran	0.10000	<0.00039	<0.00099	0.00076	<0.00071
12378-pentachlorodibenzofuran	0.03000	<0.00040	<0.00040	<0.00026	<0.00035
23478-pentachlorodibenzofuran	0.30000	<0.0061	0.0080	0.0051	<0.0064
123478-hexachlorodibenzofuran	0.10000	<0.00081	<0.0012	0.0011	<0.0010
123678-hexachlorodibenzofuran	0.10000	0.0012	0.0018	0.0015	0.0015
234678-hexachlorodibenzofuran	0.10000	0.0021	<0.0024	0.0027	<0.0024
123789-hexachlorodibenzofuran	0.10000	<0.00065	0.0010	<0.00093	<0.00087
1234678-heptachlorodibenzofuran	0.01000	0.00039	0.00066	0.00054	0.00053
1234789-heptachlorodibenzofuran	0.01000	0.000079	<0.00014	<0.00010	<0.00011
Octachlorodibenzofuran	0.00030	<0.0000088	0.000020	0.000017	<0.000015
PCB 81	0.00030	<0.0000058	0.000048	<0.0000096	<0.000021
PCB 77	0.00010	0.000016	0.00042	0.000052	0.00016
PCB 123	0.00003	<0.0000015	0.000060	0.0000076	<0.000023
PCB 118	0.00003	0.00012	0.0045	0.00058	0.0017
PCB 114	0.00003	0.0000032	0.00011	0.000016	0.000043
PCB 105	0.00003	0.000035	0.0011	0.00020	0.00046
PCB 126	0.10000	<0.0022	0.0097	<0.0031	<0.0050
PCB 167	0.00003	0.0000013	0.000027	0.0000058	0.000011
PCB 156/157	0.00003	<0.0000029	0.000060	0.000018	<0.000027
PCB 169	0.03000	<0.00036	<0.00084	<0.00041	<0.00054
PCB 189	0.00003	<0.00000015	<0.00000033	0.00000032	<0.00000027
Total Dioxins & Furans Only		<0.034	<0.037	<0.034	<0.035
Total PCBs Only		<0.0027	<0.017	<0.0044	<0.0080
Total Dioxins & Furans and PCBs		<0.037	<0.053	<0.038	<0.043

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	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	<0.11	<0.19	<0.15	<0.16	<0.0028
12378-pentachlorodibenzo-p-dioxin	<0.31	<0.54	<0.42	<0.45	<0.0079
123478-hexachlorodibenzo-p-dioxin	<0.055	<0.095	<0.074	<0.079	<0.0014
123678-hexachlorodibenzo-p-dioxin	<0.14	<0.25	<0.19	<0.21	<0.0037
123789-hexachlorodibenzo-p-dioxin	0.078	0.14	0.11	0.11	0.0020
1234678-heptachlorodibenzo-p-dioxin	0.12	0.21	0.16	0.17	0.0031
Octachlorodibenzo-p-dioxin	0.0042	0.0073	0.0057	0.0061	0.00011
2378-tetrachlorodibenzofuran	<0.028	<0.048	<0.037	<0.040	<0.00071
12378-pentachlorodibenzofuran	<0.014	<0.024	<0.019	<0.020	<0.00035
23478-pentachlorodibenzofuran	<0.25	<0.43	<0.34	<0.36	<0.0064
123478-hexachlorodibenzofuran	<0.039	<0.068	<0.053	<0.057	<0.0010
123678-hexachlorodibenzofuran	0.058	0.10	0.079	0.084	0.0015
234678-hexachlorodibenzofuran	<0.094	<0.16	<0.13	<0.14	<0.0024
123789-hexachlorodibenzofuran	<0.034	<0.059	<0.046	<0.049	<0.00087
1234678-heptachlorodibenzofuran	0.021	0.036	0.028	0.030	0.00053
1234789-heptachlorodibenzofuran	<0.0042	<0.0073	<0.0057	<0.0060	<0.00011
Octachlorodibenzofuran	<0.00059	<0.0010	<0.00080	<0.00086	<0.000015
PCB 81	<0.00081	<0.0014	<0.0011	<0.0012	<0.000021
PCB 77	0.0061	0.011	0.0083	0.0089	0.00016
PCB 123	<0.00087	<0.0015	<0.0012	<0.0013	<0.000023
PCB 118	0.065	0.11	0.088	0.095	0.0017
PCB 114	0.0016	0.0029	0.0022	0.0024	0.000043
PCB 105	0.017	0.031	0.024	0.025	0.00046
PCB 126	<0.19	<0.33	<0.26	<0.28	<0.0050
PCB 167	0.00043	0.00076	0.00058	0.00063	0.000011
PCB 156/157	<0.0010	<0.0018	<0.0014	<0.0015	<0.000027
PCB 169	<0.021	<0.036	<0.028	<0.030	<0.00054
PCB 189	<0.000010	<0.000018	<0.000014	<0.000015	<0.00000027
Total Dioxins & Furans Only	<1.35	<2.36	<1.84	<1.96	<0.035
Total PCBs Only	<0.31	<0.54	<0.41	<0.44	<0.0080
Total Dioxins & Furans and PCBs	<1.66	<2.89	<2.25	<2.40	<0.043

* At 25°C and 1 atmosphere

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

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

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

TABLE 50
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/m³	Dry Reference Concentration pg TEQ/Rm³*	Dry Adjusted Concentration pg TEQ/Rm³**	Wet Reference Concentration pg TEQ/Rm³*	Emission Rate ng TEQ/s
2378-tetrachlorodibenzo-p-dioxin	0.054	0.094	0.073	0.078	0.0014
12378-pentachlorodibenzo-p-dioxin	0.22	0.38	0.29	0.31	0.0055
123478-hexachlorodibenzo-p-dioxin	0.046	0.080	0.063	0.066	0.0012
123678-hexachlorodibenzo-p-dioxin	0.12	0.21	0.17	0.18	0.0032
123789-hexachlorodibenzo-p-dioxin	0.078	0.14	0.11	0.11	0.0020
1234678-heptachlorodibenzo-p-dioxin	0.12	0.21	0.16	0.17	0.0031
Octachlorodibenzo-p-dioxin	0.0042	0.0073	0.0057	0.0061	0.00011
2378-tetrachlorodibenzofuran	0.019	0.033	0.026	0.027	0.00048
12378-pentachlorodibenzofuran	0.0069	0.012	0.0093	0.010	0.00018
23478-pentachlorodibenzofuran	0.21	0.36	0.28	0.30	0.0054
123478-hexachlorodibenzofuran	0.027	0.046	0.036	0.038	0.00068
123678-hexachlorodibenzofuran	0.058	0.10	0.079	0.084	0.0015
234678-hexachlorodibenzofuran	0.079	0.14	0.11	0.11	0.0020
123789-hexachlorodibenzofuran	0.023	0.041	0.032	0.034	0.00061
1234678-heptachlorodibenzofuran	0.021	0.036	0.028	0.030	0.00053
1234789-heptachlorodibenzofuran	0.0026	0.0045	0.0035	0.0038	0.000067
Octachlorodibenzofuran	0.00053	0.00093	0.00073	0.00077	0.000014
PCB 81	0.00071	0.0012	0.00096	0.0010	0.000019
PCB 77	0.0061	0.011	0.0083	0.0089	0.00016
PCB 123	0.00087	0.0015	0.0012	0.0013	0.000023
PCB 118	0.065	0.11	0.088	0.095	0.0017
PCB 114	0.0016	0.0029	0.0022	0.0024	0.000043
PCB 105	0.017	0.031	0.024	0.025	0.00046
PCB 126	0.16	0.27	0.21	0.23	0.0041
PCB 167	0.00043	0.00076	0.00058	0.00063	0.000011
PCB 156/157	0.0010	0.0018	0.0014	0.0015	0.000026
PCB 169	0.010	0.018	0.014	0.015	0.00027
PCB 189	0.0000073	0.000013	0.0000099	0.000011	0.00000019
Total Dioxins & Furans Only	1.08	1.89	1.47	1.57	0.028
Total PCBs Only	0.26	0.46	0.35	0.38	0.0068
Total Dioxins & Furans and PCBs	1.34	2.35	1.83	1.95	0.035

* 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	649	82.1	144	112	120	2.10
1,3-Dichlorobenzene	67.4	8.53	15.0	11.7	12.5	0.22
1,4-Dichlorobenzene	54.8	6.94	12.2	9.50	10.1	0.18
1,2-Dichlorobenzene	45.5	5.76	10.1	7.88	8.42	0.15
Total Dichlorobenzene	168	21.2	37.2	29.1	31.0	0.54
1,3,5-trichlorobenzene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
1,2,4-trichlorobenzene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
1,2,3-trichlorobenzene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Total Trichlorobenzene	<36.0	<4.56	<7.99	<6.24	<6.67	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.52	<2.66	<2.08	<2.22	<0.039
1,2,3,4-tetrachlorobenzene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Total Tetrachlorobenzene	<24.0	<3.04	<5.33	<4.16	<4.44	<0.078
Pentachlorobenzene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Hexachlorobenzene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Total Chlorobenzenes	<901	<114	<200	<156	<167	<2.92

Dry Gas Volume Sampled (Rm^3*) :	4.506
Actual Flowrate (m^3/s) :	25.6
Dry Reference Flowrate (Rm^3/s*) :	14.6
Dry Adjusted Flowrate (Rm^3/s**) :	18.7
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

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

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	197	23.9	42.1	32.3	34.7	0.63
1,3-Dichlorobenzene	32.2	3.90	6.89	5.27	5.68	0.10
1,4-Dichlorobenzene	30.4	3.68	6.50	4.98	5.36	0.098
1,2-Dichlorobenzene	18.4	2.23	3.94	3.01	3.24	0.059
Total Dichlorobenzene	81.0	9.81	17.3	13.3	14.3	0.26
1,3,5-trichlorobenzene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
1,2,4-trichlorobenzene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
1,2,3-trichlorobenzene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Total Trichlorobenzene	<36.0	<4.36	<7.70	<5.89	<6.35	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.45	<2.57	<1.96	<2.12	<0.039
1,2,3,4-tetrachlorobenzene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Total Tetrachlorobenzene	<24.0	<2.91	<5.13	<3.93	<4.23	<0.077
Pentachlorobenzene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Hexachlorobenzene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Total Chlorobenzenes	<362	<43.8	<77.4	<59.3	<63.8	<1.16

Dry Gas Volume Sampled (Rm^3*) :	4.674
Actual Flowrate (m^3/s) :	26.5
Dry Reference Flowrate (Rm^3/s*) :	15.0
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.2

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	621	78.9	135	107	113	1.99
1,3-Dichlorobenzene	70.9	9.01	15.4	12.3	12.9	0.23
1,4-Dichlorobenzene	48.7	6.19	10.6	8.43	8.86	0.16
1,2-Dichlorobenzene	45.8	5.82	9.97	7.93	8.33	0.15
Total Dichlorobenzene	165	21.0	36.0	28.6	30.1	0.53
1,3,5-trichlorobenzene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
1,2,4-trichlorobenzene	17.6	2.24	3.83	3.05	3.20	0.056
1,2,3-trichlorobenzene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Total Trichlorobenzene	<42	<5.28	<9.06	<7.20	<7.57	<0.13
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.52	<2.61	<2.08	<2.18	<0.038
1,2,3,4-tetrachlorobenzene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Total Tetrachlorobenzene	<24.0	<3.05	<5.23	<4.15	<4.37	<0.077
Pentachlorobenzene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Hexachlorobenzene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Total Chlorobenzenes	<876	<111	<191	<152	<159	<2.80

Dry Gas Volume Sampled (Rm^3*) :	4.592
Actual Flowrate (m^3/s) :	25.2
Dry Reference Flowrate (Rm^3/s*) :	14.7
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	82.1	23.9	78.9	61.6	53.1
1,3-Dichlorobenzene	8.53	3.90	9.01	7.15	39.5
1,4-Dichlorobenzene	6.94	3.68	6.19	5.60	30.4
1,2-Dichlorobenzene	5.76	2.23	5.82	4.60	44.7
Total Dichlorobenzene	21.2	9.81	21.0	17.3	37.6
1,3,5-trichlorobenzene	<1.52	<1.45	<1.52	<1.50	2.6
1,2,4-trichlorobenzene	<1.52	<1.45	2.24	<1.74	25.0
1,2,3-trichlorobenzene	<1.52	<1.45	<1.52	<1.50	2.6
Total Trichlorobenzene	<4.56	<4.36	<5.28	<4.73	10.3
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.52	<1.45	<1.52	<1.50	2.6
1,2,3,4-tetrachlorobenzene	<1.52	<1.45	<1.52	<1.50	2.6
Total Tetrachlorobenzene	<3.04	<2.91	<3.05	<3.00	2.6
Pentachlorobenzene	<1.52	<1.45	<1.52	<1.50	2.6
Hexachlorobenzene	<1.52	<1.45	<1.52	<1.50	2.6
Total Chlorobenzenes	<114	<43.8	<111	<89.7	44.3

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	144	42.1	135	107	52.7
1,3-Dichlorobenzene	15.0	6.89	15.4	12.4	38.6
1,4-Dichlorobenzene	12.2	6.50	10.6	9.76	30.0
1,2-Dichlorobenzene	10.1	3.94	9.97	8.00	44.0
Total Dichlorobenzene	37.2	17.3	36.0	30.2	36.9
1,3,5-trichlorobenzene	<2.66	<2.57	<2.61	<2.61	1.8
1,2,4-trichlorobenzene	<2.66	<2.57	3.83	<3.02	23.3
1,2,3-trichlorobenzene	<2.66	<2.57	<2.61	<2.61	1.8
Total Trichlorobenzene	<7.99	<7.70	<9.06	<8.25	8.7
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.66	<2.57	<2.61	<2.61	1.8
1,2,3,4-tetrachlorobenzene	<2.66	<2.57	<2.61	<2.61	1.8
Total Tetrachlorobenzene	<5.33	<5.13	<5.23	<5.23	1.8
Pentachlorobenzene	<2.66	<2.57	<2.61	<2.61	1.8
Hexachlorobenzene	<2.66	<2.57	<2.61	<2.61	1.8
Total Chlorobenzenes	<200	<77.4	<191	<156	43.7

* 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	112	32.3	107	84.1	53.5
1,3-Dichlorobenzene	11.7	5.27	12.3	9.74	39.8
1,4-Dichlorobenzene	9.50	4.98	8.43	7.63	30.9
1,2-Dichlorobenzene	7.88	3.01	7.93	6.27	45.0
Total Dichlorobenzene	29.1	13.3	28.6	23.6	38.0
1,3,5-trichlorobenzene	<2.08	<1.96	<2.08	<2.04	3.2
1,2,4-trichlorobenzene	<2.08	<1.96	3.05	<2.36	25.1
1,2,3-trichlorobenzene	<2.08	<1.96	<2.08	<2.04	3.2
Total Trichlorobenzene	<6.24	<5.89	<7.20	<6.44	10.5
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.08	<1.96	<2.08	<2.04	3.2
1,2,3,4-tetrachlorobenzene	<2.08	<1.96	<2.08	<2.04	3.2
Total Tetrachlorobenzene	<4.16	<3.93	<4.15	<4.08	3.2
Pentachlorobenzene	<2.08	<1.96	<2.08	<2.04	3.2
Hexachlorobenzene	<2.08	<1.96	<2.08	<2.04	3.2
Total Chlorobenzenes	<156	<59.3	<152	<122	44.7

* 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	120	34.7	113	89.3	53.1
1,3-Dichlorobenzene	12.5	5.68	12.9	10.4	39.1
1,4-Dichlorobenzene	10.1	5.36	8.86	8.12	30.5
1,2-Dichlorobenzene	8.42	3.24	8.33	6.67	44.5
Total Dichlorobenzene	31.0	14.3	30.1	25.1	37.4
1,3,5-trichlorobenzene	<2.22	<2.12	<2.18	<2.17	2.5
1,2,4-trichlorobenzene	<2.22	<2.12	3.20	<2.51	23.8
1,2,3-trichlorobenzene	<2.22	<2.12	<2.18	<2.17	2.5
Total Trichlorobenzene	<6.67	<6.35	<7.57	<6.86	9.2
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<2.22	<2.12	<2.18	<2.17	2.5
1,2,3,4-tetrachlorobenzene	<2.22	<2.12	<2.18	<2.17	2.5
Total Tetrachlorobenzene	<4.44	<4.23	<4.37	<4.35	2.5
Pentachlorobenzene	<2.22	<2.12	<2.18	<2.17	2.5
Hexachlorobenzene	<2.22	<2.12	<2.18	<2.17	2.5
Total Chlorobenzenes	<167	<63.8	<159	<130	44.2

* 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	2.10	0.63	1.99	1.57	52.0
1,3-Dichlorobenzene	0.22	0.10	0.23	0.18	37.7
1,4-Dichlorobenzene	0.18	0.098	0.16	0.14	28.8
1,2-Dichlorobenzene	0.15	0.059	0.15	0.12	43.2
Total Dichlorobenzene	0.54	0.26	0.53	0.44	36.0
1,3,5-trichlorobenzene	<0.039	<0.039	<0.038	<0.039	0.6
1,2,4-trichlorobenzene	<0.039	<0.039	0.056	<0.045	22.9
1,2,3-trichlorobenzene	<0.039	<0.039	<0.038	<0.039	0.6
Total Trichlorobenzene	<0.12	<0.12	<0.13	<0.12	8.1
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<0.039	<0.039	<0.038	<0.039	0.6
1,2,3,4-tetrachlorobenzene	<0.039	<0.039	<0.038	<0.039	0.6
Total Tetrachlorobenzene	<0.078	<0.077	<0.077	<0.077	0.6
Pentachlorobenzene	<0.039	<0.039	<0.038	<0.039	0.6
Hexachlorobenzene	<0.039	<0.039	<0.038	<0.039	0.6
Total Chlorobenzenes	<2.92	<1.16	<2.80	<2.29	42.8

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	61.6	107	84.1	89.3	1.57
1,3-Dichlorobenzene	7.15	12.4	9.74	10.4	0.18
1,4-Dichlorobenzene	5.60	9.76	7.63	8.12	0.14
1,2-Dichlorobenzene	4.60	8.00	6.27	6.67	0.12
Total Dichlorobenzene	17.3	30.2	23.6	25.1	0.44
1,3,5-trichlorobenzene	<1.50	<2.61	<2.04	<2.17	<0.039
1,2,4-trichlorobenzene	<1.74	<3.02	<2.36	<2.51	<0.045
1,2,3-trichlorobenzene	<1.50	<2.61	<2.04	<2.17	<0.039
Total Trichlorobenzene	<4.73	<8.25	<6.44	<6.86	<0.12
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.50	<2.61	<2.04	<2.17	<0.039
1,2,3,4-tetrachlorobenzene	<1.50	<2.61	<2.04	<2.17	<0.039
Total Tetrachlorobenzene	<3.00	<5.23	<4.08	<4.35	<0.077
Pentachlorobenzene	<1.50	<2.61	<2.04	<2.17	<0.039
Hexachlorobenzene	<1.50	<2.61	<2.04	<2.17	<0.039
Total Chlorobenzenes	<89.7	<156	<122	<130	<2.29

* 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	<12	<12
1,3-Dichlorobenzene	<12	<12
1,4-Dichlorobenzene	22.6	13.3
1,2-Dichlorobenzene	<12	<12
Total Dichlorobenzene	<46.6	<37.3
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	<143	<133

"<" 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. 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	NQ	NQ	NQ	NQ	NQ	NQ
3 & 4-monochlorophenol	NQ	NQ	NQ	NQ	NQ	NQ
Total Monochlorophenols	NQ	NQ	NQ	NQ	NQ	NQ
2,6-dichlorophenol	<1000	<127	<222	<173	<185	<3.24
2,4 & 2,5-dichlorophenol	<1000	<127	<222	<173	<185	<3.24
3,5-dichlorophenol	<1000	<127	<222	<173	<185	<3.24
2,3-dichlorophenol	<1000	<127	<222	<173	<185	<3.24
3,4-dichlorophenol	2940	372	652	509	544	9.53
Total Dichlorophenols	<6940	<878	<1540	<1202	<1285	<22.5
2,4,6-trichlorophenol	<60	<7.59	<13.3	<10.4	<11.1	<0.19
2,3,6-trichlorophenol	<60	<7.59	<13.3	<10.4	<11.1	<0.19
2,3,5-trichlorophenol	<60	<7.59	<13.3	<10.4	<11.1	<0.19
2,4,5-trichlorophenol	<60	<7.59	<13.3	<10.4	<11.1	<0.19
2,3,4-trichlorophenol	<60	<7.59	<13.3	<10.4	<11.1	<0.19
3,4,5-trichlorophenol	1110	140	246	192	206	3.60
Total Trichlorophenols	<1410	<178	<313	<244	<261	<4.57
2,3,5,6/2,3,4,6-tetrachlorophenol	162	20.5	36.0	28.1	30.0	0.52
2,3,4,5-tetrachlorophenol	72.6	9.19	16.1	12.6	13.4	0.24
Total Tetrachlorophenols	235	29.7	52.1	40.6	43.4	0.76
Pentachlorophenol	1070	135	237	185	198	3.47
Total Chlorophenols	<9655	<1222	<2143	<1673	<1788	<31.3

Dry Gas Volume Sampled (Rm^3*) :	4.506
Actual Flowrate (m^3/s) :	25.6
Dry Reference Flowrate (Rm^3/s*) :	14.6
Dry Adjusted Flowrate (Rm^3/s**) :	18.7
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

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

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

NQ - Indicates that this compound is not quantifiable due to spike recovery loss.

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	NQ	NQ	NQ	NQ	NQ	NQ
3 & 4-monochlorophenol	NQ	NQ	NQ	NQ	NQ	NQ
Total Monochlorophenols	NQ	NQ	NQ	NQ	NQ	NQ
2,6-dichlorophenol	<1000	<121	<214	<164	<176	<3.21
2,4 & 2,5-dichlorophenol	<1000	<121	<214	<164	<176	<3.21
3,5-dichlorophenol	<1000	<121	<214	<164	<176	<3.21
2,3-dichlorophenol	<1000	<121	<214	<164	<176	<3.21
3,4-dichlorophenol	1400	170	300	229	247	4.49
Total Dichlorophenols	<5400	<654	<1155	<884	<952	<17.3
2,4,6-trichlorophenol	<60	<7.27	<12.8	<9.82	<10.6	<0.19
2,3,6-trichlorophenol	<60	<7.27	<12.8	<9.82	<10.6	<0.19
2,3,5-trichlorophenol	<60	<7.27	<12.8	<9.82	<10.6	<0.19
2,4,5-trichlorophenol	<60	<7.27	<12.8	<9.82	<10.6	<0.19
2,3,4-trichlorophenol	<60	<7.27	<12.8	<9.82	<10.6	<0.19
3,4,5-trichlorophenol	<60	<7.27	<12.8	<9.82	<10.6	<0.19
Total Trichlorophenols	<360	<43.6	<77.0	<58.9	<63.5	<1.16
2,3,5,6/2,3,4,6-tetrachlorophenol	164	19.9	35.1	26.9	28.9	0.53
2,3,4,5-tetrachlorophenol	60.7	7.35	13.0	9.94	10.7	0.19
Total Tetrachlorophenols	225	27.2	48.1	36.8	39.6	0.72
Pentachlorophenol	90.3	10.9	19.3	14.8	15.9	0.29
Total Chlorophenols	<6075	<736	<1300	<995	<1071	<19.5

Dry Gas Volume Sampled (Rm^3*) :	4.674
Actual Flowrate (m^3/s) :	26.5
Dry Reference Flowrate (Rm^3/s*) :	15.0
Dry Adjusted Flowrate (Rm^3/s**) :	19.6
Wet Reference Flowrate (Rm^3/s*) :	18.2

* At 25°C and 1 atmosphere

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

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

NQ - Indicates that this compound is not quantifiable due to spike recovery loss.

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	<1000	<127	<218	<173	<182	<3.20
3 & 4-monochlorophenol	<1000	<127	<218	<173	<182	<3.20
Total Monochlorophenols	<2000	<254	<436	<346	<364	<6.40
2,6-dichlorophenol	<1000	<127	<218	<173	<182	<3.20
2,4 & 2,5-dichlorophenol	<1000	<127	<218	<173	<182	<3.20
3,5-dichlorophenol	<1000	<127	<218	<173	<182	<3.20
2,3-dichlorophenol	<1000	<127	<218	<173	<182	<3.20
3,4-dichlorophenol	1790	227	390	310	326	5.73
Total Dichlorophenols	<5790	<736	<1261	<1002	<1053	<18.5
2,4,6-trichlorophenol	<60	<7.62	<13.1	<10.4	<10.9	<0.19
2,3,6-trichlorophenol	<60	<7.62	<13.1	<10.4	<10.9	<0.19
2,3,5-trichlorophenol	<60	<7.62	<13.1	<10.4	<10.9	<0.19
2,4,5-trichlorophenol	<60	<7.62	<13.1	<10.4	<10.9	<0.19
2,3,4-trichlorophenol	<60	<7.62	<13.1	<10.4	<10.9	<0.19
3,4,5-trichlorophenol	<60	<7.62	<13.1	<10.4	<10.9	<0.19
Total Trichlorophenols	<360	<45.7	<78.4	<62.3	<65.5	<1.15
2,3,5,6/2,3,4,6-tetrachlorophenol	173	22.0	37.7	29.9	31.5	0.55
2,3,4,5-tetrachlorophenol	73.1	9.29	15.9	12.6	13.3	0.23
Total Tetrachlorophenols	246	31.3	53.6	42.6	44.8	0.79
Pentachlorophenol	107	13.6	23.3	18.5	19.5	0.34
Total Chlorophenols	<8503	<1080	<1852	<1471	<1547	<27.2

Dry Gas Volume Sampled (Rm^3*) :	4.592
Actual Flowrate (m^3/s) :	25.2
Dry Reference Flowrate (Rm^3/s*) :	14.7
Dry Adjusted Flowrate (Rm^3/s**) :	18.5
Wet Reference Flowrate (Rm^3/s*) :	17.6

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	NQ	NQ	<127	<127	-
3 & 4-monochlorophenol	NQ	NQ	<127	<127	-
Total Monochlorophenols	NQ	NQ	<254	<254	-
2,6-dichlorophenol	<127	<121	<127	<125	2.6
2,4 & 2,5-dichlorophenol	<127	<121	<127	<125	2.6
3,5-dichlorophenol	<127	<121	<127	<125	2.6
2,3-dichlorophenol	<127	<121	<127	<125	2.6
3,4-dichlorophenol	372	170	227	256	40.7
Total Dichlorophenols	<878	<654	<736	<756	15.0
2,4,6-trichlorophenol	<7.59	<7.27	<7.62	<7.49	2.6
2,3,6-trichlorophenol	<7.59	<7.27	<7.62	<7.49	2.6
2,3,5-trichlorophenol	<7.59	<7.27	<7.62	<7.49	2.6
2,4,5-trichlorophenol	<7.59	<7.27	<7.62	<7.49	2.6
2,3,4-trichlorophenol	<7.59	<7.27	<7.62	<7.49	2.6
3,4,5-trichlorophenol	140	<7.27	<7.62	<51.8	148
Total Trichlorophenols	<178	<43.6	<45.7	<89.3	86.5
2,3,5,6/2,3,4,6-tetrachlorophenol	20.5	19.9	22.0	20.8	5.2
2,3,4,5-tetrachlorophenol	9.19	7.35	9.29	8.61	12.7
Total Tetrachlorophenols	29.7	27.2	31.3	29.4	6.9
Pentachlorophenol	135	10.9	13.6	53.3	133
Total Chlorophenols	<1222	<736	<1080	<1013	24.7

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	NQ	NQ	<218	<218	-
3 & 4-monochlorophenol	NQ	NQ	<218	<218	-
Total Monochlorophenols	NQ	NQ	<436	<436	-
2,6-dichlorophenol	<222	<214	<218	<218	1.8
2,4 & 2,5-dichlorophenol	<222	<214	<218	<218	1.8
3,5-dichlorophenol	<222	<214	<218	<218	1.8
2,3-dichlorophenol	<222	<214	<218	<218	1.8
3,4-dichlorophenol	652	300	390	447	41.0
Total Dichlorophenols	<1540	<1155	<1261	<1319	15.1
2,4,6-trichlorophenol	<13.3	<12.8	<13.1	<13.1	1.8
2,3,6-trichlorophenol	<13.3	<12.8	<13.1	<13.1	1.8
2,3,5-trichlorophenol	<13.3	<12.8	<13.1	<13.1	1.8
2,4,5-trichlorophenol	<13.3	<12.8	<13.1	<13.1	1.8
2,3,4-trichlorophenol	<13.3	<12.8	<13.1	<13.1	1.8
3,4,5-trichlorophenol	246	<12.8	<13.1	<90.7	148
Total Trichlorophenols	<313	<77.0	<78.4	<156	87.0
2,3,5,6/2,3,4,6-tetrachlorophenol	36.0	35.1	37.7	36.2	3.6
2,3,4,5-tetrachlorophenol	16.1	13.0	15.9	15.0	11.7
Total Tetrachlorophenols	52.1	48.1	53.6	51.2	5.6
Pentachlorophenol	237	19.3	23.3	93.4	134
Total Chlorophenols	<2143	<1300	<1852	<1765	24.3

* 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	NQ	NQ	<173	<173	-
3 & 4-monochlorophenol	NQ	NQ	<173	<173	-
Total Monochlorophenols	NQ	NQ	<346	<346	-
2,6-dichlorophenol	<173	<164	<173	<170	3.2
2,4 & 2,5-dichlorophenol	<173	<164	<173	<170	3.2
3,5-dichlorophenol	<173	<164	<173	<170	3.2
2,3-dichlorophenol	<173	<164	<173	<170	3.2
3,4-dichlorophenol	509	229	310	349	41.3
Total Dichlorophenols	<1202	<884	<1002	<1030	15.6
2,4,6-trichlorophenol	<10.4	<9.82	<10.4	<10.2	3.2
2,3,6-trichlorophenol	<10.4	<9.82	<10.4	<10.2	3.2
2,3,5-trichlorophenol	<10.4	<9.82	<10.4	<10.2	3.2
2,4,5-trichlorophenol	<10.4	<9.82	<10.4	<10.2	3.2
2,3,4-trichlorophenol	<10.4	<9.82	<10.4	<10.2	3.2
3,4,5-trichlorophenol	192	<9.82	<10.4	<70.8	149
Total Trichlorophenols	<244	<58.9	<62.3	<122	87.0
2,3,5,6/2,3,4,6-tetrachlorophenol	28.1	26.9	29.9	28.3	5.5
2,3,4,5-tetrachlorophenol	12.6	9.94	12.6	11.7	13.2
Total Tetrachlorophenols	40.6	36.8	42.6	40.0	7.4
Pentachlorophenol	185	14.8	18.5	72.9	134
Total Chlorophenols	<1673	<995	<1471	<1380	25.2

* 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	NQ	NQ	<182	<182	-
3 & 4-monochlorophenol	NQ	NQ	<182	<182	-
Total Monochlorophenols	NQ	NQ	<364	<364	-
2,6-dichlorophenol	<185	<176	<182	<181	2.5
2,4 & 2,5-dichlorophenol	<185	<176	<182	<181	2.5
3,5-dichlorophenol	<185	<176	<182	<181	2.5
2,3-dichlorophenol	<185	<176	<182	<181	2.5
3,4-dichlorophenol	544	247	326	372	41.4
Total Dichlorophenols	<1285	<952	<1053	<1097	15.6
2,4,6-trichlorophenol	<11.1	<10.6	<10.9	<10.9	2.5
2,3,6-trichlorophenol	<11.1	<10.6	<10.9	<10.9	2.5
2,3,5-trichlorophenol	<11.1	<10.6	<10.9	<10.9	2.5
2,4,5-trichlorophenol	<11.1	<10.6	<10.9	<10.9	2.5
2,3,4-trichlorophenol	<11.1	<10.6	<10.9	<10.9	2.5
3,4,5-trichlorophenol	206	<10.6	<10.9	<75.7	149
Total Trichlorophenols	<261	<63.5	<65.5	<130	87.3
2,3,5,6/2,3,4,6-tetrachlorophenol	30.0	28.9	31.5	30.1	4.2
2,3,4,5-tetrachlorophenol	13.4	10.7	13.3	12.5	12.3
Total Tetrachlorophenols	43.4	39.6	44.8	42.6	6.3
Pentachlorophenol	198	15.9	19.5	77.8	134
Total Chlorophenols	<1788	<1071	<1547	<1468	24.8

* 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	NQ	NQ	<3.20	<3.20	-
3 & 4-monochlorophenol	NQ	NQ	<3.20	<3.20	-
Total Monochlorophenols	NQ	NQ	<6.40	<6.40	-
2,6-dichlorophenol	<3.24	<3.21	<3.20	<3.22	0.6
2,4 & 2,5-dichlorophenol	<3.24	<3.21	<3.20	<3.22	0.6
3,5-dichlorophenol	<3.24	<3.21	<3.20	<3.22	0.6
2,3-dichlorophenol	<3.24	<3.21	<3.20	<3.22	0.6
3,4-dichlorophenol	9.53	4.49	5.73	6.58	39.8
Total Dichlorophenols	<22.5	<17.3	<18.5	<19.5	13.9
2,4,6-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.6
2,3,6-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.6
2,3,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.6
2,4,5-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.6
2,3,4-trichlorophenol	<0.19	<0.19	<0.19	<0.19	0.6
3,4,5-trichlorophenol	3.60	<0.19	<0.19	<1.33	148
Total Trichlorophenols	<4.57	<1.16	<1.15	<2.29	86.0
2,3,5,6/2,3,4,6-tetrachlorophenol	0.52	0.53	0.55	0.54	3.0
2,3,4,5-tetrachlorophenol	0.24	0.19	0.23	0.22	10.4
Total Tetrachlorophenols	0.76	0.72	0.79	0.76	4.4
Pentachlorophenol	3.47	0.29	0.34	1.37	133
Total Chlorophenols	<31.3	<19.5	<27.2	<26.0	23.0

TABLE 69
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Emission Data for Chlorophenol Isomer and Congener Groups

Specific Isomer	Actual Concentration ng/m³	Dry Reference Concentration ng/Rm³*	Dry Adjusted Concentration ng/Rm³**	Wet Reference Concentration ng/Rm³*	Emission Rate µg/s
2-monochlorophenol	<127	<218	<173	<182	<3.20
3 & 4-monochlorophenol	<127	<218	<173	<182	<3.20
Total Monochlorophenols	<254	<436	<346	<364	<6.40
2,6-dichlorophenol	<125	<218	<170	<181	<3.22
2,4 & 2,5-dichlorophenol	<125	<218	<170	<181	<3.22
3,5-dichlorophenol	<125	<218	<170	<181	<3.22
2,3-dichlorophenol	<125	<218	<170	<181	<3.22
3,4-dichlorophenol	256	447	349	372	6.58
Total Dichlorophenols	<756	<1319	<1030	<1097	<19.5
2,4,6-trichlorophenol	<7.49	<13.1	<10.2	<10.9	<0.19
2,3,6-trichlorophenol	<7.49	<13.1	<10.2	<10.9	<0.19
2,3,5-trichlorophenol	<7.49	<13.1	<10.2	<10.9	<0.19
2,4,5-trichlorophenol	<7.49	<13.1	<10.2	<10.9	<0.19
2,3,4-trichlorophenol	<7.49	<13.1	<10.2	<10.9	<0.19
3,4,5-trichlorophenol	<51.8	<90.7	<70.8	<75.7	<1.33
Total Trichlorophenols	<89.3	<156	<122	<130	<2.29
2,3,5,6/2,3,4,6-tetrachlorophenol	20.8	36.2	28.3	30.1	0.54
2,3,4,5-tetrachlorophenol	8.61	15.0	11.7	12.5	0.22
Total Tetrachlorophenols	29.4	51.2	40.0	42.6	0.76
Pentachlorophenol	53.3	93.4	72.9	77.8	1.37
Total Chlorophenols	<1013	<1765	<1380	<1468	<26.0

* 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	Media Blank Total ng	Blank Train Total ng
2-monochlorophenol	<60	<500
3 & 4-monochlorophenol	<60	<500
Total Monochlorophenols	<120	<1000
2,6-dichlorophenol	<200	<500
2,4 & 2,5-dichlorophenol	<60	<500
3,5-dichlorophenol	<200	856
2,3-dichlorophenol	<200	<500
3,4-dichlorophenol	<200	1270
Total Dichlorophenols	<860	<3626
2,4,6-trichlorophenol	<60	<60
2,3,6-trichlorophenol	<60	<60
2,3,5-trichlorophenol	<60	<60
2,4,5-trichlorophenol	<60	86.4
2,3,4-trichlorophenol	<60	<60
3,4,5-trichlorophenol	<60	251
Total Trichlorophenols	<360	<577
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	124
2,3,4,5-tetrachlorophenol	<60	64.9
Total Tetrachlorophenols	<120	189
Pentachlorophenol	<60	247
Total Chlorophenols	<1520	<5639

"<" 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	<1.52	<2.66	<2.08	<2.22	<0.039
Acenaphthylene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Anthracene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(a)Anthracene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(b)Fluoranthene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(k)Fluoranthene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(a)fluorene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(b)fluorene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(g,h,i)Perylene	34.7	4.39	7.70	6.01	6.42	0.11
Benzo(a)Pyrene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Benzo(e)Pyrene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Biphenyl	14.9	1.89	3.31	2.58	2.76	0.048
2-Chloronaphthalene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Chrysene/Triphenylene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Coronene	<60	<7.59	<13.3	<10.4	<11.1	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Dibenzo(a,e)pyrene	<60	<7.59	<13.3	<10.4	<11.1	<0.19
9,10-dimethylanthracene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
7,12-Dimethylbenzo(a)anthracene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Fluoranthene	19.4	2.46	4.31	3.36	3.59	0.063
Fluorene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Indeno(1,2,3-cd)Pyrene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
2-methylanthracene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
3-Methylcholanthrene	<60	<7.59	<13.3	<10.4	<11.1	<0.19
1-Methylnaphthalene	12.4	1.57	2.75	2.15	2.30	0.040
2-Methylnaphthalene	22.1	2.80	4.90	3.83	4.09	0.072
1-Methylphenanthrene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
9-Methylphenanthrene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Naphthalene	71.0	8.99	15.8	12.3	13.1	0.23
Perylene	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Phenanthrene	72.0	9.11	16.0	12.5	13.3	0.23
Picene	<60	<7.59	<13.3	<10.4	<11.1	<0.19
Pyrene	26.3	3.33	5.84	4.56	4.87	0.085
Tetralin	17.9	2.27	3.97	3.10	3.31	0.058
m-terphenyl	<12	<1.52	<2.66	<2.08	<2.22	<0.039
o-Terphenyl	<12	<1.52	<2.66	<2.08	<2.22	<0.039
p-terphenyl	<12	<1.52	<2.66	<2.08	<2.22	<0.039
Total	<819	<104	<182	<142	<152	<2.65

Dry Gas Volume Sampled (Rm³*) :	4.506
Actual Flowrate (m³/s) :	25.6
Dry Reference Flowrate (Rm³/s*) :	14.6
Dry Adjusted Flowrate (Rm³/s**) :	18.7
Wet Reference Flowrate (Rm³/s*) :	17.5

* 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 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	17.8	2.16	3.81	2.91	3.14	0.057
Acenaphthylene	16.0	1.94	3.42	2.62	2.82	0.051
Anthracene	13.1	1.59	2.80	2.14	2.31	0.042
Benzo(a)Anthracene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Benzo(b)Fluoranthene	34.0	4.12	7.27	5.57	6.00	0.11
Benzo(k)Fluoranthene	20.7	2.51	4.43	3.39	3.65	0.066
Benzo(a)fluorene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Benzo(b)fluorene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Benzo(g,h,i)Perylene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Benzo(a)Pyrene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Benzo(e)Pyrene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Biphenyl	59.8	7.24	12.8	9.79	10.5	0.19
2-Chloronaphthalene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Chrysene/Triphenylene	49.3	5.97	10.5	8.07	8.69	0.16
Coronene	<60	<7.27	<12.8	<9.82	<10.6	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Dibenzo(a,e)pyrene	<60	<7.27	<12.8	<9.82	<10.6	<0.19
9,10-dimethylanthracene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
7,12-Dimethylbenzo(a)anthracene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Fluoranthene	134	16.2	28.7	21.9	23.6	0.43
Fluorene	39.1	4.74	8.37	6.40	6.89	0.13
Indeno(1,2,3-cd)Pyrene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
2-methylanthracene	18.7	2.26	4.00	3.06	3.30	0.060
3-Methylcholanthrene	<60	<7.27	<12.8	<9.82	<10.6	<0.19
1-Methylnaphthalene	35.2	4.26	7.53	5.76	6.21	0.11
2-Methylnaphthalene	56.4	6.83	12.1	9.23	9.95	0.18
1-Methylphenanthrene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
9-Methylphenanthrene	55.6	6.73	11.9	9.10	9.80	0.18
Naphthalene	117	14.2	25.0	19.2	20.6	0.38
Perylene	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Phenanthrene	656	79.4	140	107	116	2.11
Picene	<60	<7.27	<12.8	<9.82	<10.6	<0.19
Pyrene	86.9	10.5	18.6	14.2	15.3	0.28
Tetralin	79.9	9.68	17.1	13.1	14.1	0.26
m-terphenyl	<12	<1.45	<2.57	<1.96	<2.12	<0.039
o-Terphenyl	15.5	1.88	3.32	2.54	2.73	0.050
p-terphenyl	<12	<1.45	<2.57	<1.96	<2.12	<0.039
Total	<1925	<233	<412	<315	<339	<6.18

Dry Gas Volume Sampled (Rm³*) :	4.674
Actual Flowrate (m³/s) :	26.5
Dry Reference Flowrate (Rm³/s*) :	15.0
Dry Adjusted Flowrate (Rm³/s**) :	19.6
Wet Reference Flowrate (Rm³/s*) :	18.2

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	<1.52	<2.61	<2.08	<2.18	<0.038
Acenaphthylene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Anthracene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(a)Anthracene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(b)Fluoranthene	18.7	2.38	4.07	3.24	3.40	0.060
Benzo(k)Fluoranthene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(a)fluorene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(b)fluorene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(g,h,i)Perylene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(a)Pyrene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Benzo(e)Pyrene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Biphenyl	33.8	4.29	7.36	5.85	6.15	0.11
2-Chloronaphthalene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Chrysene/Triphenylene	19.5	2.48	4.25	3.37	3.55	0.062
Coronene	<60	<7.62	<13.1	<10.4	<10.9	<0.19
Dibenzo(a,c/a,h)Anthracene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Dibenzo(a,e)pyrene	<60	<7.62	<13.1	<10.4	<10.9	<0.19
9,10-dimethylanthracene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
7,12-Dimethylbenzo(a)anthracene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Fluoranthene	41.9	5.32	9.12	7.25	7.62	0.13
Fluorene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Indeno(1,2,3-cd)Pyrene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
2-methylanthracene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
3-Methylcholanthrene	<60	<7.62	<13.1	<10.4	<10.9	<0.19
1-Methylnaphthalene	15.2	1.93	3.31	2.63	2.76	0.049
2-Methylnaphthalene	25.6	3.25	5.57	4.43	4.66	0.082
1-Methylphenanthrene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
9-Methylphenanthrene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Naphthalene	79.2	10.1	17.2	13.7	14.4	0.25
Perylene	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Phenanthrene	118	15.0	25.7	20.4	21.5	0.38
Picene	<60	<7.62	<13.1	<10.4	<10.9	<0.19
Pyrene	33.6	4.27	7.32	5.81	6.11	0.11
Tetralin	61.6	7.83	13.4	10.7	11.2	0.20
m-terphenyl	<12	<1.52	<2.61	<2.08	<2.18	<0.038
o-Terphenyl	<12	<1.52	<2.61	<2.08	<2.18	<0.038
p-terphenyl	<12	<1.52	<2.61	<2.08	<2.18	<0.038
Total	<963	<122	<210	<167	<175	<3.08

Dry Gas Volume Sampled (Rm³*) :	4.592
Actual Flowrate (m³/s) :	25.2
Dry Reference Flowrate (Rm³/s*) :	14.7
Dry Adjusted Flowrate (Rm³/s**) :	18.5
Wet Reference Flowrate (Rm³/s*) :	17.6

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected 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	<1.52	2.16	<1.52	<1.73	21.1
Acenaphthylene	<1.52	1.94	<1.52	<1.66	14.5
Anthracene	<1.52	1.59	<1.52	<1.54	2.4
Benzo(a)Anthracene	<1.52	<1.45	<1.52	<1.50	2.6
Benzo(b)Fluoranthene	<1.52	4.12	2.38	<2.67	49.6
Benzo(k)Fluoranthene	<1.52	2.51	<1.52	<1.85	30.7
Benzo(a)fluorene	<1.52	<1.45	<1.52	<1.50	2.6
Benzo(b)fluorene	<1.52	<1.45	<1.52	<1.50	2.6
Benzo(g,h,i)Perylene	4.39	<1.45	<1.52	<2.46	68.2
Benzo(a)Pyrene	<1.52	<1.45	<1.52	<1.50	2.6
Benzo(e)Pyrene	<1.52	<1.45	<1.52	<1.50	2.6
Biphenyl	1.89	7.24	4.29	4.47	60.0
2-Chloronaphthalene	<1.52	<1.45	<1.52	<1.50	2.6
Chrysene/Triphenylene	<1.52	5.97	2.48	<3.32	70.5
Coronene	<7.59	<7.27	<7.62	<7.49	2.6
Dibenzo(a,c/a,h)Anthracene	<1.52	<1.45	<1.52	<1.50	2.6
Dibenzo(a,e)pyrene	<7.59	<7.27	<7.62	<7.49	2.6
9,10-dimethylanthracene	<1.52	<1.45	<1.52	<1.50	2.6
7,12-Dimethylbenzo(a)anthracene	<1.52	<1.45	<1.52	<1.50	2.6
Fluoranthene	2.46	16.2	5.32	8.00	90.8
Fluorene	<1.52	4.74	<1.52	<2.59	71.6
Indeno(1,2,3-cd)Pyrene	<1.52	<1.45	<1.52	<1.50	2.6
2-methylanthracene	<1.52	2.26	<1.52	<1.77	24.2
3-Methylcholanthrene	<7.59	<7.27	<7.62	<7.49	2.6
1-Methylnaphthalene	1.57	4.26	1.93	2.59	56.5
2-Methylnaphthalene	2.80	6.83	3.25	4.29	51.5
1-Methylphenanthrene	<1.52	<1.45	<1.52	<1.50	2.6
9-Methylphenanthrene	<1.52	6.73	<1.52	<3.26	92.3
Naphthalene	8.99	14.2	10.1	11.1	24.7
Perylene	<1.52	<1.45	<1.52	<1.50	2.6
Phenanthrene	9.11	79.4	15.0	34.5	113
Picene	<7.59	<7.27	<7.62	<7.49	2.6
Pyrene	3.33	10.5	4.27	6.04	64.8
Tetralin	2.27	9.68	7.83	6.59	58.5
m-terphenyl	<1.52	<1.45	<1.52	<1.50	2.6
o-Terphenyl	<1.52	1.88	<1.52	<1.64	12.5
p-terphenyl	<1.52	<1.45	<1.52	<1.50	2.6
Total	<104	<233	<122	<153	45.7

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	<2.66	3.81	<2.61	<3.03	22.3
Acenaphthylene	<2.66	3.42	<2.61	<2.90	15.7
Anthracene	<2.66	2.80	<2.61	<2.69	3.6
Benzo(a)Anthracene	<2.66	<2.57	<2.61	<2.61	1.8
Benzo(b)Fluoranthene	<2.66	7.27	4.07	<4.67	50.6
Benzo(k)Fluoranthene	<2.66	4.43	<2.61	<3.24	32.0
Benzo(a)fluorene	<2.66	<2.57	<2.61	<2.61	1.8
Benzo(b)fluorene	<2.66	<2.57	<2.61	<2.61	1.8
Benzo(g,h,i)Perylene	7.70	<2.57	<2.61	<4.29	68.7
Benzo(a)Pyrene	<2.66	<2.57	<2.61	<2.61	1.8
Benzo(e)Pyrene	<2.66	<2.57	<2.61	<2.61	1.8
Biphenyl	3.31	12.8	7.36	7.82	60.9
2-Chloronaphthalene	<2.66	<2.57	<2.61	<2.61	1.8
Chrysene/Triphenylene	<2.66	10.5	4.25	<5.82	71.7
Coronene	<13.3	<12.8	<13.1	<13.1	1.8
Dibenzo(a,c/a,h)Anthracene	<2.66	<2.57	<2.61	<2.61	1.8
Dibenzo(a,e)pyrene	<13.3	<12.8	<13.1	<13.1	1.8
9,10-dimethylanthracene	<2.66	<2.57	<2.61	<2.61	1.8
7,12-Dimethylbenzo(a)anthracene	<2.66	<2.57	<2.61	<2.61	1.8
Fluoranthene	4.31	28.7	9.12	14.0	91.9
Fluorene	<2.66	8.37	<2.61	<4.55	72.7
Indeno(1,2,3-cd)Pyrene	<2.66	<2.57	<2.61	<2.61	1.8
2-methylanthracene	<2.66	4.00	<2.61	<3.09	25.5
3-Methylcholanthrene	<13.3	<12.8	<13.1	<13.1	1.8
1-Methylnaphthalene	2.75	7.53	3.31	4.53	57.7
2-Methylnaphthalene	4.90	12.1	5.57	7.52	52.6
1-Methylphenanthrene	<2.66	<2.57	<2.61	<2.61	1.8
9-Methylphenanthrene	<2.66	11.9	<2.61	<5.72	93.4
Naphthalene	15.8	25.0	17.2	19.3	25.7
Perylene	<2.66	<2.57	<2.61	<2.61	1.8
Phenanthrene	16.0	140	25.7	60.7	114
Picene	<13.3	<12.8	<13.1	<13.1	1.8
Pyrene	5.84	18.6	7.32	10.6	65.9
Tetralin	3.97	17.1	13.4	11.5	58.9
m-terphenyl	<2.66	<2.57	<2.61	<2.61	1.8
o-Terphenyl	<2.66	3.32	<2.61	<2.86	13.7
p-terphenyl	<2.66	<2.57	<2.61	<2.61	1.8
Total	<182	<412	<210	<268	46.9

* 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	<2.08	2.91	<2.08	<2.36	20.5
Acenaphthylene	<2.08	2.62	<2.08	<2.26	13.9
Anthracene	<2.08	2.14	<2.08	<2.10	1.8
Benzo(a)Anthracene	<2.08	<1.96	<2.08	<2.04	3.2
Benzo(b)Fluoranthene	<2.08	5.57	3.24	<3.63	49.0
Benzo(k)Fluoranthene	<2.08	3.39	<2.08	<2.52	30.1
Benzo(a)fluorene	<2.08	<1.96	<2.08	<2.04	3.2
Benzo(b)fluorene	<2.08	<1.96	<2.08	<2.04	3.2
Benzo(g,h,i)Perylene	6.01	<1.96	<2.08	<3.35	68.8
Benzo(a)Pyrene	<2.08	<1.96	<2.08	<2.04	3.2
Benzo(e)Pyrene	<2.08	<1.96	<2.08	<2.04	3.2
Biphenyl	2.58	9.79	5.85	6.07	59.4
2-Chloronaphthalene	<2.08	<1.96	<2.08	<2.04	3.2
Chrysene/Triphenylene	<2.08	8.07	3.37	<4.51	69.9
Coronene	<10.4	<9.82	<10.4	<10.2	3.2
Dibenzo(a,c/a,h)Anthracene	<2.08	<1.96	<2.08	<2.04	3.2
Dibenzo(a,e)pyrene	<10.4	<9.82	<10.4	<10.2	3.2
9,10-dimethylanthracene	<2.08	<1.96	<2.08	<2.04	3.2
7,12-Dimethylbenzo(a)anthracene	<2.08	<1.96	<2.08	<2.04	3.2
Fluoranthene	3.36	21.9	7.25	10.9	90.3
Fluorene	<2.08	6.40	<2.08	<3.52	70.9
Indeno(1,2,3-cd)Pyrene	<2.08	<1.96	<2.08	<2.04	3.2
2-methylanthracene	<2.08	3.06	<2.08	<2.41	23.6
3-Methylcholanthrene	<10.4	<9.82	<10.4	<10.2	3.2
1-Methylnaphthalene	2.15	5.76	2.63	3.51	55.9
2-Methylnaphthalene	3.83	9.23	4.43	5.83	50.8
1-Methylphenanthrene	<2.08	<1.96	<2.08	<2.04	3.2
9-Methylphenanthrene	<2.08	9.10	<2.08	<4.42	91.8
Naphthalene	12.3	19.2	13.7	15.1	24.1
Perylene	<2.08	<1.96	<2.08	<2.04	3.2
Phenanthrene	12.5	107	20.4	46.8	113
Picene	<10.4	<9.82	<10.4	<10.2	3.2
Pyrene	4.56	14.2	5.81	8.20	64.1
Tetralin	3.10	13.1	10.7	8.95	58.2
m-terphenyl	<2.08	<1.96	<2.08	<2.04	3.2
o-Terphenyl	<2.08	2.54	<2.08	<2.23	11.9
p-terphenyl	<2.08	<1.96	<2.08	<2.04	3.2
Total	<142	<315	<167	<208	45.1

* 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	<2.22	3.14	<2.18	<2.51	21.5
Acenaphthylene	<2.22	2.82	<2.18	<2.41	14.9
Anthracene	<2.22	2.31	<2.18	<2.24	2.9
Benzo(a)Anthracene	<2.22	<2.12	<2.18	<2.17	2.5
Benzo(b)Fluoranthene	<2.22	6.00	3.40	<3.87	49.8
Benzo(k)Fluoranthene	<2.22	3.65	<2.18	<2.68	31.1
Benzo(a)fluorene	<2.22	<2.12	<2.18	<2.17	2.5
Benzo(b)fluorene	<2.22	<2.12	<2.18	<2.17	2.5
Benzo(g,h,i)Perylene	6.42	<2.12	<2.18	<3.57	69.1
Benzo(a)Pyrene	<2.22	<2.12	<2.18	<2.17	2.5
Benzo(e)Pyrene	<2.22	<2.12	<2.18	<2.17	2.5
Biphenyl	2.76	10.5	6.15	6.48	60.2
2-Chloronaphthalene	<2.22	<2.12	<2.18	<2.17	2.5
Chrysene/Triphenylene	<2.22	8.69	3.55	<4.82	70.9
Coronene	<11.1	<10.6	<10.9	<10.9	2.5
Dibenzo(a,c/a,h)Anthracene	<2.22	<2.12	<2.18	<2.17	2.5
Dibenzo(a,e)pyrene	<11.1	<10.6	<10.9	<10.9	2.5
9,10-dimethylanthracene	<2.22	<2.12	<2.18	<2.17	2.5
7,12-Dimethylbenzo(a)anthracene	<2.22	<2.12	<2.18	<2.17	2.5
Fluoranthene	3.59	23.6	7.62	11.6	91.3
Fluorene	<2.22	6.89	<2.18	<3.77	71.9
Indeno(1,2,3-cd)Pyrene	<2.22	<2.12	<2.18	<2.17	2.5
2-methylanthracene	<2.22	3.30	<2.18	<2.57	24.6
3-Methylcholanthrene	<11.1	<10.6	<10.9	<10.9	2.5
1-Methylnaphthalene	2.30	6.21	2.76	3.76	56.9
2-Methylnaphthalene	4.09	9.95	4.66	6.23	51.8
1-Methylphenanthrene	<2.22	<2.12	<2.18	<2.17	2.5
9-Methylphenanthrene	<2.22	9.80	<2.18	<4.74	92.7
Naphthalene	13.1	20.6	14.4	16.1	25.0
Perylene	<2.22	<2.12	<2.18	<2.17	2.5
Phenanthrene	13.3	116	21.5	50.2	113
Picene	<11.1	<10.6	<10.9	<10.9	2.5
Pyrene	4.87	15.3	6.11	8.77	65.1
Tetralin	3.31	14.1	11.2	9.54	58.5
m-terphenyl	<2.22	<2.12	<2.18	<2.17	2.5
o-Terphenyl	<2.22	2.73	<2.18	<2.38	12.9
p-terphenyl	<2.22	<2.12	<2.18	<2.17	2.5
Total	<152	<339	<175	<222	46.1

* At 25°C and 1 atmosphere

TABLE 78
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Rates

Compound	Emission Rate				Coefficient
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s	Average µg/s	of Variation %
Acenaphthene	<0.039	0.057	<0.038	<0.045	23.8
Acenaphthylene	<0.039	0.051	<0.038	<0.043	17.1
Anthracene	<0.039	0.042	<0.038	<0.040	5.0
Benzo(a)Anthracene	<0.039	<0.039	<0.038	<0.039	0.6
Benzo(b)Fluoranthene	<0.039	0.11	0.060	<0.069	52.0
Benzo(k)Fluoranthene	<0.039	0.066	<0.038	<0.048	33.5
Benzo(a)fluorene	<0.039	<0.039	<0.038	<0.039	0.6
Benzo(b)fluorene	<0.039	<0.039	<0.038	<0.039	0.6
Benzo(g,h,i)Perylene	0.11	<0.039	<0.038	<0.063	67.7
Benzo(a)Pyrene	<0.039	<0.039	<0.038	<0.039	0.6
Benzo(e)Pyrene	<0.039	<0.039	<0.038	<0.039	0.6
Biphenyl	0.048	0.19	0.11	0.12	62.1
2-Chloronaphthalene	<0.039	<0.039	<0.038	<0.039	0.6
Chrysene/Triphenylene	<0.039	0.16	0.062	<0.087	73.1
Coronene	<0.19	<0.19	<0.19	<0.19	0.6
Dibenzo(a,c/a,h)Anthracene	<0.039	<0.039	<0.038	<0.039	0.6
Dibenzo(a,e)pyrene	<0.19	<0.19	<0.19	<0.19	0.6
9,10-dimethylanthracene	<0.039	<0.039	<0.038	<0.039	0.6
7,12-Dimethylbenzo(a)anthracene	<0.039	<0.039	<0.038	<0.039	0.6
Fluoranthene	0.063	0.43	0.13	0.21	93.2
Fluorene	<0.039	0.13	<0.038	<0.068	74.2
Indeno(1,2,3-cd)Pyrene	<0.039	<0.039	<0.038	<0.039	0.6
2-methylanthracene	<0.039	0.060	<0.038	<0.046	27.0
3-Methylcholanthrene	<0.19	<0.19	<0.19	<0.19	0.6
1-Methylnaphthalene	0.040	0.11	0.049	0.067	59.2
2-Methylnaphthalene	0.072	0.18	0.082	0.11	54.2
1-Methylphenanthrene	<0.039	<0.039	<0.038	<0.039	0.6
9-Methylphenanthrene	<0.039	0.18	<0.038	<0.085	94.7
Naphthalene	0.23	0.38	0.25	0.29	27.3
Perylene	<0.039	<0.039	<0.038	<0.039	0.6
Phenanthrene	0.23	2.11	0.38	0.91	115
Picene	<0.19	<0.19	<0.19	<0.19	0.6
Pyrene	0.085	0.28	0.11	0.16	67.4
Tetralin	0.058	0.26	0.20	0.17	59.7
m-terphenyl	<0.039	<0.039	<0.038	<0.039	0.6
o-Terphenyl	<0.039	0.050	<0.038	<0.042	15.1
p-terphenyl	<0.039	<0.039	<0.038	<0.039	0.6
Total	<2.65	<6.18	<3.08	<3.97	48.4

TABLE 79
Covanta - Durham York Energy Centre
Boiler No. 2 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	<1.73	<3.03	<2.36	<2.51	<0.045
Acenaphthylene	<1.66	<2.90	<2.26	<2.41	<0.043
Anthracene	<1.54	<2.69	<2.10	<2.24	<0.040
Benzo(a)Anthracene	<1.50	<2.61	<2.04	<2.17	<0.039
Benzo(b)Fluoranthene	<2.67	<4.67	<3.63	<3.87	<0.069
Benzo(k)Fluoranthene	<1.85	<3.24	<2.52	<2.68	<0.048
Benzo(a)fluorene	<1.50	<2.61	<2.04	<2.17	<0.039
Benzo(b)fluorene	<1.50	<2.61	<2.04	<2.17	<0.039
Benzo(g,h,i)Perylene	<2.46	<4.29	<3.35	<3.57	<0.063
Benzo(a)Pyrene	<1.50	<2.61	<2.04	<2.17	<0.039
Benzo(e)Pyrene	<1.50	<2.61	<2.04	<2.17	<0.039
Biphenyl	4.47	7.82	6.07	6.48	0.12
2-Chloronaphthalene	<1.50	<2.61	<2.04	<2.17	<0.039
Chrysene/Triphenylene	<3.32	<5.82	<4.51	<4.82	<0.087
Coronene	<7.49	<13.1	<10.2	<10.9	<0.19
Dibenzo(a,c/a,h)Anthracene	<1.50	<2.61	<2.04	<2.17	<0.039
Dibenzo(a,e)pyrene	<7.49	<13.1	<10.2	<10.9	<0.19
9,10-dimethylanthracene	<1.50	<2.61	<2.04	<2.17	<0.039
7,12-Dimethylbenzo(a)anthracene	<1.50	<2.61	<2.04	<2.17	<0.039
Fluoranthene	8.00	14.0	10.9	11.6	0.21
Fluorene	<2.59	<4.55	<3.52	<3.77	<0.068
Indeno(1,2,3-cd)Pyrene	<1.50	<2.61	<2.04	<2.17	<0.039
2-methylanthracene	<1.77	<3.09	<2.41	<2.57	<0.046
3-Methylcholanthrene	<7.49	<13.1	<10.2	<10.9	<0.19
1-Methylnaphthalene	2.59	4.53	3.51	3.76	0.067
2-Methylnaphthalene	4.29	7.52	5.83	6.23	0.11
1-Methylphenanthrene	<1.50	<2.61	<2.04	<2.17	<0.039
9-Methylphenanthrene	<3.26	<5.72	<4.42	<4.74	<0.085
Naphthalene	11.1	19.3	15.1	16.1	0.29
Perylene	<1.50	<2.61	<2.04	<2.17	<0.039
Phenanthrene	34.5	60.7	46.8	50.2	0.91
Picene	<7.49	<13.1	<10.2	<10.9	<0.19
Pyrene	6.04	10.6	8.20	8.77	0.16
Tetralin	6.59	11.5	8.95	9.54	0.17
m-terphenyl	<1.50	<2.61	<2.04	<2.17	<0.039
o-Terphenyl	<1.64	<2.86	<2.23	<2.38	<0.042
p-terphenyl	<1.50	<2.61	<2.04	<2.17	<0.039
Total	<153	<268	<208	<222	<3.97

* 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	<12
3-Methylcholanthrene	<60	<60
1-Methylnaphthalene	<12	<12
2-Methylnaphthalene	<12	<12
1-Methylphenanthrene	<12	<12
9-Methylphenanthrene	<12	<12
Naphthalene	43.7	74.5
Perylene	<12	<12
Phenanthrene	<12	<12
Picene	<60	<60
Pyrene	<12	<12
Tetralin	15.6	20.3
m-terphenyl	<12	<12
o-Terphenyl	<12	<12
p-terphenyl	<12	<12
Total	<671	<707

"<" 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*	Actual $\mu g/m^3$	Acetaldehyde Concentration Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Acetaldehyde Emission Rate mg/s
1	0.44	0.0261	9.59	16.8	13.1	14.0	0.25
2	0.34	0.0297	6.49	11.4	8.79	9.44	0.17
3	0.34	0.0296	6.51	11.5	8.82	9.47	0.17
Average			7.53	13.3	10.2	11.0	0.20
Blank Train	0.38						
Method Blank	12.6						

Formaldehyde

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Actual $\mu g/m^3$	Formaldehyde Concentration Dry Reference $\mu g/Rm^3$*	Dry Adjusted $\mu g/Rm^3$**	Wet Reference $\mu g/Rm^3$*	Formaldehyde Emission Rate mg/s
1	6.54	0.0261	142	250	195	208	3.65
2	6.81	0.0297	130	229	176	189	3.45
3	7.23	0.0296	138	244	187	201	3.67
Average			137	241	186	200	3.59
Blank Train	10.2						
Method Blank	5.44						

Acrolein

Test No.	Total Collected µg	Dry Volume Sampled Rm^3*	Actual $\mu g/m^3$	Acrolein Concentration 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	0.0261	<2.18	<3.83	<2.98	<3.18	<0.056
2	<0.1	0.0297	<1.91	<3.37	<2.59	<2.78	<0.051
3	<0.1	0.0296	<1.92	<3.38	<2.59	<2.79	<0.051
Average			<2.00	<3.52	<2.72	<2.91	<0.052
Blank Train	<0.1						
Method Blank	0.21						

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. 2 BH Outlet
Volatile Organic Emission Data
Test No. 1

Compound	Total Collected µg	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3**	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	0.11	2.98	5.22	4.08	4.35	0.076
Benzene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Bromodichloromethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Bromoform	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Bromomethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
1,3-Butadiene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
2-Butanone	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Carbon Tetrachloride	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Chloroform	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Cumene (Isopropylbenzene)	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Dibromochloromethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Dichlorodifluoromethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
1,2-Dichloroethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
trans,1,2-Dichloroethene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
1,1-Dichloroethene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
1,2-Dichloropropane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Ethylbenzene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Ethylene Dibromide	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Methylene Chloride	0.051	1.41	2.46	1.92	2.06	0.036
Styrene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Tetrachloroethene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Toluene	7.39	204	357	279	298	5.21
1,1,1-Trichloroethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Trichloroethene/1,1,2-Trichloroethene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Trichlorotrifluoroethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Trichlorofluoromethane	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
M&P-Xylene	0.11	3.03	5.32	4.15	4.44	0.078
O-Xylene	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Vinyl Chloride	<0.050	<1.38	<2.42	<1.89	<2.02	<0.035
Total	<8.96	<247	<433	<338	<361	<6.32

Dry Gas Volume Sampled (Rm^3*) :	0.0207
Actual Flowrate (m^3/s) :	25.6
Dry Reference Flowrate (Rm^3/s*) :	14.6
Dry Adjusted Flowrate (Rm^3/s**) :	18.7
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

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

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.

TABLE 83
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	0.087	2.45	4.30	3.35	3.58	0.063
Benzene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Bromodichloromethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Bromoform	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Bromomethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
1,3-Butadiene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
2-Butanone	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Carbon Tetrachloride	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Chloroform	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Cumene (Isopropylbenzene)	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Dibromochloromethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Dichlorodifluoromethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
1,2-Dichloroethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
trans,1,2-Dichloroethene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
1,1-Dichloroethene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
1,2-Dichloropropane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Ethylbenzene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Ethylene Dibromide	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Methylene Chloride	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Styrene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Tetrachloroethene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Toluene	5.70	161	281	220	235	4.11
1,1,1-Trichloroethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Trichloroethene/1,1,2-Trichloroethene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Trichlorotrifluoroethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Trichlorofluoromethane	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
M&P-Xylene	<0.10	<2.82	<4.94	<3.86	<4.12	<0.072
O-Xylene	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Vinyl Chloride	<0.050	<1.41	<2.47	<1.93	<2.06	<0.036
Total	<7.24	<204	<357	<279	<298	<5.22

Dry Gas Volume Sampled (Rm^3*) :	0.0202
Actual Flowrate (m^3/s) :	25.6
Dry Reference Flowrate (Rm^3/s*) :	14.6
Dry Adjusted Flowrate (Rm^3/s**) :	18.7
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

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

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.

TABLE 84
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	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Benzene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Bromodichloromethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Bromoform	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Bromomethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
1,3-Butadiene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
2-Butanone	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Carbon Tetrachloride	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Chloroform	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Cumene (Isopropylbenzene)	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Dibromochloromethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Dichlorodifluoromethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
1,2-Dichloroethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
trans,1,2-Dichloroethene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
1,1-Dichloroethene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
1,2-Dichloropropane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Ethylbenzene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Ethylene Dibromide	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Methylene Chloride	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Styrene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Tetrachloroethene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Toluene	4.19	122	214	167	178	3.12
1,1,1-Trichloroethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Trichloroethene/1,1,2-Trichloroethene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Trichlorotrifluoroethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Trichlorofluoromethane	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
M&P-Xylene	<0.10	<2.91	<5.10	<3.98	<4.26	<0.074
O-Xylene	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Vinyl Chloride	<0.050	<1.45	<2.55	<1.99	<2.13	<0.037
Total	<5.69	<166	<290	<227	<242	<4.24

Dry Gas Volume Sampled (Rm^3*) :	0.0196
Actual Flowrate (m^3/s) :	25.6
Dry Reference Flowrate (Rm^3/s*) :	14.6
Dry Adjusted Flowrate (Rm^3/s**) :	18.7
Wet Reference Flowrate (Rm^3/s*) :	17.5

* At 25°C and 1 atmosphere

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

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.

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

Compound	Actual Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	µg/m^3	µg/m^3	µg/m^3	µg/m^3	%
Acetone	2.98	2.45	<1.45	<2.29	33.7
Benzene	<1.38	<1.41	<1.45	<1.41	2.7
Bromodichloromethane	<1.38	<1.41	<1.45	<1.41	2.7
Bromoform	<1.38	<1.41	<1.45	<1.41	2.7
Bromomethane	<1.38	<1.41	<1.45	<1.41	2.7
1,3-Butadiene	<1.38	<1.41	<1.45	<1.41	2.7
2-Butanone	<1.38	<1.41	<1.45	<1.41	2.7
Carbon Tetrachloride	<1.38	<1.41	<1.45	<1.41	2.7
Chloroform	<1.38	<1.41	<1.45	<1.41	2.7
Cumene (Isopropylbenzene)	<1.38	<1.41	<1.45	<1.41	2.7
Dibromochloromethane	<1.38	<1.41	<1.45	<1.41	2.7
Dichlorodifluoromethane	<1.38	<1.41	<1.45	<1.41	2.7
1,2-Dichloroethane	<1.38	<1.41	<1.45	<1.41	2.7
trans,1,2-Dichloroethene	<1.38	<1.41	<1.45	<1.41	2.7
1,1-Dichloroethene	<1.38	<1.41	<1.45	<1.41	2.7
1,2-Dichloropropane	<1.38	<1.41	<1.45	<1.41	2.7
Ethylbenzene	<1.38	<1.41	<1.45	<1.41	2.7
Ethylene Dibromide	<1.38	<1.41	<1.45	<1.41	2.7
Mesitylene (1,3,5-Trimethylbenzene)	<1.38	<1.41	<1.45	<1.41	2.7
Methylene Chloride	1.41	<1.41	<1.45	<1.42	1.9
Styrene	<1.38	<1.41	<1.45	<1.41	2.7
Tetrachloroethene	<1.38	<1.41	<1.45	<1.41	2.7
Toluene	204	161	122	162	25.3
1,1,1-Trichloroethane	<1.38	<1.41	<1.45	<1.41	2.7
Trichloroethene/1,1,2-Trichloroethene	<1.38	<1.41	<1.45	<1.41	2.7
Trichlorotrifluoroethane	<1.38	<1.41	<1.45	<1.41	2.7
Trichlorofluoromethane	<1.38	<1.41	<1.45	<1.41	2.7
M&P-Xylene	3.03	<2.82	<2.91	<2.92	3.7
O-Xylene	<1.38	<1.41	<1.45	<1.41	2.7
Vinyl Chloride	<1.38	<1.41	<1.45	<1.41	2.7
Total	<247	<204	<166	<205	19.8

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

Compound	Dry Reference Concentration				Coefficient
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	5.22	4.30	<2.55	<4.02	33.7
Benzene	<2.42	<2.47	<2.55	<2.48	2.7
Bromodichloromethane	<2.42	<2.47	<2.55	<2.48	2.7
Bromoform	<2.42	<2.47	<2.55	<2.48	2.7
Bromomethane	<2.42	<2.47	<2.55	<2.48	2.7
1,3-Butadiene	<2.42	<2.47	<2.55	<2.48	2.7
2-Butanone	<2.42	<2.47	<2.55	<2.48	2.7
Carbon Tetrachloride	<2.42	<2.47	<2.55	<2.48	2.7
Chloroform	<2.42	<2.47	<2.55	<2.48	2.7
Cumene (Isopropylbenzene)	<2.42	<2.47	<2.55	<2.48	2.7
Dibromochloromethane	<2.42	<2.47	<2.55	<2.48	2.7
Dichlorodifluoromethane	<2.42	<2.47	<2.55	<2.48	2.7
1,2-Dichloroethane	<2.42	<2.47	<2.55	<2.48	2.7
trans,1,2-Dichloroethene	<2.42	<2.47	<2.55	<2.48	2.7
1,1-Dichloroethene	<2.42	<2.47	<2.55	<2.48	2.7
1,2-Dichloropropane	<2.42	<2.47	<2.55	<2.48	2.7
Ethylbenzene	<2.42	<2.47	<2.55	<2.48	2.7
Ethylene Dibromide	<2.42	<2.47	<2.55	<2.48	2.7
Mesitylene (1,3,5-Trimethylbenzene)	<2.42	<2.47	<2.55	<2.48	2.7
Methylene Chloride	2.46	<2.47	<2.55	<2.49	1.9
Styrene	<2.42	<2.47	<2.55	<2.48	2.7
Tetrachloroethene	<2.42	<2.47	<2.55	<2.48	2.7
Toluene	357	281	214	284	25.3
1,1,1-Trichloroethane	<2.42	<2.47	<2.55	<2.48	2.7
Trichloroethene/1,1,2-Trichloroethene	<2.42	<2.47	<2.55	<2.48	2.7
Trichlorotrifluoroethane	<2.42	<2.47	<2.55	<2.48	2.7
Trichlorofluoromethane	<2.42	<2.47	<2.55	<2.48	2.7
M&P-Xylene	5.32	<4.94	<5.10	<5.12	3.7
O-Xylene	<2.42	<2.47	<2.55	<2.48	2.7
Vinyl Chloride	<2.42	<2.47	<2.55	<2.48	2.7
Total	<433	<357	<290	<360	19.8

* 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
	Test No. 1	Test No. 2	Test No. 3	Average	of Variation
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	4.08	3.35	<1.99	<3.14	33.7
Benzene	<1.89	<1.93	<1.99	<1.94	2.7
Bromodichloromethane	<1.89	<1.93	<1.99	<1.94	2.7
Bromoform	<1.89	<1.93	<1.99	<1.94	2.7
Bromomethane	<1.89	<1.93	<1.99	<1.94	2.7
1,3-Butadiene	<1.89	<1.93	<1.99	<1.94	2.7
2-Butanone	<1.89	<1.93	<1.99	<1.94	2.7
Carbon Tetrachloride	<1.89	<1.93	<1.99	<1.94	2.7
Chloroform	<1.89	<1.93	<1.99	<1.94	2.7
Cumene (Isopropylbenzene)	<1.89	<1.93	<1.99	<1.94	2.7
Dibromochloromethane	<1.89	<1.93	<1.99	<1.94	2.7
Dichlorodifluoromethane	<1.89	<1.93	<1.99	<1.94	2.7
1,2-Dichloroethane	<1.89	<1.93	<1.99	<1.94	2.7
trans,1,2-Dichloroethene	<1.89	<1.93	<1.99	<1.94	2.7
1,1-Dichloroethene	<1.89	<1.93	<1.99	<1.94	2.7
1,2-Dichloropropane	<1.89	<1.93	<1.99	<1.94	2.7
Ethylbenzene	<1.89	<1.93	<1.99	<1.94	2.7
Ethylene Dibromide	<1.89	<1.93	<1.99	<1.94	2.7
Mesitylene (1,3,5-Trimethylbenzene)	<1.89	<1.93	<1.99	<1.94	2.7
Methylene Chloride	1.92	<1.93	<1.99	<1.95	1.9
Styrene	<1.89	<1.93	<1.99	<1.94	2.7
Tetrachloroethene	<1.89	<1.93	<1.99	<1.94	2.7
Toluene	279	220	167	222	25.3
1,1,1-Trichloroethane	<1.89	<1.93	<1.99	<1.94	2.7
Trichloroethene/1,1,2-Trichloroethene	<1.89	<1.93	<1.99	<1.94	2.7
Trichlorotrifluoroethane	<1.89	<1.93	<1.99	<1.94	2.7
Trichlorofluoromethane	<1.89	<1.93	<1.99	<1.94	2.7
M&P-Xylene	4.15	<3.86	<3.98	<4.00	3.7
O-Xylene	<1.89	<1.93	<1.99	<1.94	2.7
Vinyl Chloride	<1.89	<1.93	<1.99	<1.94	2.7
Total	<338	<279	<227	<281	19.8

* 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. 1	Test No. 2	Test No. 3	Average	
	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	µg/Rm^3*	%
Acetone	4.35	3.58	<2.13	<3.36	33.7
Benzene	<2.02	<2.06	<2.13	<2.07	2.7
Bromodichloromethane	<2.02	<2.06	<2.13	<2.07	2.7
Bromoform	<2.02	<2.06	<2.13	<2.07	2.7
Bromomethane	<2.02	<2.06	<2.13	<2.07	2.7
1,3-Butadiene	<2.02	<2.06	<2.13	<2.07	2.7
2-Butanone	<2.02	<2.06	<2.13	<2.07	2.7
Carbon Tetrachloride	<2.02	<2.06	<2.13	<2.07	2.7
Chloroform	<2.02	<2.06	<2.13	<2.07	2.7
Cumene (Isopropylbenzene)	<2.02	<2.06	<2.13	<2.07	2.7
Dibromochloromethane	<2.02	<2.06	<2.13	<2.07	2.7
Dichlorodifluoromethane	<2.02	<2.06	<2.13	<2.07	2.7
1,2-Dichloroethane	<2.02	<2.06	<2.13	<2.07	2.7
trans,1,2-Dichloroethene	<2.02	<2.06	<2.13	<2.07	2.7
1,1-Dichloroethene	<2.02	<2.06	<2.13	<2.07	2.7
1,2-Dichloropropane	<2.02	<2.06	<2.13	<2.07	2.7
Ethylbenzene	<2.02	<2.06	<2.13	<2.07	2.7
Ethylene Dibromide	<2.02	<2.06	<2.13	<2.07	2.7
Mesitylene (1,3,5-Trimethylbenzene)	<2.02	<2.06	<2.13	<2.07	2.7
Methylene Chloride	2.06	<2.06	<2.13	<2.08	1.9
Styrene	<2.02	<2.06	<2.13	<2.07	2.7
Tetrachloroethene	<2.02	<2.06	<2.13	<2.07	2.7
Toluene	298	235	178	237	25.3
1,1,1-Trichloroethane	<2.02	<2.06	<2.13	<2.07	2.7
Trichloroethene/1,1,2-Trichloroethene	<2.02	<2.06	<2.13	<2.07	2.7
Trichlorotrifluoroethane	<2.02	<2.06	<2.13	<2.07	2.7
Trichlorofluoromethane	<2.02	<2.06	<2.13	<2.07	2.7
M&P-Xylene	4.44	<4.12	<4.26	<4.27	3.7
O-Xylene	<2.02	<2.06	<2.13	<2.07	2.7
Vinyl Chloride	<2.02	<2.06	<2.13	<2.07	2.7
Total	<361	<298	<242	<301	19.8

* 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
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	of Variation %
Acetone	0.076	0.063	<0.037	<0.059	33.7
Benzene	<0.035	<0.036	<0.037	<0.036	2.7
Bromodichloromethane	<0.035	<0.036	<0.037	<0.036	2.7
Bromoform	<0.035	<0.036	<0.037	<0.036	2.7
Bromomethane	<0.035	<0.036	<0.037	<0.036	2.7
1,3-Butadiene	<0.035	<0.036	<0.037	<0.036	2.7
2-Butanone	<0.035	<0.036	<0.037	<0.036	2.7
Carbon Tetrachloride	<0.035	<0.036	<0.037	<0.036	2.7
Chloroform	<0.035	<0.036	<0.037	<0.036	2.7
Cumene (Isopropylbenzene)	<0.035	<0.036	<0.037	<0.036	2.7
Dibromochloromethane	<0.035	<0.036	<0.037	<0.036	2.7
Dichlorodifluoromethane	<0.035	<0.036	<0.037	<0.036	2.7
1,2-Dichloroethane	<0.035	<0.036	<0.037	<0.036	2.7
trans,1,2-Dichloroethene	<0.035	<0.036	<0.037	<0.036	2.7
1,1-Dichloroethene	<0.035	<0.036	<0.037	<0.036	2.7
1,2-Dichloropropane	<0.035	<0.036	<0.037	<0.036	2.7
Ethylbenzene	<0.035	<0.036	<0.037	<0.036	2.7
Ethylene Dibromide	<0.035	<0.036	<0.037	<0.036	2.7
Mesitylene (1,3,5-Trimethylbenzene)	<0.035	<0.036	<0.037	<0.036	2.7
Methylene Chloride	0.036	<0.036	<0.037	<0.036	1.9
Styrene	<0.035	<0.036	<0.037	<0.036	2.7
Tetrachloroethene	<0.035	<0.036	<0.037	<0.036	2.7
Toluene	5.21	4.11	3.12	4.15	25.3
1,1,1-Trichloroethane	<0.035	<0.036	<0.037	<0.036	2.7
Trichloroethene/1,1,2-Trichloroethene	<0.035	<0.036	<0.037	<0.036	2.7
Trichlorotrifluoroethane	<0.035	<0.036	<0.037	<0.036	2.7
Trichlorofluoromethane	<0.035	<0.036	<0.037	<0.036	2.7
M&P-Xylene	0.078	<0.072	<0.074	<0.075	3.7
O-Xylene	<0.035	<0.036	<0.037	<0.036	2.7
Vinyl Chloride	<0.035	<0.036	<0.037	<0.036	2.7
Total	<6.32	<5.22	<4.24	<5.26	19.8

TABLE 90
Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Summary of Volatile Organic Emission Data

Compound	Actual Concentration µg/m^3	Dry Reference Concentration µg/Rm^3*	Dry Adjusted Concentration µg/Rm^3*	Wet Reference Concentration µg/Rm^3*	Emission Rate mg/s
Acetone	<2.29	<4.02	<3.14	<3.36	<0.059
Benzene	<1.41	<2.48	<1.94	<2.07	<0.036
Bromodichloromethane	<1.41	<2.48	<1.94	<2.07	<0.036
Bromoform	<1.41	<2.48	<1.94	<2.07	<0.036
Bromomethane	<1.41	<2.48	<1.94	<2.07	<0.036
1,3-Butadiene	<1.41	<2.48	<1.94	<2.07	<0.036
2-Butanone	<1.41	<2.48	<1.94	<2.07	<0.036
Carbon Tetrachloride	<1.41	<2.48	<1.94	<2.07	<0.036
Chloroform	<1.41	<2.48	<1.94	<2.07	<0.036
Cumene (Isopropylbenzene)	<1.41	<2.48	<1.94	<2.07	<0.036
Dibromochloromethane	<1.41	<2.48	<1.94	<2.07	<0.036
Dichlorodifluoromethane	<1.41	<2.48	<1.94	<2.07	<0.036
1,2-Dichloroethane	<1.41	<2.48	<1.94	<2.07	<0.036
trans,1,2-Dichloroethene	<1.41	<2.48	<1.94	<2.07	<0.036
1,1-Dichloroethene	<1.41	<2.48	<1.94	<2.07	<0.036
1,2-Dichloropropane	<1.41	<2.48	<1.94	<2.07	<0.036
Ethylbenzene	<1.41	<2.48	<1.94	<2.07	<0.036
Ethylene Dibromide	<1.41	<2.48	<1.94	<2.07	<0.036
Mesitylene (1,3,5-Trimethylbenzene)	<1.41	<2.48	<1.94	<2.07	<0.036
Methylene Chloride	<1.42	<2.49	<1.95	<2.08	<0.036
Styrene	<1.41	<2.48	<1.94	<2.07	<0.036
Tetrachloroethene	<1.41	<2.48	<1.94	<2.07	<0.036
Toluene	162	284	222	237	4.15
1,1,1-Trichloroethane	<1.41	<2.48	<1.94	<2.07	<0.036
Trichloroethene/1,1,2-Trichloroethene	<1.41	<2.48	<1.94	<2.07	<0.036
Trichlorotrifluoroethane	<1.41	<2.48	<1.94	<2.07	<0.036
Trichlorofluoromethane	<1.41	<2.48	<1.94	<2.07	<0.036
M&P-Xylene	<2.92	<5.12	<4.00	<4.27	<0.075
O-Xylene	<1.41	<2.48	<1.94	<2.07	<0.036
Vinyl Chloride	<1.41	<2.48	<1.94	<2.07	<0.036
Total	<205	<360	<281	<301	<5.26

* 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 Tube 16A/16B µg	Trip Blank Tube 15A/15B µg	Method Blank µg
Acetone	<0.050	<0.050	<0.050
Benzene	<0.050	<0.050	<0.050
Bromodichloromethane	<0.050	<0.050	<0.050
Bromoform	<0.050	<0.050	<0.050
Bromomethane	<0.050	<0.050	<0.050
1,3-Butadiene	<0.050	<0.050	<0.050
2-Butanone	<0.050	<0.050	<0.050
Carbon Tetrachloride	<0.050	<0.050	<0.050
Chloroform	<0.050	<0.050	<0.050
Cumene (Isopropylbenzene)	<0.050	<0.050	<0.050
Dibromochloromethane	<0.050	<0.050	<0.050
Dichlorodifluoromethane	<0.050	<0.050	<0.050
1,2-Dichloroethane	<0.050	<0.050	<0.050
trans,1,2-Dichloroethene	<0.050	<0.050	<0.050
1,1-Dichloroethene	<0.050	<0.050	<0.050
1,2-Dichloropropane	<0.050	<0.050	<0.050
Ethylbenzene	<0.050	<0.050	<0.050
Ethylene Dibromide	<0.050	<0.050	<0.050
Mesitylene (1,3,5-Trimethylbenzene)	<0.050	<0.050	<0.050
Methylene Chloride	<0.050	<0.050	<0.050
Styrene	<0.050	<0.050	<0.050
Tetrachloroethene	<0.050	<0.050	<0.050
Toluene	<0.050	<0.050	<0.050
1,1,1-Trichloroethane	<0.050	<0.050	<0.050
Trichloroethene/1,1,2-Trichloroethene	<0.050	<0.050	<0.050
Trichlorotrifluoroethane	<0.050	<0.050	<0.050
Trichlorofluoromethane	<0.050	<0.050	<0.050
M&P-Xylene	<0.10	<0.10	<0.10
O-Xylene	<0.050	<0.050	<0.050
Vinyl Chloride	<0.050	<0.050	<0.050
Total	<1.55	<1.55	<1.55

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.

APPENDIX 3

Pre-Test Plan Acceptance Letter
and ECA No. 7306-8FDKNX
(107 pages)

aMinistry of the Environment, Conservation and Parks
Technical Assessment and Standards Development Branch
40 St. Clair Avenue West
7th Floor
Toronto ON M4V 1M2
Phone: 416.327.5519
Fax: 416.327.2936

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Direction des évaluations techniques et de l'élaboration des normes
40, avenue St. Clair Ouest
7e étage
Toronto, ON M4V 1M2
Tél: 416 .327.5519
Téléc: 416. 327.2936

Ontario

Via email: cbelore@ortech.ca

TSS File No.: CR:SA: 110240:24

2024/02/14

Chris Belore
ORTECH Consulting Inc.

Dear Mr. Belore:

Subject: Pre-test plan review for source testing to be conducted at Durham York Energy Centre

We received your pre-test plan letter (Project #22327), dated February 5, 2024, prepared on behalf of the Durham-York Energy Centre (DYEC) and referring to source testing to be conducted at their facility in Clarington, Ontario.

Testing is a requirement under amended Environmental Compliance Approval No. 7306-8FDKNX issued June 28, 2011.

The letter outlines the intent to use the previously approved pre-test plan (submitted 09/08/2020) for the 2024 annual compliance source testing.

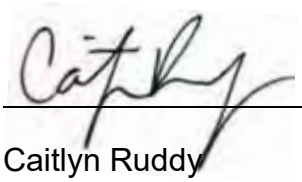
The use of the previously approved pre-test plan (TSS File No. CR:SA:109912:20 dated 10/14/2020) is acceptable for the 2024 testing program.

We have noted the sampling schedule to commence the week of March 18, 2024. If changes to this schedule occur, please notify both the MECP's York-Durham District Office and the Source Testing Group.

Just a reminder that the source testing report is required to be submitted in electronic format to District Office and to the source testing group at sourcetesting@ontario.ca.

If you have any questions with regards to this assessment, I can be reached by phone at 437-995-2835 or by email at sourcetesting@ontario.ca

Sincerely,



Caitlyn Ruddy
Source Assessment Specialist
Technology Standards Section

cc: C. Dugas – Manager, MECP York-Durham D.O. (celeste.dugas@ontario.ca)
D. Keene- ECO MECP York-Durham D.O (david.keene@ontario.ca)
J. Butchart – Issues Project Coordinator, MECP York-Durham D.O. (jeff.butchart@ontario.ca)
Ben Parayankuzhiyil – Facility Manager, Covanta DYEC L.P (bparayanku@covanta.com)
Darek T. Teeters – VP General Manager, Covanta DYEC L.P. (dteeters@covanta.com)
Rick Kohler – Environmental Engineer, Covanta DYEC L.P. (rkohler@covant.com)
Supreet Kaur Meng – Environmental Specialist, Covanta DYEC L.P. (skaur2@covanta.com)
Andrew Evans – Durham Region (andrew.evans@durham.ca)
Nicia Williams- Durham Region (nicia.williams@durham.ca)
Lipika Saha- Durham Region (Lipika.saha@durham.ca)
Muneeb Farid – York Region (muneeb.farid@york.ca)
Laura McDowell – York Region (laura.mcdowell@york.ca)
Lindsay Milne – York Region (Lindsay.Milne@york.ca)
Jennifer Khemai – York Region (email: jennifer.khemai@york.ca)
J. McKerrall –TSS (jeffrey.mckerrall@ontario.ca)
B. Fullerton- TSS (bill.fullerton@ontario.ca)

File AQ-02 (Durham-York Energy Centre)

Doc.Mgmt # 5AH020018

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 (°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°C (the Target Location) or by correlation of the required temperature of 1000°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°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°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°C and not more than 185°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°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°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

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.olt.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	March 18, 2024
Test Location	APC Outlet No. 1
Operator	BP

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TE4M3
Impinger Box No.:	16

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.44	"Hg
Static Pressure	-11.72	"H2O
Nozzle Size	0.2498	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	3.3	mg
Probe	3.9	mg

Moisture Gain

CWTR	503.5	g
WCBDA	22.5	g

Combustion Gas Concentration

Oxygen	8.80	%
Carbon Dioxide	10.38	%
Carbon Monoxide	5.8	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	B04011
Trendicator	COE20043
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV CAN.
Calipers	CAN 72136

Nozzle Measurements #3	
1	.2495
2	.2500
3	.2506
4	.2495
Average:	.2498

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: March 18, 2024	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	16.30	.87	.76	280	250	250	50	58	65	65	2.2	5
	2.5	18.28	.91	.78	280	250	254	45	207	65	65	22	5
	5	20.23	.87	.76	279	254	253	44	214	65	65	2.2	5
2	7.5	22.17	.88	.77	279	255	256	44	215	65	65	2.2	5
	10	24.16	.88	.77	279	251	255	43	215	65	66	2.2	5
	12.5	26.14	.88	.77	279	252	252	43	213	65	66	2.1	4.5
3	15	28.00	.84	.75	279	251	255	43	224	65	67	2.1	4.5
	17.5	29.89	.84	.75	279	254	255	44	227	65	67	2.1	5
	20	31.84	.86	.76	280	256	252	44	228	65	68	2.1	5
4	22.5	33.65	.82	.74	280	251	255	44	227	65	69	2.1	4.5
	25	35.61	.86	.76	281	257	254	45	230	66	69	2.1	5
	27.5	37.64	.81	.74	281	250	253	45	230	66	70	2.1	5
5	30	39.54	.75	.71	281	255	254	46	228	66	70	2.0	4.9
	32.5	41.25	.74	.71	281	253	256	46	228	67	70	1.9	4
	35	43.16	.74	.71	282	252	254	47	229	67	71	1.95	5
6	37.5	44.98	.66	.67	281	257	252	47	227	67	71	1.9	4.5
	40	46.67	.67	.67	281	250	256	47	227	67	72	1.7	4
	42.5	48.35	.65	.66	281	257	255	48	227	68	72	1.7	4
7	45	50.04	.74	.71	281	250	253	48	223	68	72	1.7	4
	47.5	51.85	.75	.71	281	253	253	48	224	68	73	1.9	4.5
	50	53.65	.75	.71	282	257	255	48	227	69	73	1.9	4.5

Traverse: 2				
Start Time: 10:09	Initial Leak Check:	.003	cfm@ in	"Hg
Finish Time:	Final Leak Check:		cfm@	"Hg

Project No.: 22327

Operator: BP

Field Data Sheet

Date: March 18, 2024	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	55.46	.78	.73	281	250	255	47	228	69	73	1.9	4.5
	55	57.34	.79	.73	282	254	252	47	228	69	74	2	5
	57.5	59.18	.79	.73	282	256	254	47	227	70	74	2	5
9	60	61.04	.80	.74	282	250	257	47	229	70	74	2	5
	62.5	62.95	.79	.73	283	256	255	47	230	70	74	2	5
	65	64.85	.79	.73	283	250	252	47	229	70	74	2	5
10	67.5	66.74	.80	.74	283	250	254	47	228	71	75	2	5
	70	68.67	.81	.74	283	256	257	48	231	71	75	2	5
	72.5	70.47	.81	.74	283	253	256	48	230	71	75	1.95	4.5
11	75	72.36	.73	.71	283	250	253	48	230	71	75	2.1	5
	77.5	74.13	.74	.71	283	254	253	48	227	71	75	1.9	4.5
	80	75.89	.73	.71	282	257	256	48	229	72	75	1.9	4.4
12	82.5	77.75	.75	.72	283	251	254	48	230	72	76	1.9	5
	85	79.65	.75	.72	281	250	252	48	229	72	76	2	5
	87.5	81.47	.75	.72	281	257	256	48	229	72	76	1.9	4.9
	90	83.29											

Traverse: 2				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 11:39	Final Leak Check:	0.004	cfm@ 15	"Hg

Project No.: 22327

Operator: BP

Field Data Sheet

Date: March 18, 2024	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	83.80	1.00	.82	284	252	253	52	155	72	72	2.5	5
	2.5	85.84	1.05	.85	285	250	254	47	220	72	73	2.5	5
	5	87.95	.98	.82	285	254	253	46	228	72	73	2.6	5.5
2	7.5	90.02	.97	.81	285	257	255	45	230	72	74	2.5	5.5
	10	92.08	.96	.81	285	251	253	45	220	72	74	2.5	5.5
	12.5	94.17	.95	.81	284	250	253	44	218	72	74	2.5	5.5
3	15	96.22	.95	.81	285	254	256	44	221	72	75	2.4	5
	17.5	98.25	.91	.79	285	257	254	43	223	72	75	2.4	5
	20	100.24	.88	.78	285	251	252	43	223	72	75	2.3	5
4	22.5	102.21	.78	.73	285	252	256	43	225	72	76	2.2	5
	25	104.08	.79	.74	284	257	255	43	226	73	76	2.0	5
	27.5	105.94	.79	.74	284	250	252	43	224	73	76	2.0	5
5	30	107.80	.67	.68	284	256	255	43	224	73	76	2.0	5
	32.5	109.55	.69	.69	283	256	255	43	224	73	76	1.8	4.5
	35	111.31	.67	.68	282	252	253	42	223	73	76	1.8	4.5
6	37.5	113.04	.58	.63	282	257	255	42	223	73	77	1.8	4.5
	40	114.66	.57	.63	282	250	255	42	222	73	77	1.5	4
	42.5	116.27	.60	.64	282	255	252	42	221	73	77	1.5	4
7	45	117.93	.68	.68	282	254	255	42	223	73	77	1.6	4.5
	47.5	119.68	.69	.69	282	252	255	43	225	73	77	1.8	4.9
	50	121.44	.72	.71	282	257	253	43	224	74	77	1.8	4.9

Traverse: 1			
Start Time: 11:50	Initial Leak Check: .003	cfm@ 15	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

-11.72

Project No.: 22327

Operator: RP

Field Data Sheet

Date: March 15, 2024	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	123.25	.77	.73	282	250	255	43	224	74	78	1.9	5
	55	125.10	.77	.73	283	255	254	43	226	74	78	2.0	5
	57.5	126.95	.78	.73	284	255	252	43	226	74	78	2.0	5
9	60	128.80	.74	.71	284	250	255	43	226	74	78	2.0	5
	62.5	130.69	.76	.73	283	256	253	43	226	75	78	1.9	5
	65	132.58	.78	.74	283	253	254	43	226	75	78	2.0	5
10	67.5	134.44	.71	.70	283	250	255	43	226	75	78	2.0	5
	70	136.23	.74	.72	283	254	252	43	225	75	79	1.9	5
	72.5	138.04	.75	.71	283	257	255	43	226	75	78	2	5
11	75	139.86	.67	.68	281	250	254	44	226	75	78	2	5
	77.5	141.63	.68	.68	282	252	252	44	225	75	79	1.8	4.9
	80	143.36	.69	.69	281	257	255	44	225	75	79	1.8	4.9
12	82.5	145.12	.69	.69	281	250	253	43	226	75	79	1.8	4.9
	85	146.87	.68	.68	280	251	253	44	225	75	79	1.8	4.9
	87.5	148.60	.70	.69	280	255	255	44	226	75	79	1.8	4.9
	90	150.33											

Traverse:					
Start Time: ~~13:20~~	Initial Leak Check:		cfm@		"Hg
Finish Time: 13:20	Final Leak Check:	0.003	cfm@	15.5	"Hg

Project No.: 22327

Operator: RP

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particulate/Metals
Test Date March 18, 2024	
Test Location	APC Outlet No. 1
Operator BP	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.: TEAM 3	
Impinger Box No.: 13	

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.44	"Hg
Static Pressure	-11.72	"H2O
Nozzle Size	0.2498	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	2.7	mg
Probe	1.1	mg

Moisture Gain

CWTR	476.0	g
WCBDA	22.3	g

Combustion Gas Concentration

Oxygen	8.87	%
Carbon Dioxide	10.28	%
Carbon Monoxide	4.4	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	BC4011
Trendicator	COE 2093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	
Micromanometer	
Barometer	EW CAN
Calipers	CAN 22136

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	.2495
Average:	.2498

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: March 15, 2024	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	51.00	.91	.78	281	254	260	60	143	72	72	2.3	5
	2.5	52.98	.96	.80	283	255	250	56	189	72	71	2.3	5
	5	55.00	.98	.81	283	249	256	54	205	72	71	2.4	5.5
2	7.5	56.98	.98	.81	283	253	251	52	216	72	72	2.4	5.5
	10	59.00	.99	.81	283	256	255	51	218	71	72	2.4	5.5
	12.5	61.02	.97	.80	284	250	252	50	220	71	73	2.4	5.5
3	15	63.08	.95	.80	284	251	255	50	221	72	73	2.4	6
	17.5	65.15	.95	.80	284	256	253	50	223	72	74	2.3	5.9
	20	67.11	.94	.79	284	249	255	50	223	72	75	2.3	5.5
4	22.5	69.09	.87	.76	284	256	255	51	224	72	75	2.3	5.5
	25	71.06	.85	.76	284	254	251	51	222	72	76	2.2	5.5
	27.5	73.00	.85	.76	284	254	257	51	226	73	76	2.15	5.5
5	30	74.93	.77	.72	284	253	254	51	226	73	77	2.15	5.5
	32.5	76.78	.77	.72	284	255	253	51	225	73	77	2	5
	35	78.64	.76	.72	284	253	256	51	227	73	77	2	5
6	37.5	80.46	.62	.65	284	255	252	51	226	74	78	2	5
	40	82.15	.61	.64	284	252	256	51	224	74	78	1.6	4.9
	42.5	83.80	.60	.64	283	257	257	51	226	74	78	1.6	4.5
7	45	85.43	.66	.67	283	252	252	51	224	74	78	1.6	4.5
	47.5	87.14	.66	.67	283	257	256	50	225	74	78	1.7	4.9
	50	88.85	.67	.67	283	251	256	50	227	74	79	1.7	4.9

Traverse: 1			
Start Time: 14:10	Initial Leak Check: .004	cfm@ 15	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22327

Operator: BP

Field Data Sheet

Date: March 15, 2024	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	90.57	.68	.68	283	257	252	50	225	75	79	1.7	4.9
	55	92.34	.68	.68	282	250	254	50	226	75	79	1.8	5
	57.5	94.05	.67	.68	282	256	254	50	226	75	79	1.8	5
9	60	95.77	.70	.69	282	250	253	50	225	75	79	1.8	5
	62.5	97.54	.70	.69	281	256	257	50	227	76	79	1.85	5
	65	99.32	.71	.70	281	251	253	50	227	76	80	1.85	5
10	67.5	101.09	.70	.69	281	252	256	50	226	76	80	1.85	5
	70	102.86	.72	.70	281	257	254	50	228	76	80	1.85	5
	72.5	104.72	.74	.71	281	250	253	49	227	76	80	1.9	5
11	75	106.53	.75	.72	280	256	256	49	228	76	80	1.9	5
	77.5	108.35	.74	.71	281	253	252	49	227	76	80	2	5
	80	110.16	.74	.71	282	250	256	49	228	76	80	2	5
12	82.5	111.99	.76	.72	282	256	254	49	228	77	80	2	5
	85	113.82	.76	.72	282	256	254	49	227	77	80	2	5
	87.5	115.66	.77	.73	283	252	257	49	229	77	80	2	5
	90	117.49											

Traverse:				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 15:40	Final Leak Check:	0.003	cfm@ 15	"Hg

Project No.: 22327

Operator: RP

Field Data Sheet

Date: March 18, 2024	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	118.17	.94	.80	282	252	257	50	176	77	77	2.4	6
	2.5	120.16	.97	.81	285	254	256	50	220	77	78	2.4	6
	5	122.21	.96	.81	286	256	256	49	230	77	79	2.4	6
2	7.5	124.27	.94	.80	286	250	252	49	229	77	79	2.4	6
	10	126.32	.95	.80	286	255	256	48	231	77	79	2.4	6
	12.5	128.37	.93	.80	286	252	253	48	230	77	80	24	6
3	15	130.40	.89	.78	286	252	255	49	230	77	80	23	6
	17.5	132.37	.89	.78	285	257	256	49	231	77	80	2.2	6
	20	134.33	.87	.77	285	251	252	49	230	77	80	2.2	5.9
4	22.5	136.28	.81	.74	285	257	257	49	230	77	80	2.2	5.9
	25	138.17	.83	.75	286	253	255	49	231	77	81	2.1	5.9
	27.5	140.09	.80	.74	286	253	255	49	228	77	81	2.1	5.5
5	30	141.96	.75	.72	285	255	255	49	229	78	81	2.0	5.5
	32.5	143.79	.76	.72	285	250	251	50	227	78	81	2	5.5
	35	145.64	.74	.71	284	257	255	50	228	78	81	2	5.5
6	37.5	147.43	.65	.67	284	251	252	50	227	78	81	2	5.5
	40	149.15	.64	.66	284	257	256	50	227	78	81	1.7	5
	42.5	150.86	.64	.66	283	254	253	50	227	78	81	1.7	5
7	45	152.54	.68	.68	283	254	255	50	226	78	81	1.7	5
	47.5	154.36	.69	.69	282	254	256	49	229	78	82	1.8	5
	50	156.12	.73	.71	282	253	252	49	227	78	82	1.8	5

Traverse: 2				
Start Time: 15:47	Initial Leak Check: 0.004	cfm@	15	"Hg
Finish Time:	Final Leak Check:	cfm@		"Hg

Project No.: 22327

Operator: BP

Field Data Sheet

Date: March 18, 2024	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	157.92	.76	.72	283	253	257	50	228	78	82	1.9	5
	55	159.73	.76	.72	283	256	255	50	229	78	82	2.0	5.5
	57.5	161.58	.78	.73	283	253	252	49	228	78	82	2.0	5.5
9	60	163.43	.81	.75	283	256	257	50	229	78	82	2	5.5
	62.5	165.34	.82	.75	283	253	254	50	230	79	82	2.1	5.9
	65	167.25	.83	.76	283	256	254	50	228	79	82	2.1	5.9
10	67.5	169.17	.86	.77	283	251	257	50	230	79	82	2.1	5.9
	70	171.14	.85	.77	284	257	252	50	230	79	82	2.2	6
	72.5	173.11	.83	.76	284	251	254	50	229	79	82	2.2	6
11	75	175.02	.72	.71	282	255	255	50	230	79	82	2.1	5.9
	77.5	176.84	.76	.72	283	251	251	51	227	79	82	1.9	5.5
	80	~~178.79~~ 178.69	.76	.72	283	254	257	51	229	79	82	2	5.5
12	82.5	180.53	.74	.71	282	256	255	51	230	79	82	2	5.5
	85	182.35	.77	.73	282	250	252	51	227	79	82	2	5.5
	87.5	184.22	.77	.73	282	255	256	51	230	79	82	2	5.5
	90	186.10											

Traverse: 2			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 17:17	Final Leak Check: .004	cfm@ 15.5	"Hg

Project No.: 22327

Operator: BP

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particulate/Metals
Test Date	March 19 2024
Test Location	APC Outlet No. 1
Operator	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.27	"Hg
Static Pressure	−11.9	"H2O
Nozzle Size	.2586	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	5.9	mg
Probe	1.9	mg

Moisture Gain

CWTR	510.0	g
WCBDA	24.0	g

Combustion Gas Concentration

Oxygen	8.43	%
Carbon Dioxide	10.71	%
Carbon Monoxide	6.9	ppm

Measuring Device	MII Numbers
Probe / Pitot ISE	
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	.2585
2	.2590
3	.2600
4	.2570
Average:	.2586

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: March 19 2024	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	85.95	.84	.79	278	257	262	65	104	67	67	2.25	6
	2.5	87.83	.81	.77	278	253	265	60	214	67	67	2.2	6
	5	89.81	.81	.77	278	259	258	56	226	67	66	2.2	6
2	7.5	91.77	.79	.76	277	260	251	55	227	67	66	2.1	6
	10	93.68	.81	.77	278	256	245	54	226	67	67	2.15	6
	12.5	95.63	.83	.78	277	259	248	53	227	67	67	2.2	6
3	15	97.62	.83	.78	276	260	255	52	233	68	68	2.2	6
	17.5	99.59	.88	.81	278	257	254	52	235	68	69	2.3	6
	20	101.62	.88	.81	278	257	250	51	235	68	69	2.3	6
4	22.5	103.64	.86	.79	278	260	246	51	233	68	70	2.2	6
	25	105.62	.86	.79	277	254	250	51	234	68	70	2.2	6
	27.5	107.59	.80	.76	278	255	254	51	236	69	71	2.1	6
5	30	109.51	.85	.79	278	261	253	51	237	69	72	2.2	6
	32.5	111.48	.79	.76	278	261	250	51	236	69	72	2.1	6
	35	113.41	.77	.75	277	259	247	50	234	69	72	2.0	6
6	37.5	115.29	.73	.73	277	259	251	50	235	69	72	1.95	6
	40	117.15	.75	.74	277	256	255	50	238	69	73	2	6
	42.5	119.03	.78	.76	277	255	254	50	239	70	73	2.1	6
7	45	120.95	.68	.71	277	261	251	50	237	70	73	1.9	6
	47.5	122.79	.70	.72	277	255	246	50	234	70	74	1.9	6
	50	124.63	.73	.73	277	261	251	49	235	70	74	1.95	6

Traverse:				
Start Time: 15:26	Initial Leak Check:	.007	cfm@ 15	"Hg
Finish Time:	Final Leak Check:		cfm@	"Hg

Project No.: 22327

Operator: H

Field Data Sheet

Date: March 19 2024	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	126.48	.74	.74	278	255	255	49	239	70	74	2.0	6
	55	128.35	.76	.75	278	261	255	49	240	70	74	2.0	6
	57.5	130.25	.92	.82	279	259	251	49	238	70	74	2.4	6.5
9	60	132.28	.92	.82	279	255	247	49	237	70	74	2.4	6.5
	62.5	134.37	.94	.83	279	260	250	48	237	70	74	2.45	6.5
	65	136.47	.94	.83	280	261	255	48	241	70	74	2.45	6.5
10	67.5	138.59	.99	.85	280	261	255	48	242	70	74	2.6	7
	70	140.75	.97	.84	280	256	252	48	241	70	74	2.5	7
	72.5	142.88	.94	.83	280	260	248	49	239	71	74	2.45	7
11	75	144.98	.95	.83	281	257	248	49	238	70	74	2.45	7
	77.5	147.08	.95	.83	281	263	255	49	241	70	74	2.45	7
	80	149.17	.94	.83	280	263	255	49	243	71	74	2.45	7
12	82.5	151.27	.94	.83	280	260	253	49	242	71	74	2.45	7
	85	153.37	.96	.84	280	263	250	50	240	71	74	2.5	7
	87.5	155.49	.94	.83	280	261	247	50	238	71	74	2.45	7
	90	157.60											

Traverse:					
Start Time: —	Initial Leak Check:	—	cfm@	—	"Hg
Finish Time: 16:57	Final Leak Check:	.004	cfm@	18	"Hg

Project No.: 22327

Operator: TT

Field Data Sheet

Date: March 19 2024	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
										70			
1	0	158.11	.94	.83	279	256	253	54	170	~~171~~	74	2.45	6.5
	2.5	160.23	.99	.85	279	261	250	48	227	70	71	2.5	6.5
	5	162.35	1.0	.85	279	259	254	46	238	70	71	2.5	6.5
2	7.5	164.46	1.05	.87	279	256	254	45	242	70	72	2.7	7
	10	166.65	.99	.83	279	260	251	45	242	70	72	2.55	7
	12.5	168.79	1.0	.85	279	256	247	45	239	70	72	2.55	7
3	15	170.93	.96	.84	279	262	248	45	238	70	72	2.5	7
	17.5	173.04	.96	.84	278	263	255	45	242	70	72	2.5	7
	20	175.15	.96	.84	279	256	254	45	243	70	73	2.5	7
4	22.5	177.25	.91	.81	279	262	251	45	241	70	73	2.4	7
	25	179.31	.94	.83	279	256	247	45	239	70	73	2.45	7
	27.5	181.42	.94	.83	280	261	251	45	239	70	73	2.45	7
5	30	183.51	.86	.79	280	259	255	45	242	70	74	2.3	7
	32.5	185.55	.86	.79	280	260	254	45	243	70	74	2.3	7
	35	187.58	.87	.80	280	261	251	45	241	70	74	2.3	7
6	37.5	189.62	.70	.72	280	262	247	45	239	71	74	1.9	6.5
	40	191.46	.69	.71	280	263	252	44	238	71	74	1.9	6.5
	42.5	193.27	.71	.72	280	263	255	44	240	71	75	1.95	6.5
7	45	195.12	.71	.72	280	257	253	44	240	71	75	1.9	6.5
	47.5	196.95	.80	.77	280	258	250	44	238	71	75	2.1	6
	50	198.85	.80	.77	280	261	247	44	236	71	75	2.1	6

Traverse:				
Start Time: 17:05	Initial Leak Check: .006	cfm@ 18	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22327

Operator : TY

Field Data Sheet

Date: March 19 2024	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	200.74	.81	.77	280	257	252	44	237	71	75	2.1	6
	55	202.02	.81	.77	280	257	255	44	240	71	76	2.1	6
	57.5	204.52	.79	.76	280	262	253	44	239	71	76	2.1	6
9	60	206.42	.81	.77	279	262	249	45	238	72	76	2.15	6.5
	62.5	208.38	.81	.77	279	257	250	45	236	71	76	2.15	6.5
	65	210.32	.79	.76	278	261	254	45	239	72	76	2.15	6.5
10	67.5	212.26	.80	.77	278	258	256	45	240	72	76	2.15	6.5
	70	214.21	.80	.77	276	259	253	45	240	72	76	2.15	6.5
	72.5	216.15	.77	.75	276	262	249	45	245	72	76	2.1	6.5
11	75	218.05	.66	.70	276	258	248	45	235	72	76	1.8	6
	77.5	219.84	.66	.70	276	256	255	45	237	72	76	1.8	6
	80	221.60	.66	.70	276	260	255	45	239	72	77	1.8	6
12	82.5	223.35	.68	.71	276	256	252	45	237	72	77	1.9	6
	85	225.14	.68	.71	276	261	248	45	235	72	77	1.9	6
	87.5	226.90	.69	.71	276	260	249	45	234	72	77	1.9	6
	90	228.71											

Traverse:			
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg
Finish Time: 18:34	Final Leak Check: .006	cfm@ 15	"Hg

Project No.: 22327

Operator: TT

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Particulate/Metals
Test Date	March 4, 2024
Test Location	APC Outlet No. 2
Operator	TC

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 3
Impinger Box No.:	16

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.41	"Hg
Static Pressure	-1.3	"H2O
Nozzle Size	.2498	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	2.9	mg
Probe	4.9	mg

Moisture Gain

CWTR	515.5	g
WCBDA	21.5	g

Combustion Gas Concentration

Oxygen	8.55	%
Carbon Dioxide	10.76	%
Carbon Monoxide	7.7	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	B04611
Trendicator	COE20093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV CAN
Calipers	CAN 22136

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	~~.2498~~ .2495
Average:	.2498

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: March 19, 2024	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 0.70	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	586.578	.76	~~0.64~~	281	255	252	58	72	65	65	1.9	4
	2.5	588.70	.77	~~0.69~~	282	257	252	46	230	66	66	1.91	4
	5	590.15	.77	0.70	282	255	256	45	233	66	66	1.94	4
2	7.5	591.95	.79	0.72	283	252	253	45	235	66	67	1.92	4
	10	593.76	.80	0.72	283	251	252	44	234	66	67	1.98	4
	12.5	595.66	.78	0.71	284	253	256	44	236	66	68	2.01	4
3	15	597.47	.76	0.70	284	253	254	45	236	66	68	1.97	4
	17.5	599.23	.77	0.71	284	254	252	45	235	66	64	1.92	4
	20	601.06	.81	0.73	284	255	256	45	235	67	69	1.95	4
4	22.5	602.91	.76	0.71	284	254	255	45	236	67	70	2.05	4
	25	604.74	0.76	0.71	285	257	252	45	236	67	70	1.93	4
	27.5	606.56	.80	0.74	286	252	253	45	235	67	70	1.93	4
5	30	608.44	.75	0.70	286	257	256	45	237	68	71	2.02	4
	32.5	610.285	.76	0.71	287	250	252	45	238	68	71	1.98	4
	35	612.1	.82	0.73	288	251	256	46	238	65	72	1.93	4
6	37.5	614.0	.78	0.72	289	253	255	46	235	68	72	2.05	4.5
	40	615.85	.77	0.71	289	257	254	46	238	69	72	1.98	4.2
	42.5	617.75	.73	0.69	290	253	253	46	237	69	72	1.95	4.2
7	45	619.47	.76	0.71	290	254	256	47	237	69	73	1.85	4.
	47.5	621.30	.78	0.72	290	257	253	47	237	70	73	1.95	4.
	50	623.13	.79	0.72	290	257	254	47	230	70	73	1.98	4.2

Traverse: 1				
Start Time: 18:12	Initial Leak Check: 0.007	cfm@ 14	"Hg	
Finish Time:	Final Leak Check:	cfm@	"Hg	

Project No.: 22327

Operator :

Field Data Sheet

Date: March 19, 2024	Plant: Covanta DYEC	Test No.: (Particulate/Metals	Page 3 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter 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	624.95	.80	.73	290	256	256	47	237	70	73	2	4.2
	55	626.85	.83	.74	291	250	252	47	237	70	73	2.02	4.2
	57.5	628.73	.85	.75	291	256	256	48	237	70	74	2.1	4.5
9	60	630.65	.80	.73	292	257	253	48	237	71	74	2.13	4.5
	62.5	632.54	.75	.70	292	255	252	48	236	71	74	2.03	4.2
	65	634.385	.77	.71	291	257	257	47	236	71	74	1.93	4
10	67.5	636.23	.76	.71	291	251	253	47	236	71	74	1.95	4
	70	638.06	.76	.71	290	257	253	47	236	71	74	1.95	4
	72.5	639.89	.75	.70	290	253	255	47	236	71	74	1.94	4
11	75	641.72	.72	.69	289	253	252	47	235	71	74	1.92	4
	77.5	643.52	.73	.70	288	257	256	47	235	71	74	1.85	4
	80	645.32	.71	.69	288	254	253	47	235	71	75	1.88	4
12	82.5	647.11	.73	.70	287	255	255	47	235	72	75	1.83	4
	85	648.90	.73	.70	287	250	255	47	236	72	76	1.88	4
	87.5	650.71	.73	.70	287	252	252	47	235	72	75	1.88	4
	90	652.499											

Traverse: 1			
Start Time: 09:42	Initial Leak Check:	cfm@	"Hg
Finish Time:	Final Leak Check: <0.001	cfm@ 14.	"Hg

Project No.: 22327

Operator :

Field Data Sheet

Date: March 19, 2024	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	652.964	.88	0.77	283	255	254	54	137	72	72	2.1	4
	2.5	654.83	.83	.76	286	256	252	45	228	72	72.	2.1	4
	5	656.77	.88	.76	286	250	252	43	234	72	72	2.15	4.5
2	7.5	658.74	.87	.76	287	257	256	41	239	71	72	2.2	4.7
	10	660.7	.86.	.76	286	254	257	41	240	71	72	2.18	4.6.
	12.5	662.63	.89	.77	286	254	253	41	239	71	72.	2.15	4.5.
3	15	664.60	.85	.75	286	254	253	41	238	71	73	2.22	4.9
	17.5	666.52	.86	.76	286	257	256	41	239	71	73	2.1	4.5
	20	668.43	.86	.76	284	251	257	41	241	71	73	2.1	4.5.
4	22.5	670.35.	.78	.72	287	257	254	41	240	71	73	2.13	4.5
	25	672.195	.82	.74	287	256	251	41	237	71	73.	1.95	4.1
	27.5	674.08	.80	.73	287	253	257	41	240	71	74	2.03	4.3.
5	30	675.94	.72	.69	287	251	257	42	240	71	74	2.	4.2.
	32.5	677.73	.73	.70	286	256	254	42	239	71	74	1.87	4.
	35	679.51	.73	.70.	286	257	251	42	237	71	74	1.82	4
6	37.5	681.29	.61	.64	286	254	256	42	238	71	74	1.82	4
	40	682.95	.61	.64	286	257	256	42	239	71	74	1.82	4.
	42.5	684.58	.63	.65	286	252	254	42	237	71	74	1.5	4.
7	45	686.22	.63	.65.	286	252	252	42	235	71	74	1.56	4
	47.5	687.86	.62	.64	286	257	256	42	239	72	74	1.56	4
	50	689.49	.63	.65.	285	253	256	42	237	72	74	1.52	4

Traverse: 2				
Start Time: 19:55	Initial Leak Check:	0.002	cfm@ 13.	"Hg
Finish Time:	Final Leak Check:		cfm@	"Hg

Project No.: 22327

Operator :

Field Data Sheet

Date: March 19, 2024	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	691.12	.65	.66	285	250	252	42	236	72	75	1.54	4
	55	692.8	.67	.67	285	255	253	42	235	72	75	1.62	4
	57.5	694.5	.68	.67	285	254	256	42	237	72	75	1.65	4
9	60	696.21	.70	.68	285	251	255	43	237	72	75	1.7	4
	62.5	697.94	.70	.68	285	254	252	43	236	72	75	1.75	4
	65	699.66	.72	.69	285	255	254	43	235	72	75	1.75	4
10	67.5	701.40	.71	.69	282	254	255	43	237	72	75	1.8	4
	70	703.14	.71	.69	284	251	254	43	236	72	75	1.8	4
	72.5	704.87	.69	.68	284	257	252	43	235	72	75	1.8	4
11	75	706.60	.61	.66	228	251	255	43	237	72	74	1.75	4
	77.5	708.25	.60	.66	225	252	255	43	236	72	74	1.6	4
	80	709.90	.62	.67	225	250	251	43	234	72	74	1.6	4
12	82.5	711.56	.61	.67	224	256	255	43	236	72	74	1.67	4
	85	713.24	.64	.68	225	256	255	43	237	72	74	1.7	4
	87.5	714.95	.65	.69	226	256	252	43	235	72	74	1.75	4
	90	716.73											

Traverse: 2				
Start Time: 11:25	Initial Leak Check:		cfm@	"Hg
Finish Time: X	Final Leak Check:	.002	cfm@ 13	"Hg

Project No.: 22327

Operator: TC.

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particulate/Metals
Test Date March 19, 2024	
Test Location	APC Outlet No. 2
Operator TC	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 3
Impinger Box No.:	13

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.31	"Hg
Static Pressure	-11.3	"H2O
Nozzle Size	.2498	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	2.4	mg
Probe	3.9	mg

Moisture Gain

CWTR	461.1	g
WCBDA	18.0	g

Combustion Gas Concentration

Oxygen	8.20	%
Carbon Dioxide	11.08	%
Carbon Monoxide	13.5	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	B04011
Trendicator	COC20093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	↓
Micromanometer	↓
Barometer	ENV. CAN
Calipers	CAN 22136

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	.2495
Average:	.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: Mar. 19, 2024	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	717.1005	0.82	.75	286	251	250	58	205	69	69	2.0	5
	2.5	718.96	.84	.74	286	256	253	57	211	69	69	2.01	5.
	5	720.84	.83	.74	286	255	255	56	215	69	69	2.01	5.
2	7.5	722.7	.81	.73	285	256	250	55	217	69	69	2	5.
	10	724.55	.84	.74	285	256	256	55	221	69	70	1.98	5.
	12.5	726.41	.87	.76	285	256	252	55	222	69	70	2.03	5.
3	15	728.3	.83	.74	285	250	254	55	224	69	71	2.1	5.1
	17.5	730.18	.85	.75	286	254	253	55	224	69	71	2.01	5.
	20	732.07	.84	.74	286	252	254	55	226	69	71	2.03	5.
4	22.5	733.95	.75	.70	286	252	253	56	170	69	72	2.01	5.
	25	735.72	.77	.71	285	256	254	55	155	69	72	1.84	4.7.
	27.5	737.50	.76	.71	285	250	254	54	155	70	73	1.88	4.9.
5	30	739.29	.71	.69	285	250	255	54	155	70	73	1.85	4.7
	32.5	741.02	.70	.68	285	256	254	53	154	70	73	1.72	4.5.
	35	742.74	.70	.68	285	254	254	53	154	70	74	1.71	4.5.
6	37.5	744.46	.60	.63	285	256	254	53	154	70	74	1.71	4.5.
	40	746.09	.62	.64	285	252	255	52	156	71	74	1.49	4.1
	42.5	747.72	.61	.64	286	254	256	52	154	71	75.	1.52	4.3
7	45	744.35	.64	.65	285	252	255	52	154	71	75.	1.5	4.3
	47.5	751.01	.61	.64	285	255	255	52	155	72	75.	1.59	4.5.
	50	752.61	.62	.64	285	250	255	52	155	72	76	1.53	4.2

Traverse: 2			
Start Time: 11:59	Initial Leak Check: .003	cfm@ 13	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22327

Operator: TC

Field Data Sheet

Date: Mar. 19, 2024	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	754.73	.65	.66	285	256	253	52	154	72	76	1.57	4.4
	55	755.89	.66	.67	285	256	254	52	157	72	76	1.67	4.7
	57.5	757.57	.68	.67	286	257	255	52	155	72	76	1.65	4.8
9	60	759.29	.70	.68	285	256	253	53	156	72	76	1.7	4.9
	62.5	761.03	.71	.69	286	254	256	53	156	73	77	1.74	5.
	65	762.77	.72	.70	286	256	253	53	225	73	77	1.77	5.
10	67.5	764.54	.68	.68	285	251	257	53	227	73	79	1.8	5.
	70	766.26	.64	.66	284	251	254	53	228	73	77	1.71	4.9
	72.5	767.96	.63	.65	284	253	256	53	226	74	77	1.61	4.8
11	75	769.61	.54	.65	188	253	253	53	226	74	77	1.58	4.7
	77.5	771.24	.53	.64	181	249	257	53	226	74	77	1.55	4.4
	80	772.88	.56	.66	183	253	254	53	226	74	77	1.51	4.4
12	82.5	774.55	.55	.66	183	251	255	53	226	74	78	1.63	4.8
	85	776.20	.53	.64	182	252	254	54	227	74	78	1.59	4.7
	87.5	777.85	.54	.65	183	256	255	54	226	74	78	1.54	4.7
	90	779.538											

Traverse:				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 13:29	Final Leak Check: .002		cfm@ 13	"Hg

Project No.: 22327

Operator :

Field Data Sheet

Date: Mar. 19, 2024	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	779.90	.70	.69	283	256	257	61	177	75	76	1.8	5
	2.5	781.71	.71	.69	283	254	255	55	180	75	76	1.8	5
	5	783.48	.71	.69	282	256	254	52	226	75	76	1.8	5
2	7.5	785.25	.70	.69	282	250	256	51	233	75	76	1.8	5
	10	787.03	.69	.68	282	254	252	51	232	75	77	1.8	5
	12.5	788.76	.69	.68	282	257	256	51	233	75	77	1.75	5
3	15	790.51	.68	.68	281	250	253	51	232	75	77	1.75	5
	17.5	792.24	.69	.68	281	255	256	50	233	75	77	1.7	5
	20	793.98	.69	.68	281	252	252	50	232	75	77	1.7	5
4	22.5	795.71	.67	.68	281	252	256	50	233	75	78	1.7	5
	25	797.42	.66	.67	281	257	252	50	232	75	78	1.7	5
	27.5	799.14	.66	.67	281	250	256	50	233	75	78	1.7	5
5	30	800.84	.63	.65	281	256	252	50	232	75	78	1.7	5
	32.5	802.53	.63	.65	281	251	256	50	233	75	76	1.65	4.9
	35	804.21	.64	.66	281	256	252	50	232	75	78	1.6	4.9
6	37.5	805.89	.56	.62	281	257	255	51	233	75	79	1.62	4.9
	40	807.475	.55	.61	282	255	252	51	231	76	79	1.43	4.1
	42.5	809.04	.54	.61	282	256	255	51	232	76	79	1.39	4.0
7	45	810.59	.60	.64	282	252	253	51	230	76	79	1.35	4.0
	47.5	812.22	.60	.64	282	254	253	51	232	76	79	1.52	4.5
	50	813.85	.61	.65	281	249	251	51	231	76	79	1.52	4.5

Traverse: 1			
Start Time: 13:37	Initial Leak Check: .002	cfm@ 12	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22327

Operator: TC/BP

Field Data Sheet

Date: Mar 19, 2024	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	815.49	.61	.64	282	257	256	51	231	76	79	1.55	4.7
	55	817.13	.64	.66	282	256	252	51	231	76	79	1.55	4.7
	57.5	818.83	.65	.67	282	256	255	52	232	76	80	1.63	4.9
9	60	820.52	.68	.68	283	253	253	52	232	77	80	1.63	4.9
	62.5	822.25	.66	.67	284	253	256	52	233	77	80	1.72	5.
	65	823.98	.69	.69	284	253	252	52	232	77	80	1.68	5.
10	67.5	825.73	.68	.68	285	249	257	52	234	77	80	1.74	5.1
	70	827.47	.67	.68	285	251	252	52	233	77	80	1.71	5.1
	72.5	829.19	.68	.68	285	249	257	52	233	77	80	1.69	5
11	75	830.91	.62	.66	273	250	251	52	232	77	80	1.7	5.
	77.5	832.585	.62	.66	268	255	256	52	233	77	80	1.6	4.9
	80	834.25	.64	.67	267	256	251	52	232	77	80	1.6	4.9
12	82.5	836.61	.65	.67	268	254	257	52	232	77	80	1.66	5.
	85	837.65	.64	.67	268	255	252	52	233	77	80	1.69	5.1
	87.5	839.34	.64	.67	268	251	257	52	232	77	80	1.65	4.9
	90	841.075											

Traverse: 1			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 15:07	Final Leak Check: .001	cfm@ 14	"Hg

Project No.: 22327

Operator: TC

ORTECH Consulting Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particulate/Metals
Test Date March 19, 2024	
Test Location	APC Outlet No. 2
Operator	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 3
Impinger Box No.:	5

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.27	"Hg
Static Pressure	-11.3	"H2O
Nozzle Size	.2498	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	3.0	mg
Probe	2.7	mg

Moisture Gain

CWTR	511.8	g
WCBDA	21.8	g

Combustion Gas Concentration

Oxygen	8.14	%
Carbon Dioxide	11.03	%
Carbon Monoxide	2.1	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	BB4011
Trendicator	COE20093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	↓
Micromanometer	↓
Barometer	ENV. CAN
Calipers	CAN 22136

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	.2495
Average:	.2498

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: Mar 19, 2024	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	841.502	.81	.74	287	248	254	68	127	75	75.	2.05	4.2.
	2.5	843.42	.80	.73	286	253	251	57	219	75	75	2.05	4.2
	5	845.29	.80	.73	286	254	256	56	226	75	75	1.99	4.
2	7.5	847.15	.80	.73	287	256	251	55	229	75	75	1.99	4.
	10	848.99	.80	.73	287	249	256	55	233	75	75.	1.99	4.
	12.5	850.85	.80	.73.	287	256	253	55	236	74	75	1.99	4
3	15	852.69	.83	.75.	287	253	256	55	239	74	76	1.97	4
	17.5	854.58	.81	.74	287	252	254	55	240	74	76.	2.05	4.2
	20	856.45	.81	.74	288	256	254	54	240	74	77	2.0	4.2.
4	22.5	858.32	.74	.71	288	250	253	54	241	75	77	2 0	4.2.
	25	860.12	.72	.70	288	257	254	54	241	75	77	1.84	3.9
	27.5	861.99	.71	.69	287	256	255	54	242	75	78	1.8	3.8
5	30	863.67	.66	.67	287	256	252	54	241	75	78	1.8	3.8
	32.5	865.37	.66	.67	286	250	255	55	242	75	78	1.67	3.5
	35	867.08	.56	.62	286	256	252	55	242	75	78	1.67	3.5.
6	37.5	868.67	.56	.62	286	252	256	56	242	75	79	1.4	3.2
	40	870.23	.57	.62	286	255	253	56	242	76	79	1.4	3.2
	42.5	871.82	.57	.62	286	255	254	56	242	76	79	1.43	3.4
7	45	873.4	.60	.64	286	257	254	57	242	76	79	1.42	3.3.
	47.5	875.01	.58	.63	286	250	254	55	240	76	79	1.52	3.4
	50	876.62	.59		285	253	254	55	242	76	80	1.45	3.2

Traverse: 1				
Start Time: 15:38.	Initial Leak Check: .002	cfm@	13	"Hg
Finish Time:	Final Leak Check:	cfm@		"Hg

Project No.: 22327

Operator : TC/BP

Field Data Sheet

Date: Mar. 19, 2024	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	878.19	.63	.63	285	252	252	54	241	76	80	1.45	3.2
	55	879.84	.62	.65	286	250	255	53	243	76	80	1.59	3.5
	57.5	881.48	.64	.66	286	254	252	53	242	77	80	1.55	35
9	60	883.15	.67	.67	287	254	255	53	243	77	80	1.62	3.6
	62.5	884.85	.68	.68	287	251	253	53	243	77	80	1.7	3.8
	65	886.57	.68	.68	287	254	254	52	242	77	80	1.7	3.8
10	67.5	888.29	.66	.67	286	256	254	52	244	77	80	1.7	3.8
	70	889.999	.66	.67	286	251	252	52	241	77	80	1.65	3.7
	72.5	891.69	.69	.68	287	253	255	52	243	77	80	1.65	3.7
11	75	893.45	.72	.70	287	255	252	52	243	77	80	1.72	4
	77.5	895.22	.61	.68	210	253	255	52	243	77	80	1.99	4.1
	80	896.96	.58	.66	206	251	252	52	242	77	80	1.7	4.
12	82.5	898.66	.60	.68	206	253	255	52	242	77	80	1.61	3.9
	85	900.37	.59	.67	205	252	253	52	243	77	80	1.69	3.9
	87.5	902.04	.58	.66	206	252	254	52	242	77	80	1.65	3.9
	90	903.744											

Traverse: 2			
Start Time:	Initial Leak Check: .001	cfm@ 12.	"Hg
Finish Time: 17:08	Final Leak Check:	cfm@	"Hg

Project No.: 22327

Operator: TC/BP

Field Data Sheet

Date: March 9, 2021	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	904.18	.78	.73	287	255	252	58	178	77	78	2	4
	2.5	906.03	.80	.74	289	251	255	52	236	77	78	2	4
	5	907.90	.82	.74	289	256	252	50	233	77	78	2	4
2	7.5	909.79	.82	.74	288	252	255	48	239	77	79	2.1	4
	10	911.67	.81	.74	288	253	252	47	213	77	79	2.1	4
	12.5	913.57	.81	.74	288	257	255	47	241	77	79	2.1	4
3	15	915.47	.80	.74	288	250	252	47	241	77	79	2.1	4
	17.5	917.34	.79	.73	288	255	255	47	243	77	79	2.05	4
	20	919.23	.79	.73	288	250	252	47	243	77	79	2	4
4	22.5	921.10	.75	.71	288	257	255	47	243	77	80	2	4
	25	922.92	.75	.71	288	252	254	47	243	77	80	1.9	4
	27.5	924.74	.73	.70	288	257	255	47	242	77	80	1.9	4
5	30	926.55	.69	.68	288	254	253	47	242	77	80	1.9	4
	32.5	928.33	.68	.68	287	251	255	47	242	77	80	1.8	4
	35	930.09	.68	.68	286	257	254	47	242	77	80	1.8	4
6	37.5	931.83	.63	.65	286	250	253	47	241	77	80	1.75	4
	40	933.49	.63	.66	287	257	255	48	242	77	81	1.6	3.9
	42.5	935.15	.63	.66	287	253	253	48	241	77	81	1.6	3.9
7	45	936.82	.66	.67	287	251	255	48	242	78	81	1.6	3.9
	47.5	938.55	.65	.67	287	256	252	48	241	78	81	1.7	4
	50	940.27	.65	.67	286	250	255	48	242	78	81	1.7	4

Traverse: i			
Start Time: 17:16	Initial Leak Check: .002	cfm@ 15	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Project No.: 22327

Operator: RP

Field Data Sheet

Date: March 8, 2024	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	941.96	.67	.68	286	257	252	48	241	78	81	1.65	4
	55	943.68	.66	.67	286	251	254	48	241	78	81	1.7	4
	57.5	945.40	.66	.67	286	257	252	48	241	78	81	1.7	4
9	60	947.11	.69	.69	285	251	254	48	241	78	81	1.7	4
	62.5	948.86	.72	.70	286	256	252	48	242	78	81	1.8	4
	65	950.67	.69	.69	286	251	254	48	241	78	82	1.9	4
10	67.5	952.43	.69	.69	282	257	254	48	242	78	82	1.8	4
	70	954.17	.66	.67	282	251	252	48	241	78	82	1.75	4
	72.5	955.85	.65	.67	280	256	255	48	242	78	82	1.7	4
11	75	957.56	.65	.67	280	251	251	48	241	78	82	1.7	4
	77.5	959.27	.67	.68	280	250	255	48	242	78	82	1.7	4
	80	960.98	.65	.67	280	257	252	48	242	79	82	1.7	4
12	82.5	962.67	.65	.67	280	249	254	49	241	79	82	1.7	4
	85	964.38	.67	.68	280	255	253	49	242	79	82	1.7	4
	87.5	966.10	.67	.68	280	253	253	49	240	79	82	1.7	4
	90	967.79											

Traverse: 1				
Start Time:	Initial Leak Check:		cfm@ ~~15~~	"Hg
Finish Time: 18:46	Final Leak Check:	.003	cfm@ 15	"Hg

Project No.: 22327

Operator : BP

APPENDIX 5

Particle Size Distribution Field Data Sheets
(12 pages)

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Particle Size
Test Date	MARCH 19, 2024
Test Location	APC Outlet No. 1
Operator	RM

Project No.:	22327
Page	1 of 2
Probe No.:	A10/25
Meter Box No.:	T1
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	0.987	
Barometric Pressure	29.43	"Hg
Static Pressure	-11.9	"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	138.5	g
WCBDA	9.0	g

Combustion Gas Concentration

Oxygen	8.75	%
Carbon Dioxide	10.41	%
Carbon Monoxide	8.0	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST 1
Incline Manometer	
Comb.Gas.Analyzer	UNIT 2
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
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: MAR 19/24	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	0.00	.92	.35	278	260	250	61	62	66	66	.38	3
2	10.8	3.86	.96		279	262	255	52	62	67	66	.39	3
3	21.1	7.59	.88		279	262	254	51	60	68	66	.38	3
4	31.5	11.17	.85		280	260	255	50	60	69	67	.39	3
5	41.8	14.85	.74		280	260	255	50	60	70	67	.38	3
6	51.2	18.16	.64		280	261	255	51	60	70	67	.38	3
	60.3	21.45											
1	0	21.45	.98		280	262	254	53	60	70	68	.38	3
2	10.7	25.17	1.0		278	262	255	54	60	71	68	.38	3
3	21.4	28.98	.90		279	262	255	54	60	71	68	.38	3
4	31.9	32.80	.78		279	260	255	53	60	71	69	.38	3
5	41.9	36.39	.70		279	262	254	55	60	71	69	.38	3
6	50.9	39.62	.69		280	261	255	54	60	71	69	.38	3
	59.7	42.80											

Traverse: 2 824				Traverse: 1			
Start Time: ~~835~~	Initial Leak Check: .002	cfm@ 12	"Hg	Start Time: 926	Initial Leak Check:	cfm @	"Hg
Finish Time: 924	Final Leak Check:	cfm@	"Hg	Finish Time: 1026	Final Leak Check:	cfm @	"Hg

ready to test @ 8am WAIT

Project No.: 22327

Operator :

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particle Size
Test Date	MARCH 19 2024
Test Location	APC Outlet No. 1
Operator	DM

Project No.:	22327
Page	1 of 2
Probe No.:	PM10/2.5
Meter Box No.:	T1
Impinger Box No.:	C

Pitot Factor	0.843	
DGMCF	0.987	
Barometric Pressure	29.34	"Hg
Static Pressure	-1.9	"H2O
Nozzle Size	.1776	inches
Stack Diameter	4.5	feet
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	DWFCC
Number of Ports	2
Number of Points/Port	12

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	164.3	g
WCBDA	8.5	g

Combustion Gas Concentration

Oxygen	9.12	%
Carbon Dioxide	10.21	%
Carbon Monoxide	7.9	ppm

Measuring Device	MII Numbers
Probe / Pitot	356
Trendicator	
Control Box	TEST
Incline Manometer	1
Comb.Gas.Analyzer	MAN7
Micromanometer	
Barometer	2
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: MAR 19/24	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	42.85	.97	.35	283	262	250	50	57	70	69	.38	4
2	10.5	46.77	.99		283	263	255	49	39	67	67	.38	4
3	21.3	50.55	.95		284	262	256	49	40	67	68	.38	4
4	31.5	54.24	.89		285	262	256	49	41	67	68	.38	4
5	41.6	58.05	.75		285	263	256	51	42	70	68	.38	4
6	51.1	61.65	.65		283	263	255	52	43	71	68	.38	4
	59.8	64.76	.92		~~284~~	~~264~~	~~254~~	~~56~~	~~45~~	~~71~~	~~69~~	~~.38~~	~~4~~
1	0	64.76	.97		281	264	254	56	45	71	69	.38	4
2	10.9	68.63	.92		282	263	255	57	60	72	70	.38	4
3	21.8	72.50	.85		281	263	256	57	59	73	70	.38	4
4	32.2	76.24	.85		282	263	255	56	55	73	70	.38	4
5	41.9	79.74	.78		284	263	255	56	55	73	70	.38	4
6	51.1	83.04	.61		284	263	255	55	55	73	70	.38	4
	60.2	86.31		↓									

Traverse: 2					Traverse: 1				
Start Time: 11:02	Initial Leak Check: .002	cfm@ 15	"Hg		Start Time: 1204	Initial Leak Check:	cfm @	"Hg	
Finish Time: 12:02	Final Leak Check:	cfm@	"Hg		Finish Time: 1304	Final Leak Check:	cfm @	"Hg	

Project No.: 22327

Operator : RM

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particle Size
Test Date	MARCH 19, 2024
Test Location	APC Outlet No. 1
Operator	DW

Project No.:	22327
Page	1 of 2
Probe No.:	AM10 (215
Meter Box No.:	7
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	0.987	
Barometric Pressure	29.28	"Hg
Static Pressure	-11.9	"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	147.1	g
WCBDA	8.5	g

Combustion Gas Concentration

Oxygen	8.73	%
Carbon Dioxide	10.34	%
Carbon Monoxide	6.3	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST
Incline Manometer	1
Comb.Gas.Analyzer	ANVIL
Micromanometer	2
Barometer	
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: MAR 19/24	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	87.27	.94	.35	280	262	254	64	70	73	72	.38	4
2	10.7	91.11	.85		278	264	256	48	60	73	72	.39	4
3	21.5	95.04	.87		278	263	256	48	55	73	72	.38	4
4	32.1	98.81	.85		278	262	255	49	55	73	72	.38	4
5	42.4	102.66	.72		278	261	255	48	54	73	72	.38	4
6	51.8	106.05	.62		278	263	257	47	53	75	73	.38	4
	60.6	109.34											
1	0	109.34	.97		278	263	254	51	50	76	74	.35	4
2	10.4	113.02	.95		277	263	255	49	50	76	74	.35	4
3	20.9	116.89	.89		277	263	256	52	51	76	74	.38	4
4	30.9	120.49	.75		277	262	257	50	51	76	74	.38	4
5	40.9	124.09	.67		277	263	256	54	52	76	74	.38	4
6	50.5	127.56	.66		278	263	255	55	53	77	75	.38	4
	59.4	130.83											

Traverse: 2				Traverse: 1			
Start Time: 1350	Initial Leak Check: .005	cfm@	"Hg	Start Time: 1454	Initial Leak Check:	cfm @	"Hg
Finish Time: 1451	Final Leak Check:	cfm@	"Hg	Finish Time: 1553	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator :

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	1 Particle Size
Test Date	MARCH 18, 2024
Test Location	APC Outlet No. 2
Operator	RM

Project No.:	22327	
Page	1 of 2	
Probe No.:	PM10/2.5	
Meter Box No.:	71	
Impinger Box No.:		

Pitot Factor	0.843	
DGMCF	0.987	
Barometric Pressure	29.44	"Hg
Static Pressure	-11.9	"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	173.1	g
WCBDA	8.5	g

Combustion Gas Concentration

Oxygen	8.57	%
Carbon Dioxide	10.75	%
Carbon Monoxide	7.6	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE PM10/2.5
Trendicator	—
Control Box	TEST
Incline Manometer	CO2E2004
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV.CAN
Calipers	BU3906

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: MAR 18/24	Plant: Covanta DYEC	Test No.: 1	Particle Size	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location:	APC Outlet No. 7	

Point	Clock Time	Dry Gas Meter ft^3	Pitot Δ P "H_2O	Desired cfm .35	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	69.96	.75	.75	276	263	256	63	59	65	64	0.38	4
2	10.5	73.74	.71		280	263	255	56	59	66	65	.38	4
3	21.3	77.75	.68		280	263	255	53	59	67	66	.39	4
4	31.7	81.45	.71		283	261	255	50	55	68	67	.38	4
5	41.9	~~84~~ 85.06	.71		283	261	255	50	55	70	67	.39	4
6	51.5	88.45	.62		283	262	255	51	59	71	68	.38	4
	60.5	91.67											
1	0	91.67	.75		284	263	255	53	58	71	68	.39	4
2	10.9	95.52	.73		283	260	257	53	57	72	65	.38	4
3	21.6	99.24	.77		283	263	256	52	57	72	69	.36	4
4	31.6	102.76	.72		284	263	257	52	57	72	69	.36	4
5	41.2	106.17	.67		284	263	258	52	57	72	69	.38	4
6	52.6	109.46	.50		284	264	257	51	59	72	69	.36	4
	59.5	112.51											

Traverse: 2				
Start Time: 10:27	Initial Leak Check: .002	cfm@ 16	"Hg
Finish Time: 11:27	Final Leak Check:	cfm@	"Hg

Traverse: 1			
Start Time: 11:30	Initial Leak Check:	cfm @	"Hg
Finish Time: 12:30	Final Leak Check:	cfm @	"Hg

ready to test @ 9:50 WAITING ON PROCESS

Project No.: 22327

Operator : RM

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Particle Size
Test Date	MAR 18/24
Test Location	APC Outlet No. 2
Operator	RW

Project No.:	22327
Page	1 of 2
Probe No.:	AM 10/2.5
Meter Box No.:	7
Impinger Box No.:	9

Pitot Factor	.843	
DGMCF	0.981	
Barometric Pressure	29.44	"Hg
Static Pressure	-11.8	"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	1167.6	g
WCBDA	9.0	g

Combustion Gas Concentration

Oxygen	8.30	%
Carbon Dioxide	11.05	%
Carbon Monoxide	9.1	ppm

Measuring Device	MII Numbers
Probe / Pitot	AM 10/25
Trendicator	
Control Box	ECOE 2009
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENVCAN
Calipers	130306

Reading Interval	QUICK
Number of Ports	2
Number of Points/Port	12

Nozzle Measurements

1	.1775
2	.1775
3	.1780
4	.1775
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: MAR 18/24	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	12.77	.95	.35	282	261	255	65	74	71	70	.38	4
2	10.2	16.42	.86	↓	281	262	255	59	60	70	70	.38	4
3	20.3	20.00	.96		282	262	256	57	60	71	70	.38	4
4	30.2	23.57	.84		282	262	256	57	60	72	71	.38	4
5	40.3	27.19	.70		282	261	257	57	60	72	71	.38	4
6	50.4	30.82	.61		281	261	258	56	60	72	71	.38	4
	59.8	34.16											
1	0	34.16	.99		281	263	255	59	62	74	72	.38	4
2	10.4	37.88	.97		282	261	256	57	63	75	72	.38	4
3	20.6	41.51	.93		283	262	256	57	63	75	72	.38	4
4	31.1	45.23	.80		282	262	256	56	63	76	73	.38	4
5	41.3	48.85	.84		282	261	257	55	60	76	73	.38	4
6	51.1	52.33	.71		283	260	256	55	60	76	73	.38	4
	60.2	55.53		↓									

Traverse: 2					Traverse: 1				
Start Time: 1421	Initial Leak Check: .002	cfm@ 15	"Hg		Start Time: 1524	Initial Leak Check:	cfm @	"Hg	
Finish Time: 1521	Final Leak Check:	cfm@	"Hg		Finish Time: 1624	Final Leak Check:	cfm @	"Hg	

ready to test @ 1310 told process is not good yet @ 1421

Project No.: 22327

Operator : DM

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Particle Size
Test Date	MARCH 18, 2024
Test Location	APC Outlet No. 2
Operator	DW

Project No.:	22327
Page	1 of 2
Probe No.:	PM10/2.5
Meter Box No.:	7
Impinger Box No.:	10

Pitot Factor	0.843	
DGMCF	0.987	
Barometric Pressure	29.46	"Hg
Static Pressure	-1.8	"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	171.2	g
WCBDA	9.8	g

Combustion Gas Concentration

Oxygen	8.13	%
Carbon Dioxide	11.00	%
Carbon Monoxide	9.8	ppm

Measuring Device	MII Numbers
Probe / Pitot	SEE
Trendicator	
Control Box	TEST
Incline Manometer	
Comb.Gas.Analyzer	/
Micromanometer	
Barometer	
Calipers	

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

Site Diagram

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Notes:

Field Data Sheet

Date: MAR 18/24	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	55.63	.93	.35	281	262	258	65	66	75	74	.38	4
2	10.6	57.44	.91		281	262	257	55	62	74	73	.38	4
3	20.9	63.02	.86		280	262	257	55	62	75	73	.38	4
4	31.0	66.81	.79		280	262	257	52	63	75	73	.38	4
5	41.0	70.41	.71		280	262	257	52	62	75	73	.38	4
6	50.1	73.72	.64		280	262	257	52	62	75	73	.38	4
	58.6	76.76											
1	0	76.76	.76		280	263	256	54	62	75	73	.38	4
2	10.8	80.60	.75		279	263	257	52	62	76	74	.38	4
3	21.6	84.50	.73		280	263	257	52	62	76	74	.38	4
4	32.1	88.29	.70		280	263	257	52	62	76	74	.38	4
5	42.2	91.91	.68		280	263	257	52	60	77	74	.38	4
6	52.2	95.42	.56		281	263	257	52	61	77	74	.38	4
	61.4	98.76											

Traverse: 2			
Start Time: 1657	Initial Leak Check: .002	cfm@ 17	"Hg
Finish Time: 1750	Final Leak Check:	cfm@	"Hg

Traverse: 1			
Start Time: 1758	Initial Leak Check:	cfm @	"Hg
Finish Time: 1859	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator :

APPENDIX 6

SVOC Data Sheets
(30 pages)

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	Semi-Volatile Organic Compounds
Test Date	March 20 2024
Test Location	APC Outlet No. 1
Operator	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.29	"Hg
Static Pressure	-11.9	"H2O
Nozzle Size	.2586	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	721.9	g
WCBDA	20.6	g

Combustion Gas Concentration

Oxygen	8.11	%
Carbon Dioxide	11.00	%
Carbon Monoxide	9.2	ppm

Measuring Device	MII Numbers
Probe / Pitot 15E	
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
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: March 20 2024	Plant: Covanta DYEC	Test No.: 1 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	29.72	.81	.78	285	252	236	95	82	82	82	2.2	7
	5	33.66	.84	.79	280	256	260	57	48	83	82	2.25	7.5
2	10	37.68	.85	.80	280	257	251	48	48	83	82	2.25	7.5
	15	41.70	.86	.80	280	261	260	48	49	83	83	2.25	8
3	20	45.74	.81	.78	280	261	250	49	49	83	83	2.2	8
	25	49.70	.84	.79	280	264	261	49	48	83	84	2.2	8
4	30	53.69	.76	.76	280	261	251	50	49	83	85	2.05	9
	35	57.48	.73	.74	281	261	261	51	48	84	86	2.0	7.5
5	40	61.23	.70	.73	280	259	255	53	47	84	86	1.95	8
	45	64.94	.70	.73	280	259	258	55	47	84	87	1.9	8
6	50	68.60	.69	.70	280	259	258	54	47	84	87	1.8	7.5
	55	72.21	.65	.70	280	265	252	54	47	84	87	1.8	7.5
7	60	75.73	.71	.73	280	259	261	66	49	85	88	1.9	7.5
	65	79.41	.71	.73	280	265	251	64	49	85	88	1.9	7.5
8	70	83.02	.74	.75	281	260	261	58	48	85	88	2.1	8
	75	86.83	.74	.75	281	265	254	53	48	85	88	2.1	8
9	80	90.66	.75	.75	281	258	260	54	48	85	88	2.1	8
	85	94.47	.76	.76	281	259	257	54	48	85	98	2.1	8
10	90	98.31	.76	.76	278	263	256	54	49	85	87	2.1	8
	95	102.14	.76	.76	277	260	259	54	50	85	87	2.1	8
11	100	105.95	.68	.72	277	264	252	55	51	85	87	1.9	8

Traverse:			
Start Time: 8:10	Initial Leak Check: .005	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.: 22327

Operator : TT

Field Data Sheet

Date: March 20 2024	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	109.64	.74	.75	277	261	260	56	52	85	87	2.0	8
12	110	113.39	.71	.74	277	261	251	56	54	85	87	1.9	8
	115	117.08	.76	.76	277	264	261	57	57	85	87	2.0	8
	120	120.83											

Traverse:					
Start Time:	—	Initial Leak Check:	—	cfm@ —	"Hg
Finish Time:	10:10	Final Leak Check:	0.004	cfm@ 7 hrs	"Hg

Traverse:					
Start Time:	/	Initial Leak Check:	/	cfm @	"Hg
Finish Time:	/	Final Leak Check:	/	cfm @	"Hg

Project No.: 22327

Operator : TT

Field Data Sheet

Date: March 20 2024	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	121.22	.81	.78	280	260	250	52	56	84	84	2.05	8.5
	5	125.12	.81	.78	281	261	259	56	60	83	84	2.15	8.0
2	10	129.05	.85	.80	280	262	254	44	53	83	84	2.2	9
	15	133.08	.83	.79	281	258	258	48	57	83	84	2.2	9
3	20	137.07	.85	.80	281	258	256	49	57	83	85	2.2	9
	25	141.07	.84	.79	282	259	253	56	59	83	85	2.2	9.2
4	30	145.05	.78	.77	282	261	257	56	59	83	85	2.0	9
	35	148.90	.76	.76	282	262	251	56	58	83	85	2	9
5	40	152.66	.71	.73	282	263	260	56	51	83	85	1.95	9
	45	156.38	.74	.75	282	263	250	58	52	83	86	1.95	9
6	50	160.08	.62	.68	283	261	261	58	51	83	86	1.8	8.5
	55	163.65	.61	.68	283	264	254	59	50	83	86	1.65	8.5
7	60	167.09	.67	.71	283	258	260	59	49	83	86	1.8	8.5
	65	170.66	.67	.71	283	260	256	60	54	83	86	1.8	8.5
8	70	174.25	.73	.74	283	263	255	60	52	83	86	1.9	9
	75	177.96	.75	.75	283	263	258	60	54	83	86	1.95	9
9	80	181.62	.75	.77	283	263	250	60	48	83	86	2.05	9
	85	185.39	.71	.73	283	258	260	60	50	83	86	2	9
10	90	189.15	.76	.76	279	262	250	58	50	83	85	2.05	9
	95	192.96	.76	.76	277	263	260	58	51	82	85	2.05	9
11	100	196.79	.63	.69	277	257	253	58	57	82	85	1.7	8

Traverse:				
Start Time: 10:27	Initial Leak Check:	.003	cfm@ 17.5	"Hg
Finish Time:	Final Leak Check:		cfm@	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22327

Operator : TT

Field Data Sheet

Date: March 20 2024	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	200.25	.63	.69	277	258	257	60	51	82	84	1.7	8
12	110	203.72	.63	.69	276	262	256	60	54	82	85	1.7	8
	115	207.17	.64	.69	276	261	252	60	55	81	84	1.7	8
	120	210.63											

Traverse:					Traverse:				
Start Time:	–	Initial Leak Check:	–	cfm@ – "Hg	Start Time:	/	Initial Leak Check:	/	cfm @ / "Hg
Finish Time:		Final Leak Check:	.003	cfm@ 17 "Hg	Finish Time:	/	Final Leak Check:	/	cfm @ / "Hg

Project No.: 22327

Operator :

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Semi-Volatile Organic Compounds
Test Date	March 20 2024
Test Location	APC Outlet No. 1
Operator	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.39	"Hg
Static Pressure	-11.9	"H2O
Nozzle Size	.2586	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	768.3	g
WCBDA	16.0	g

Combustion Gas Concentration

Oxygen	8.15	%
Carbon Dioxide	10.87	%
Carbon Monoxide	7.6	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot	
Trendicator	See
Control Box	
Incline Manometer	Yes X
Comb.Gas.Analyzer	
Micromanometer	1
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Notes:

Field Data Sheet

Date: March 20 2024	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	11,14	.83	.79	278	258	259	79	53	80	80	2.15	7
	5	15,08	.83	.78	282	261	250	60	47	80	79	2.1	7
2	10	18.93	.85	.79	282	261	252	58	47	80	79	2.2	7
	15	22,85	.87	.80	283	257	256	58	49	80	80	2.25	8
3	20	26,87	.83	.78	283	264	253	57	49	80	81	2.2	7.5
	25	30,86	.83	.79	282	263	252	57	47	80	82	2.2	7.5
4	30	34,86	.78	.76	282	262	255	57	48	80	82	2.05	7.5
	35	38,70	.78	.76	281	260	252	57	47	80	83	2.05	7.5
5	40	42,52	.80	.77	282	259	252	57	48	81	84	2.1	7.5
	45	46,40	.80	.77	282	258	255	57	49	81	84	2.1	7.5
6	50	50,28	.68	.71	282	260	253	57	50	81	84	1.8	7
	55	53,88	.67	.71	282	264	252	57	52	81	85	1.8	7
7	60	57,46	.69	.72	282	257	257	56	48	81	85	1.85	7
	65	61,08	.69	.72	281	262	251	54	45	82	85	1.85	7
8	70	64,70	.70	.73	280	257	255	53	45	82	85	1.9	7
	75	68,36	.71	.73	280	264	255	52	46	81	85	1.9	7
9	80	72,01	.78	.77	281	261	251	52	48	82	85	2.05	7.5
	85	75,81	.78	.77	281	259	254	52	47	82	85	2.1	7.5
10	90	79,67	.78	.77	277	262	256	52	48	82	85	2.1	7.5
	95	83,56	.76	.76	276	260	252	52	48	82	85	2.0	7.5
11	100	87,37	.72	.74	276	261	252	52	49	82	85	1.9	7.5

Traverse:					
Start Time: 13:18	Initial Leak Check:	.004	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.: 22327

Operator : TT

Field Data Sheet

Date: March 20 2024	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	91.05	.72	.74	277	262	255	53	49	82	85	1.95	7
12	110	94.76	.70	.73	276	257	251	52	50	82	85	1.9	7
	115	98.44	.74	.75	276	263	251	52	51	82	85	2	.7
	120	102.15											

Traverse:					
Start Time: —	Initial Leak Check: —	cfm@ —	"Hg		
Finish Time: 15:14	Final Leak Check: .005	cfm@ 17	"Hg		

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator : TT

Field Data Sheet

Date: March 20 2024	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	102.62	.89	.81	278	256	254	70	58	80	81	2.3	8
	5	106.66	.90	.82	279	258	250	52	49	80	81	2.35	8
2	10	110.75	.90	.82	279	257	253	53	51	80	81	2.35	8
	15	114.98	.95	.84	280	264	254	54	53	80	81	2.4	8.5
3	20	119.19	.87	.80	280	262	253	54	51	80	82	2.25	8
	25	123.22	.83	.79	280	257	255	55	51	80	82	2.15	8
4	30	127.15	.83	.79	279	257	251	56	51	79	82	2.15	8
	35	131.08	.76	.75	278	261	251	56	49	79	82	2.0	7.5
5	40	134.84	.72	.73	278	260	254	58	49	79	82	1.9	7.5
	45	138.48	.75	.75	279	258	253	59	48	79	82	1.95	7.5
6	50	142.17	.61	.67	280	257	250	60	50	79	82	1.7	7.5
	55	145.67	.61	.67	280	258	255	57	48	79	82	1.7	7.5
7	60	149.12	.65	.70	279	257	253	54	48	79	82	1.75	7
	65	152.64	.64	.69	277	260	250	51	48	79	83	1.7	7
8	70	156.10	.64	.69	277	263	253	50	48	78	83	1.7	7
	75	159.60	.66	.70	276	261	254	49	50	78	83	1.75	7
9	80	163.08	.72	.73	276	259	253	49	50	78	83	1.9	7.5
	85	166.77	.72	.73	274	257	250	49	52	79	83	1.9	7.5
10	90	170.43	.74	.75	274	261	254	50	49	79	83	2	7.5
	95	174.21	.74	.75	274	261	255	50	49	79	83	2	8
11	100	178.01	.67	.71	274	261	250	50	49	79	83	2	8

Traverse:					
Start Time: 15:30	Initial Leak Check:	.003	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.: 22327

Operator: TT

Field Data Sheet

Date: March 20, 2024	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	181.65	.67	.71	274	257	253	51	51	74	83	1.9	8
12	110	185.23	.68	.71	274	258	255	51	52	74	83	1.9	8
	115	188.81	.67	.71	274	259	254	52	56	79	83	1.9	8
	120	192.40											

Traverse:				
Start Time:	Initial Leak Check:	.00	cfm@ 17	"Hg
Finish Time: 17:30	Final Leak Check:	.002	cfm@ 17	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22327

Operator :

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Semi-Volatile Organic Compounds
Test Date	March 21 2024
Test Location	APC Outlet No. 1
Operator	

Project No.:	22327
Page	1 of 5
Probe No.:	7 Series
Meter Box No.:	Team 4
Impinger Box No.:	8

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.91	"Hg
Static Pressure	-11.6	"H2O
Nozzle Size	.2586	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	754.5	g
WCBDA	19.4	g

Combustion Gas Concentration

Oxygen	8.19	%
Carbon Dioxide	10.91	%
Carbon Monoxide	7.0	ppm

Measuring Device	MII Numbers
Probe / Pitot ISE	
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: March 21 2024	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	94.45	.86	.80	278	250	230	73	53	77	76	2.2	8
	5	98.32	.85	.79	280	250	262	53	53	77	77	2.15	8
2	10	102.19	.85	.79	280	254	249	50	54	77	77	2.25	8
	15	106.16	.87	.80	280	256	254	50	56	78	78	2.25	8.5
3	20	110.13	.82	.78	281	250	256	49	55	78	79	2.2	9
	25	114.03	.80	.77	281	250	252	49	57	78	79	2.15	9
4	30	117.99	.75	.74	281	253	253	50	57	78	80	1.9	8
	35	121.65	.75	.74	281	256	250	51	55	78	81	1.95	8
5	40	125.29	.73	.74	281	253	253	51	55	79	81	1.95	8
	45	128.94	.73	.74	282	252	254	52	58	79	82	1.95	8
6	50	132.60	.62	.68	282	250	255	51	57	79	82	1.7	8
	55	136.03	.64	.69	282	255	254	51	54	79	82	1.7	8
7	60	139.47	.71	.73	282	253	251	51	52	79	83	1.9	8
	65	143.10	.69	.72	282	252	252	51	52	79	83	1.9	8
8	70	146.71	.72	.73	281	254	255	51	52	79	83	1.88	8.4
	75	150.37	.73	.74	282	254	255	50	48	79	83	1.95	8.4
9	80	154.09	.77	.76	281	249	251	51	43	79	83	2.0	8.4
	85	157.85	.78	.76	282	249	251	51	44	79	83	2.06	8.5
10	90	161.66	.81	.78	282	251	254	51	45	80	83	2.1	8.9
	95	165.59	.82	.78	280	250	255	52	45	80	83	2.2	9
11	100	169.57	.72	.73	280	249	254	52	45	79	82	2.22	9.1

Traverse:				
Start Time: 8:07	Initial Leak Check: .006	cfm@ 15	"Hg
Finish Time:	Final Leak Check:	cfm@	"Hg

Traverse:				
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator : TT

Field Data Sheet

Date: March 21, 2024	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	173.33	.72	.73	280	254	255	53	45	79	82	2.0	8.5
12	110	177.03	.71	.73	280	254	251	54	45	79	82	1.98	8.5
	115	180.71	.70	.72	280	248	250	54	44	79	83	1.94	8.2
	120	184.365											

Traverse:				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 10:07	Final Leak Check:	.003	cfm@ 18	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22327

Operator :

Field Data Sheet

Date: March 21 2014	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	184.735	.86	.80	280	251	255	59	43	79	80	2.27	9.3
	5	188.69	.85	.79	281	250	250	56	47	79	81	2.27	9.3
2	10	192.67	.81	.77	281	251	252	54	46	79	81	2.27	9.3
	15	196.6	.82	.78	280	250	254	55	45	79	81	2.19	9
3	20	200.53	.85	.79	280	251	253	56	46	79	81	2.2	9
	25	204.52	.85	.79	281	252	255	57	47	79	82	2.25	9.2
4	30	208.53	.78	.76	281	255	254	57	47	79	82	2.25	9.2
	35	212.41	.76	.75	281	254	251	57	46	79	82	2.12	9.1
5	40	216.18	.68	.71	281	250	253	57	47	79	82	1.85	8.9
	45	219.74	.69	.72	281	255	255	57	45	79	82	1.85	8.5
6	50	223.32	.68	.71	282	254	255	57	46	80	83	1.85	8.5
	55	226.89	.68	.71	282	252	250	57	45	80	83	1.85	8.5
7	60	230.46	.67	.71	281	252	254	57	45	80	84	1.85	8.5
	65	234.02	.65	.70	281	256	255	56	44	80	83	1.8	8.5
8	70	237.55	.66	.70	281	253	256	56	45	80	83	1.8	8.5
	75	241.1	.69	.72	280	256	251	57	45	80	83	1.85	8.5
9	80	244.69	.70	.72	280	251	254	57	46	80	83	1.9	8.5
	85	248.33	.72	.73	280	253	256	58	46	80	83	1.9	8.5
10	90	252.00	.71	.73	280	250	253	59	47	80	83	2.0	9
	95	255.69	.67	.71	280	250	252	60	47	80	83	2	9
11	100	259.28	.67	.71	280	256	255	60	47	80	83	1.85	8.7

Traverse:			
Start Time: 10:15	Initial Leak Check: .004	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.: 22327

Operator : TC

Field Data Sheet

Date: Mar 21, 2024	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	262.87	.68	.71	280	255	255	60	44	80	83	1.85	8.7
12	110	266.46	.63	.69	250	252	254	60	44	80	83	1.9	8.9
	115	269.95	.65	.70	280	255	251	60	44	80	83	1.75	8.5
	120	273.41											

Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 2:15	Final Leak Check: .003	cfm@ 17	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator : TC

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	Semi-Volatile Organic Compounds
Test Date March 20, 2024	
Test Location	APC Outlet No. 2
Operator BP	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 3
Impinger Box No.:	14

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.29	"Hg
Static Pressure	-11.71	"H2O
Nozzle Size	.2498	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	659.5	g
WCBDA	13.0	g

Combustion Gas Concentration

Oxygen	8.20	%
Carbon Dioxide	11.08	%
Carbon Monoxide	11.9	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	BC4011
Trendicator	60F 20093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	
Micromanometer	
Barometer	EW CAN
Calipers	CAN22136

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	.2495
Average:	.2498

Site Diagram

Notes:

Field Data Sheet

Date: March 20, 2024	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	68.18	.79	.74	282	247	255	80	45	84	84	2.1	5.0
	5	71.85	.82	.76	283	253	254	50	45	84	85	2.1	5
2	10	75.63	.80	.75	283	250	255	47	46	84	85	~~2.2~~ 2.2	5.9
	15	79.42	.79	.74	283	248	256	47	46	84	86	2.2	5.9
3	20	83.20	.75	.73	283	251	257	47	46	85	86	2.1	5.9
	25	86.74	.75	.73	283	252	252	47	44	85	87	2	5
4	30	90.36	.72	.71	283	254	252	48	46	85	88	2	5.5
	35	94.03	.73	.72	284	256	253	47	47	86	89	1.95	5.5
5	40	97.69	.65	.67	284	251	253	48	47	86	89	1.95	5.5
	45	101.10	.65	.68	284	248	253	48	46	87	90	1.7	5
6	50	104.39	.58	.64	285	248	254	50	46	87	90	1.8	5
	55	107.68	.60	.65	285	250	254	48	45	88	91	1.6	5
7	60	111.02	.60	.65	285	251	255	48	44	88	92	1.6	5
	65	114.36	.59	.65	285	255	253	49	44	89	92	1.6	5
8	70	117.77	.67	.67	285	255	252	50	45	89	92	1.6	5
	75	121.13	.63	.67	284	254	254	50	45	89	92	1.7	5
9	80	124.51	.65	.68	285	254	256	50	45	89	93	1.7	5
	85	127.96	.64	.68	285	254	255	50	47	90	93	1.8	5.5
10	90	131.45	.64	.68	285	255	254	50	47	90	93	1.8	5.5
	95	134.92	.62	.67	283	255	255	50	47	90	93	1.8	5.5
11	100	138.29	.51	.61	283	254	254	51	46	90	93	1.7	5

Traverse: 2				
Start Time: 8:13	Initial Leak Check: .004	cfm@	15	"Hg
Finish Time:	Final Leak Check:	cfm@		"Hg

Traverse:				
Start Time:	Initial Leak Check:	cfm @		"Hg
Finish Time:	Final Leak Check:	cfm @		"Hg

Project No.: 22327

Operator : KP

Field Data Sheet

Date: March 20, 2024	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	141.38	.51	.61	280	255	253	51	45	90	93	1.4	4.9
12	110	144.46	.52	.61	280	253	255	51	45	90	93	1.4	4.9
	115	147.54	.54	.62	280	250	254	51	46	90	93	1.4	4.9
	120	150.70											

Traverse: 2				
Start Time:	Initial Leak Check:		cfm@ ~~15~~	"Hg
Finish Time: 10:13	Final Leak Check:	.003	cfm@ ~~15~~	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator : BP

Field Data Sheet

Date: March 20, 2024	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	151.10	.76	.74	286	248	255	60	42	90	90	2	5.5
	5	154.80	.76	.74	285	254	252	51	43	90	90	2	5.5
2	10	158.50	.75	.73	285	254	253	48	43	89	90	2	5.5
	15	162.20	.76	.74	285	252	253	47	43	89	90	2	5.5
3	20	165.91	.77	.74	285	252	253	46	43	89	91	2	5.5
	25	169.61	.77	.74	286	250	252	46	43	89	91	2	5.5
4	30	173.33	.73	.72	286	254	254	46	43	88	91	2.1	6
	35	177.02	.73	.72	286	250	255	46	43	89	92	2.0	5.9
5	40	180.71	.67	.69	286	255	255	46	43	89	92	2.0	5.9
	45	184.20	.67	.69	286	249	254	47	42	89	92	1.8	5
6	50	187.71	.60	.65	286	253	256	47	42	89	92	1.8	5
	55	191.01	.60	.65	287	256	255	48	42	90	92	1.65	5
7	60	194.32	.65	.68	287	249	253	48	42	89	92	1.65	5
	65	197.81	.64	.68	286	255	252	48	42	90	92	1.8	5.
8	70	201.27	.64	.68	286	256	252	48	42	90	92	1.7	5.
	75	204.70	.65	.68	286	250	253	48	42	90	93	1.7	5
9	80	208.13	.67	.69	286	249	252	48	42	90	92	1.7	5
	85	211.63	.68	.70	287	251	252	48	42	90	93	1.8	5.5
10	90	215.14	.71	.71	287	253	251	48	42	90	92	1.8	5.5
	95	218.76	.70	.71	288	254	253	48	43	90	92	2	6
11	100	222.40	.72	.71	284	255	254	48	43	90	92	2	6

Traverse: 1				
Start Time: 10:28	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.: 22327

Operator: BP

Field Data Sheet

Date: March 20, 2024	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	225.97	.69	.70	289	255	254	44	43	90	92	1.9	6
12	110	229.50	.65	~~.71~~ .68	289	250	252	44	43	90	91	1.7	6
	115	233.03	.62	.66	289	255	255	50	43	90	92	1.8	5.9
	120	236.42											

Traverse: 1				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 12:28	Final Leak Check:	.003	cfm@ 15	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22327

Operator : BP

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 2	Semi-Volatile Organic Compounds
Test Date March 20, 2024	
Test Location	APC Outlet No. ~~3~~ 2
Operator BP	

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 3
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.39	"Hg
Static Pressure	-11.71	"H2O
Nozzle Size	.2498	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	714.9	g
WCBDA	14.3	g

Combustion Gas Concentration

Oxygen	8.01	%
Carbon Dioxide	11.20	%
Carbon Monoxide	7.7	ppm

Measuring Device	MII Numbers
Probe / Pitot SPM	B04011
Trendicator	00E20093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV CAN
Calipers	CAN 22136

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	.2495
Average:	.2498

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: March 20, 2024	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	37.02	.89	.79	282	251	258	74	47	84	85	2.3	5
	5	40.98	.88	.78	288	255	252	62	47	85	85	2.3	5.5
2	10	44.96	.85	.77	288	251	252	57	47	85	85	2.3	5.9
	15	48.84	.87	.78	289	250	254	51	46	85	86	2.2	5.9
3	20	52.74	.84	.77	288	254	255	53	47	85	86	2.3	6
	25	56.73	.84	.77	288	251	255	53	47	85	86	2.2	6
4	30	60.60	.76	.73	287	254	253	53	46	85	87	2.2	6
	35	64.27	.76	.73	287	256	253	54	46	85	88	1.98	5.5
5	40	67.94	.70	.70	287	249	253	54	45	85	88	1.98	5.5
	45	71.47	.69	.70	287	250	254	55	44	86	88	1.81	5.1
6	50	74.98	.62	.66	287	249	253	55	45	86	89	1.77	5.0
	55	78.33	.60	.65	287	255	255	56	45	86	89	1.63	4.9
7	60	81.62	.68	.69	287	253	254	56	45	86	90	1.54	4.9
	65	85.13	.66	.68	287	253	253	56	46	87	90	1.75	5
8	70	88.59	.73	.72	287	252	254	56	43	87	90	1.71	5
	75	92.19	.76	.73	287	256	253	56	44	87	90	1.9	5
9	80	95.9	.77	.74	288	256	252	57	45	88	90	1.97	5.7
	85	99.63	.82	.76	289	256	252	57	45	88	90	1.99	5.8
10	90	103.46	.73	.72	288	255	252	58	46	88	90	2.11	6.9
	95	107.13	.74	.72	288	255	252	58	46	88	90	1.9	5.6
11	100	110.98	.64	.68	280	256	253	59	46	88	90	1.93	5.6

Traverse: 2				
Start Time: 13:13	Initial Leak Check: .010	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.: 22327

Operator : BP / TC

Field Data Sheet

Date: March 20, 2024	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	114.23	.59	.64	280	256	252	60	45	88	90	1.69	5.
12	110	117.54	.55	.63	280	254	252	61	44	88	91	1.55	4.9
	115	120.75	.54	.62	280	250	252	61	44	88	91	1.46	4.8
	120	123.918										1.41	4.7

Traverse: 2				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 15:13	Final Leak Check:	.004	cfm@ 15	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22327

Operator : TC

Field Data Sheet

Date: March 20, 2024	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	124.32	.83	.77	287	249	251	74	43	88	88	2.13	6.
	5	128.10	.86	.78	286	255	253	60	47	87	87	2.13	6.
2	10	132.03	.83	.76	286	254	254	58	47	87	87	2.2	6.2
	15	135.90	.81	.76	286	254	254	57	47	87	88	2.1	6.
3	20	139.73	.78	.74	285	256	254	57	47	87	88	2.09	6.
	25	143.52	.80	.75	284	253	254	58	47	86	88	2.01	5.9
4	30	147.25	.76	.73	284	252	255	58	47	86	88	2.05	5.9
	35	150.98	.79	.75	284	255	255	59	46	86	88	2.	5.9.
5	40	154.73	.68	.69	285	256	252	59	46	86	88	2.07	5.9
	45	158.21	.67	.69	285	250	252	58	44	86	88	1.75	5.1
6	50	161.67	.62	.66	284	256	254	58	45	86	88	1.75	5.0.
	55	165.06	.61	.66	284	253	255	59	44	86	88	1.62	5.0
7	60	168.39	.65.	.68.	283	249	255	59	45	86	88	1.6	5.0
	65	171.77	.64	.67	283	250	252	59	45	86	88	1.69	5.0
8	70	175.14	.65	.68	283	252	255	59	46	86	88	1.69	5.0.
	75	178.53	.67	.69	283	254	255	57	45	86	88	1.72	5.0
9	80	182.06	.67	.69	282	256	253	55	46	86	89	1.77	5.5.
	85	185.47	.70	.70	282	255	252	55	47	86	89	1.77	5.5.
10	90	188.99	.70	.70	283	253	255	55	49	86	90	1.83	6.
	95	192.55	.72	.71	283	249	256	55	48	86	89	1.84	6.
11	100	196.17	.66		280	252	252	55	49	86	89	1.89	6.2

Traverse: 1					
Start Time: 15:26	Initial Leak Check:	.001	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.: 22327

Operator: TC/RP

Field Data Sheet

Date: March 20, 2024	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		Meter Temp		Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
	105	199.59	.71	.71	280	251	253	56	48	86	88	1.75	5.9
12	110	203.15	.77	.74	280	249	254	56	49	86	88	1.85	6.
	115	206.85	.60	.65	280	253	256	57	51	86	88	2.0	6.2
	120	210.18											

Traverse: 1				Traverse:			
Start Time:	Initial Leak Check:	cfm@	"Hg	Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time: 17:26.	Final Leak Check: .001	cfm@ 15.	"Hg	Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator :

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	Semi-Volatile Organic Compounds
Test Date	March 21, 2024
Test Location	APC Outlet No. 2
Operator	BP

Project No.:	22327
Page	1 of 5
Probe No.:	
Meter Box No.:	TEAM 3
Impinger Box No.:	

Pitot Factor	.843	
DGMCF	.986	
Barometric Pressure	29.92	"Hg
Static Pressure	-11.71	"H2O
Nozzle Size	.2498	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	653.0	g
WCBDA	15.4	g

Combustion Gas Concentration

Oxygen	8.45	%
Carbon Dioxide	11.03	%
Carbon Monoxide	8.9	ppm

Measuring Device	MII Numbers
Probe / Pitot SP4	R04011
Trendicator	CoE2093
Control Box	↓
Incline Manometer	↓
Comb.Gas.Analyzer	
Micromanometer	
Barometer	ENV CAN
Calipers	CAN 22136

Probe Liner (Glass) / Metal /Teflon / Other_____

Nozzle (Glass) / Metal / Other_____

Union None /Metal / (Teflon) / Other_____

Pitot Leak Checked? (Yes) No

Site Diagram

Nozzle Measurements	
1	.2495
2	.2500
3	.2500
4	.2495
Average:	.2498

Notes:

Field Data Sheet

Date: March 21, 2024	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 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	92.71	.77	.73	280	255	~~250~~	71	51	79	~~77~~	2.0	6
	5	96.40	.79	.74	282	253	250	~~52~~	44	79	80	2	6.5
2	10	100.08	.81	.75	282	248	255	53	44	~~79~~	80	2	6.5
	15	103.87	.82	.75	283	~~254~~	~~253~~	~~52~~	~~45~~	80	81	2.1	7
3	20	107.65	.79	.74	284	256	256	52	45	80	82	2.1	7
	25	111.40	.83	.76	~~287~~	~~260~~	252	56	45	81	81	2.1	7
4	30	115.20	.75	.71	288	230	~~254~~	52	47	81	81	2.1	7
	35	118.73	.74	.71	288	264	254	52	45	81	82	1.9	6.9
5	40	~~112~~ 122.30	.70	.69	~~288~~	259	256	53	46	81	82	1.9	6.9
	45	125.86	.68	.68	288	250	253	53	46	81	83	1.9	6.9
6	50	129.38	.56	.67	288	260	252	54	46	81	84	1.8	6.9
	55	132.62	.56	.67	287	260	252	~~54~~	44	81	84	1.5	6
7	60	135.74	.60	.65	286	253	255	55	45	82	85	1.4	5.9
	65	139.01	.60	.65	286	260	258	55	45	82	85	1.6	6
8	70	142.32	.64	.67	285	252	251	55	45	83	86	1.6	6
	75	145.69	.63	.66	285	254	254	55	47	83	86	1.7	6.5
9	80	149.10	.62	.66	285	260	256	55	47	83	86	1.7	6.5
	85	~~143.50~~ 152.5	.64	.65	~~284~~	~~257~~	255	55	49	83	86	1.7	6.5
10	90	155.84	.60	.65	282	~~254~~	253	56	48	83	86	1.6	6
	95	159.08	.58	.64	281	260	252	56	47	84	86	1.5	6
11	100	162.33	.51	.60	281	256	252	57	45	84	86	1.6	6

Traverse: 2				
Start Time: 11:31	Initial Leak Check: .003	cfm@	15.5	"Hg
Finish Time:	Final Leak Check:	cfm@		"Hg

Traverse:				
Start Time:	Initial Leak Check:	cfm @		"Hg
Finish Time:	Final Leak Check:	cfm @		"Hg

Project No.: 22327

Operator: BP

Paused at 11:53. - Asked to pause by control room.
Resumed at 12:08

Field Data Sheet

Date: March 21, 2024	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	165.44	.53	.61	281	260	253	57	44	84	86	1.4	5.5
12	110	168.45	.52	.61	281	258	254	57	46	84	86	1.4	5.5
	115	171.55	.55	.62	281	260	253	57	45	84	87	1.4	5.5
	120	174.77											

Traverse: 2			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: ~~13:37~~ 13:46	Final Leak Check: .002	cfm@ 15	"Hg

Traverse:			
Start Time:	Initial Leak Check:	cfm @	"Hg
Finish Time:	Final Leak Check:	cfm @	"Hg

Project No.: 22327

Operator : BP

Field Data Sheet

Date: March 21, 2024	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	175.84	.70	.70	281	258	253	70	45	84	84	1.9	7
	5	178.68	.71	.70	284	260	254	57	46	84	85	1.9	7
2	10	182.23	.71	.70	285	258	254	54	47	84	85	1.85	6.9
	15	185.75	.73	.71	285	264	253	52	45	84	85	1.85	6.9
3	20	189.30	.76	.73	285	262	252	52	45	83	86	1.9	7
	25	193.03	.77	.75	285	251	253	52	47	83	86	2	7
4	30	196.75	.75	.72	285	263	252	52	46	84	86	2	7.5
	35	200.46	.73	.72	285	263	255	52	47	84	86	2	7.5
5	40	~~204.06~~ 204.06	.68	.69	285	264	256	52	47	84	86	1.9	7
	45	207.58	.67	.69	285	260	255	52	46	84	86	1.8	7
6	50	211.08	.60	.65	285	263	255	52	46	84	86	1.8	7
	55	214.38	.62	.66	285	261	255	53	45	84	86	1.6	6
7	60	217.75	.67	.69	286	261	252	53	46	84	87	1.7	6.5
	65	221.25	.65	.67	286	265	252	53	47	84	87	1.8	6.9
8	70	224.62	.64	.67	285	262	255	53	46	84	87	1.7	6.5
	75	228.03	.65	.68	285	262	257	53	46	84	87	1.7	6.5
9	80	231.48	.68	.69	285	256	257	54	48	84	87	1.75	6.9
	85	234.98	.68	.69	285	262	255	54	48	84	87	1.8	7
10	90	238.48	.68	.69	285	265	253	54	48	84	87	1.8	7
	95	241.97	.69	.70	285	264	254	54	50	84	87	1.8	7
11	100	245.46	.61	.65	286	258	255	53	49	84	87	1.85	7.5

Traverse: 1				
Start Time: 13:54	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.: 22327

Operator: BP

Field Data Sheet

Date: March 21, 2024	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	248.78	.61	.65	282	259	257	53	47	84	86	1.6	6.5
12	110	252.09	.61	.66	282	263	256	53	47	84	87	1.65	6.5
	115	255.42	.60	.65	282	263	253	53	47	84	87	1.65	6.5
	120	258.77											

Traverse: 1				
Start Time:	Initial Leak Check:		cfm@	"Hg
Finish Time: 15:54	Final Leak Check:	0.001	cfm@ 16	"Hg

Traverse:				
Start Time:	Initial Leak Check:		cfm @	"Hg
Finish Time:	Final Leak Check:		cfm @	"Hg

Project No.: 22327

Operator : BP

APPENDIX 7

Acid Gas Field Data Sheets
(12 pages)

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	M26A
Test Date	March 18 2024
Test Location	APC Outlet No. 1
Operator	TT

Project No.:	22327
Page	1 of 2
Probe No.:	
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	~~.8419~~	
DGMCF	1.018	
Barometric Pressure	29.45	"Hg
Static Pressure	-11.72	"H2O
Nozzle Size	.2586 ~~.2498~~	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	165.6	g
WCBDA	11.7	g

Combustion Gas Concentration

Oxygen	8.76	%
Carbon Dioxide	10.41	%
Carbon Monoxide	5.7	ppm

Measuring Device	MII Numbers
ISE	
Probe / Pitot ~~SPT~~	
Trendicator	CoE 20090
Control Box	CoE 20090
Incline Manometer	CoE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Site Diagram

Nozzle Measurements	
1	~~.2445~~ 2585
2	~~.2500~~ 2590
3	~~.2500~~ 2600
4	~~.2445~~ 2570
Average:	~~.2498~~ .2586

Notes:

Field Data Sheet

Date: March 18 2024	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	713.43	.78	.74	275	254	250	62	98	62	62	2.0	5
	5	717.12	.80	.75	275	256	247	48	209	62	62	2.05	5
	10	720.87	.77	.74	275	259	249	46	212	62	62	2.0	5
	15	724.59	.76	.73	276	261	250	47	211	63	64	1.95	5
	20	728.25	.77	.74	277	261	247	48	210	63	65	2.05	5
	25	731.97	.77	.74	278	257	245	49	210	63	67	2.05	5
	30	735.70	.77	.74	278	261	248	49	210	63	68	2.05	5
	35	739.43	.73	.72	278	257	250	50	212	64	69	1.95	5
	40	743.08	.73	.72	278	258	250	51	210	64	70	1.95	5
	45	746.72	.73	.73	277	260	247	50	208	65	70	1.95	5
	50	750.34	.73	.73	278	260	245	49	211	65	71	1.95	5
	55	753.94	.75	.74	278	255	248	48	212	65	71	2.05	5
	60	757.71											

Traverse:					
Start Time: 10:10	Initial Leak Check: .008	cfm@	15"	"Hg
Finish Time: 11:10	Final Leak Check: .007	cfm@	15"	"Hg

Traverse:					
Start Time:	Initial Leak Check:	cfm @		"Hg
Finish Time:	Final Leak Check:	cfm @		"Hg

Project No.: 22327

Operator: TT

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 M26A
Test Date	March 18 2024
Test Location	APC Outlet No. 1
Operator	

Project No.:	22327
Page	1 of 2
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.44	"Hg
Static Pressure	-11.72	"H2O
Nozzle Size	.2586	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

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	175.7	g
WCBDA	12.5	g

Combustion Gas Concentration

Oxygen	8.84	%
Carbon Dioxide	10.37	%
Carbon Monoxide	6.2	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:	

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: March 18 2024	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	758.1	.87	.78	280	257	246	61	122	65	64	2.25	6
	5	762.05	.87	.78	281	255	246	47	195	65	64	2.25	6
	10	766.02	.87	.78	281	261	248	46	198	65	64	2.25	6
	15	769.98	.82	.76	281	260	250	46	192	65	65	2.15	6
	20	773.88	.82	.76	281	256	251	47	182	65	66	2.1	6
	25	777.71	.77	.74	280	255	247	47	181	65	66	2.0	6
	30	781.45	.77	.74	279	260	247	47	181	65	67	2	6
	35	785.18	.77	.74	278	259	250	48	182	66	68	2	6
	40	788.92	.77	.74	278	255	252	48	182	66	69	2	6
	45	792.65	.84	.78	278	258	248	49	182	66	69	2.2	6
	50	796.55	.86	.79	279	255	246	49	182	67	70	2.25	6.5
	55	800.52	.84	.78	280	255	250	50	186	67	70	2.2	6.5
	60	804.52											

Traverse:						
Start Time: 11:54	Initial Leak Check: .008	cfm@	19	"Hg		
Finish Time: 12:54	Final Leak Check: .01	cfm@	21	"Hg		

Traverse:						
Start Time:	Initial Leak Check:	cfm @	"Hg			
Finish Time:	Final Leak Check:	cfm @	"Hg			

static – 11.72

Project No.: 22327

Operator : TT

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	3 M26A
Test Date	March 18 2024
Test Location	APC Outlet No. 1
Operator	TT

Project No.:	22327
Page	1 of 2
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.43	"Hg
Static Pressure	-11.72	"H2O
Nozzle Size	.2586	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	184.0	g
WCBDA	13.8	g

Combustion Gas Concentration

Oxygen	8.80	%
Carbon Dioxide	10.27	%
Carbon Monoxide	5.3	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot	See
Trendicator	
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	
2	
3	
4	
Average:	

Notes:

Field Data Sheet

Date: March 18 2024	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	805.22	.77	.74	280	259	250	67	79	67	67	2.0	5
	5	808.93	.77	.74	280	260	247	49	203	67	67	2.0	5
	10	812.67	.77	.74	280	257	248	47	205	67	68	2	5
	15	816.41	.84	.78	280	261	251	48	206	67	70	2.2	5.5
	20	820.34	.87	.79	280	260	252	49	207	67	71	2.25	5.5
	25	824.35	.82	.77	281	262	250	51	207	68	72	2.15	5.5
	30	828.25	.82	.77	280	255	247	53	206	68	73	2.15	5.5
	35	832.13	.82	.77	280	262	248	55	207	68	74	2.15	5.5
	40	836.00	.87	.80	281	262	251	55	207	69	74	2.3	6
	45	840.01	.87	.80	281	258	252	56	208	69	74	2.3	6
	50	843.03	.87	.80	281	255	248	58	207	69	75	2.3	6
	55	848.09	.87	.80	281	256	248	59	208	69	75	2.3	6
	60	851.08											

Traverse:					
Start Time: 13:32	Initial Leak Check:	.008	cfm@	21	"Hg
Finish Time: 14:32	Final Leak Check:	.014	cfm@	20	"Hg

Traverse:					
Start Time: /	Initial Leak Check:	/	cfm @	/	"Hg
Finish Time: /	Final Leak Check:	/	cfm @	/	"Hg

Project No.: 22327

Operator : TT

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 1	M26A
Test Date	March 19 2024
Test Location	APC Outlet No. 2
Operator	TT

Project No.:	22327
Page	1 of 2
Probe No.:	
Meter Box No.:	Team 4
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.44	"Hg
Static Pressure	-11.3	"H2O
Nozzle Size	.2586	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	197.8	g
WCBDA	10.0	g

Combustion Gas Concentration

Oxygen	8.63	%
Carbon Dioxide	10.72	%
Carbon Monoxide	6.6	ppm

Site Diagram

Measuring Device	MII Numbers
Probe / Pitot 15E	
Trendicator	COE 20090
Control Box	COE 20090
Incline Manometer	COE 20090
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
Calipers	

Nozzle Measurements	
1	.2585
2	.2590
3	.2600
4	.2570
Average:	.2586

Notes:

Field Data Sheet

Date: March 19 2024	Plant: Covanta DYEC	Test No.: 1 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	52.56	.65	.68	277	255	249	63	121	63	63	1.65	5
	5	55.97	.65	.68	278	260	249	47	213	63	62	1.65	5
	10	59.30	.67	.69	279	259	250	46	216	63	63	1.8	5
	15	62.77	.67	.69	280	258	249	46	216	63	64	1.75	5
	20	66.26	.70	.70	280	257	247	47	217	64	66	1.8	5.5
	25	69.81	.73	.72	281	260	246	47	217	64	67	1.9	5.5
	30	73.45	.73	.72	282	260	247	48	218	64	68	1.9	5.5
	35	77.03	.81	.76	284	261	249	49	216	65	69	2.1	6
	40	80.82	.81	.76	285	258	250	50	214	65	70	2.1	6
	45	84.67	.82	.76	286	259	251	51	214	65	70	2.1	6
	50	88.57	.82	.76	286	259	250	51	213	65	70	2.1	6
	55	92.38	.87	.79	287	260	249	52	213	66	71	2.2	6
	60	96.37											

Traverse:					
Start Time: 8:13	Initial Leak Check: .01	cfm@ 19	"Hg		
Finish Time: 9:17	Final Leak Check: .01	cfm@ 17	"Hg		

Traverse:					
Start Time: /	Initial Leak Check: /	cfm @ /	"Hg		
Finish Time: /	Final Leak Check: /	cfm @ /	"Hg		

Project No.: 22327

Operator : TT

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.:	2 M26A
Test Date	March 19 2024
Test Location	APC Outlet No. 2
Operator	

Project No.:	22327
Page	1 of 2
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	.844	
DGMCF	1.018	
Barometric Pressure	29.49	"Hg
Static Pressure	-11.3	"H2O
Nozzle Size	0.2586	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

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	162.3	g
WCBDA	10.7	g

Combustion Gas Concentration

Oxygen	8.64	%
Carbon Dioxide	10.67	%
Carbon Monoxide	7.5	ppm

Measuring Device	MII Numbers
Probe / Pitot	See
Trendicator	
Control Box	
Incline Manometer	
Comb.Gas.Analyzer	
Micromanometer	
Barometer	
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: March 19 2024	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	96.82	.72	.71	278	256	250	60	150	63	63	1.9	5
	5	100.48	.75	.72	282	261	248	47	224	63	63	2.0	5
	10	104.11	.75	.72	282	256	249	46	225	63	64	2.0	5
	15	107.74	.75	.72	282	260	248	47	227	63	67	2.0	5
	20	111.51	.75	.72	282	260	249	47	227	63	67	2	5
	25	115.11	.77	.74	283	259	250	47	227	63	68	2.05	5
	30	118.87	.77	.74	282	260	246	48	225	64	68	2.05	5.5
	35	122.65	.77	.74	282	258	248	48	227	64	69	2.0	5.5
	40	126.37	.77	.74	282	261	251	48	227	64	69	2.0	5.5
	45	130.08	.72	.71	282	258	249	49	226	64	69	1.9	5.5
	50	133.73	.73	.72	281	258	245	49	225	64	70	2	5.5
	55	137.46	.72	.72	281	256	248	52	227	64	70	1.9	5.5
	60	141.09											

Traverse:					
Start Time: 9:50	Initial Leak Check: .008	cfm@ 15	"Hg
Finish Time: 10:56	Final Leak Check: .008	cfm@ 15	"Hg

Traverse:					
Start Time: /	Initial Leak Check: /	cfm @ /	"Hg
Finish Time: /	Final Leak Check: /	cfm @ /	"Hg

Project No.: 22327

Operator : TT

ORTECH Consulting Alliance Inc.

Plant	Covanta DYEC
Plant Location	Courtice, Ontario
Test No.: 3	M26A
Test Date	March 19 2024
Test Location	APC Outlet No. 2
Operator	

Project No.:	22327
Page	1 of 2
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Pitot Factor	0.84	
DGMCF	1.018	
Barometric Pressure	29.36	"Hg
Static Pressure	−11.3	"H2O
Nozzle Size	0.2586	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

Particulate Gain

Filter		mg
Probe		mg

Moisture Gain

CWTR	167.5	g
WCBDA	13.0	g

Combustion Gas Concentration

Oxygen	8.10	%
Carbon Dioxide	11.17	%
Carbon Monoxide	9.7	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:	

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: March 19 2024	Plant: Covanta DYEC	Test No.: 3 M26A	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 7	

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	46.45	.72	.71	278	257	244	60	137	63	63	1.9	5
	5	45.15	.77	.73	282	254	247	51	227	63	65	2.0	5
	10	48.84	.77	.74	282	259	250	49	230	63	66	2.0	5
	15	52.53	.77	.73	283	255	247	48	228	62	66	2.0	5
	20	56.24	.77	.74	284	257	246	49	230	63	68	2.0	5
	25	59.95	.72	.71	284	257	249	50	231	63	68	1.9	5
	30	63.58	.74	.72	283	260	251	51	229	63	69	1.95	5
	35	67.25	.76	.73	283	257	246	51	229	64	70	2	5
	40	70.96	.75	.73	283	261	248	52	230	64	71	2	5
	45	74.65	.75	.73	283	260	251	53	231	65	71	2	5
	50	78.36	.68	.70	283	258	249	55	230	65	72	1.8	5
	55	81.93	.71	.71	282	259	246	57	230	66	72	1.9	5
	60	85.57											

Traverse:					
Start Time: 11:07	Initial Leak Check:	.01	cfm@	18	"Hg
Finish Time: 12:07	Final Leak Check:	.014	cfm@	17	"Hg

Traverse:					
Start Time:	Initial Leak Check:		cfm @		"Hg
Finish Time:	Final Leak Check:		cfm @		"Hg

Project No.: 22327

Operator : TT

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	1.000	55.2	75.5	20.30	29.28	1.00	30.9	19.53	0.0195
2	1.000	75.8	97.4	21.60	29.28	1.00	33.0	20.64	0.0206
3	1.000	98.3	121.0	22.70	29.28	1.00	32.9	21.70	0.0217
4	1.000	122.0	144.0	22.00	29.28	1.00	33.0	21.02	0.0210

* 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	0.985	34.4	56.3	21.90	29.28	0.50	31.4	20.69	0.0207
2	0.985	56.8	78.5	21.70	29.28	0.50	35.2	20.25	0.0202
3	0.985	78.7	99.7	21.00	29.28	0.50	35.1	19.60	0.0196
4	0.985	0.0	22.1	22.10	29.28	0.50	35.1	20.63	0.0206

* Dry at 25°C and 1 atmosphere

ORTECH Consulting Alliance Inc.

Vost Data Sheet

Plant: Covanta DYEC			Vost #1
Plant Location: Courtice, ON	Test Condition: Compliance		Control Box ID: M0549B
Test location: APC Outlet No. 1	DGMCF: 1.000		Operator: JCT
Date: MARCH 20, 2024	Barometric Pressure: 29.28 "Hg		Project No: 22327
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: 5A/B	

Test 1 Start Time: 0757	Initial Leak Check NDL @ 20 "Hg	Sample ID: 1A, 1B.	
Test 1 End Time: 0837	Final Leak Check NDL @ 20 "Hg	Lab ID: YIF062-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	56.20	139	138	5	29	1.0	4
5	58.00	139	138	4	29	1.0	4
10	60.9	139	138	4	31	1.0	4
15	63.4	139	138	4	31	1.0	4
20	66.6	139	138	4	31	1.0	4
25	69.2	139	138	4	31	1.0	4
30	71.6	138	138	4	32	1.0	4.0
35	73.0	138	138	4	32	1.0	4.0
40	75.5	138	138	4	32	1.0	4.0

Test 2 Start Time: 0843	Initial Leak Check NDL @ 20 "Hg	Sample ID: 2A, 2B.	
Test 2 End Time: 0923	Final Leak Check NDL @ 20 "Hg	Lab ID: YIF063-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	75.8	138	138	5	32	1.0	4.0
5	79.0	138	138	4	32	1.0	4.0
10	81.6	138	138	4	32	1.0	5.0
15	84.5	138	138	4	33	1.0	5.0
20	87.9	138	138	4	34	1.0	5.0
25	89.5	138	139	4	33	1.0	5.0
30	92.2	138	138	4	34	1.0	5.0
35	94.7	138	139	4	33	1.0	5.0
40	97.4	138	138	4	34	1.0	5.0

ORTECH Consulting Alliance Inc.

Vost Data Sheet

Plant: Covanta DYEC			Vost #1
Plant Location: Courtice, ON	Test Condition: Compliance		Control Box ID: MD5468
Test location: APC Outlet No. 1	DGMCF: 1.000		Operator: JC
Date: March 20, 2024	Barometric Pressure: 29.28 "Hg		Project No: 22327
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID:	SA/B

Test 3 Start Time: 0929	Initial Leak Check NDL @ 20 "Hg	Sample ID: 3A 3B	
Test 3 End Time: 1009	Final Leak Check NDL @ 18 "Hg	Lab ID:	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	98.3	138	138	6	32	1.0	5
5	101.3	138	138	4	32	1.0	5
10	105.4	138	138	4	33	1.0	5
15	107.6	138	138	4	33	1.0	5
20	110.6	139	139	4	33	1.0	5
25	113.35	138	139	4	33	1.0	5
30	116.00	138	139	4	33	1.0	5
35	118.60	138	139	4	33	1.0	5
40	121.0	138	139	4	32	1.0	5

Test 4 Start Time: 1015	Initial Leak Check NDL @ 18 "Hg	Sample ID: 4A 4B	
Test 4 End Time: 1055	Final Leak Check NDL @ 21 "Hg	Lab ID:	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	120.	138	138	4	30	1.0	5.0
5	124.7	138	138	4	33	1.0	5.0
10	127.6	139	139	4	33	1.0	5.0
15	130.2	138	138	4	33	1.0	5.0
20	133.0	139	138	4	33	1.0	5.0
25	135.8	139	138	4	33	1.0	5.0
30	138.5	139	138	4	33	1.0	5.0
35	141.10	138	138	4	33	1.0	5.0
40	144.0	138	138	4	33	1.0	5.0

ORTECH Consulting Alliance Inc.

Vost Data Sheet

Plant: Covanta DYEC			
Plant Location: Courtice, ON	Test Condition: Compliance		Control Box ID: VOST3
Test location: APC Outlet No. 7	DGMCF: 0.985		Operator: RM
Date: MARCH 20, 2024	Barometric Pressure: 29.28 "Hg		Project No: 22327
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: 16A/B	YIF697-01

Test 1 Start Time: 759	Initial Leak Check NDL @ 16 "Hg	Sample ID: 11A/11B	
Test 1 End Time: 839	Final Leak Check NDL @ 16 "Hg	Lab ID: YIF692-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	34.4	132	137	10	28	.5	2
5	37.3	130	137	10	29	.5	2
10	40.0	130	137	10	30	.5	2
15	43.0	130	137	10	31	.5	2
20	45.6	130	137	10	32	.5	2
25	47.9	130	136	9	32	.5	3
30	50.2	130	137	9	33	.5	3
35	53.8	130	136	9	34	.5	3
40	56.3	130	136	9	34	.5	3

Test 2 Start Time: 848	Initial Leak Check NDL @ 16 "Hg	Sample ID: 12A/12B	
Test 2 End Time: 928	Final Leak Check NDL @ 12 "Hg	Lab ID: YIF693-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	56.8	130	137	10	33	.5	3
5	59.3	130	136	10	34	.5	3.5
10	62.4	130	137	10	35	.5	3.5
15	64.9	130	137	11	36	.5	3.5
20	67.4	130	137	11	36	.5	3.5
25	69.9	130	137	11	36	.5	3.5
30	73.1	130	137	11	35	.5	3.5
35	75.8	130	137	11	36	.5	3.5
40	78.5	130	137	11	36	.5	3.5

ORTECH Consulting Alliance Inc.

Vost Data Sheet

Plant: Covanta DYEC			
Plant Location: Courtice, ON	Test Condition: Compliance		Control Box ID: V0573
Test location: APC Outlet No. 2	DGMCF: 0.985		Operator: RM
Date: MARCH 20 2024	Barometric Pressure: 29.28 "Hg		Project No: 22327
~ 0.5 LPM for 40 minutes	NDL - No Dectectable Leak	Field Blank Pair ID: 16A/B	YIF697-01

Test 3 Start Time: 939	Initial Leak Check NDL @ 12 "Hg	Sample ID: 13A/13B	
Test 3 End Time: 1019	Final Leak Check NDL @ 13 "Hg	Lab ID: YIF694-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	78.7	130	137	10	34	.5	2.5
5	81.0	130	137	10	34	.5	3
10	83.1	131	136	10	34	.5	3
15	85.3	130	137	10	34	.5	3.5
20	88.7	130	137	11	36	.5	3.5
25	90.5	131	136	11	36	.5	3.5
30	94.0	131	136	11	36	.5	3.5
35	96.5	131	136	11	36	.5	3.5
40	99.7	131	137	11	36	.5	3.5

Test 4 Start Time: 1032	Initial Leak Check NDL @ 13 "Hg	Sample ID: 14A/14B	
Test 4 End Time: 1112	Final Leak Check NDL @ 13 "Hg	Lab ID: YIF695-01	

Clock Time	Dry Gas Meter L	Temperatures				Meter Pressure "H_2O	Pump Vacuum "Hg
		Probe °C	Stack °C	Condensor °C	Meter Avg °C		
0	0.0	130	137	9	33	.5	2.5
5	2.7	130	136	10	34	.5	3
10	5.6	130	137	10	35	.5	3
15	8.1	130	137	10	35	.5	3.5
20	11.4	130	137	10	35	.5	3.5
25	13.9	130	137	10	36	.5	3.5
30	16.6	131	137	9	36	.5	3.5
35	19.5	132	137	9	36	.5	3.5
40	22.1	132	137	10	36	.5	3.5

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	0.980	145.00	268.80	123.80	29.31	4.00	31.4	117.53	0.1175
2	0.980	270.50	398.40	127.90	29.33	4.00	31.7	121.38	0.1214
3	0.980	0.65	128.17	127.52	29.37	4.00	32.1	121.03	0.1210

* Dry at 25°C and 1 atmosphere.

Covanta - Durham York Energy Centre
Boiler No. 2 BH Outlet
Aldehydes
Sample Volume Corrections

Test No.	DGMCF	Initial DGM Reading (L)	Final DGM Reading (L)	Actual Vol. Sampled (L)	Barometric Pressure (in Hg)	Average DGM Pressure del H (in H_2O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm^{-3})*
1	0.985	22.00	49.80	27.80	29.31	0.50	33.5	26.12	0.0261
2	0.985	50.10	81.70	31.60	29.34	0.50	33.7	29.70	0.0297
3	0.985	82.00	113.50	31.50	29.37	0.50	33.9	29.62	0.0296

* Dry at 25°C and 1 atmosphere.

ORTECH Consulting Alliance Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	1
Test location:	APC Outlet No. 1
Date:	MARCH 20, 2022
Project No.:	22327

Measuring Device	MII Number
Control Module	Vesta 1 M65498
Barometer	Env Canada

Barometric Pressure:	29.31	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	146	138	138	14	31	4.0	3
5	151.3	140	139	12	30	4.0	3
10	162.1	140	139	10	30	4.0	3
15	172.2	140	140	9	31	4.0	3
20	182.3	140	140	8	31	4.0	3
25	192.3	141	141	6	32	4.0	3
30	203.1	140	140	5	31	4.0	3
35	214.2	140	140	5	32	4.0	3
40	225.1	140	140	5	32	4.0	3
45	235.9	140	140	5	32	4.0	3
50	246.8	141	140	5	32	4.0	3
55	257.8	140	140	5	32	4.0	3
60	268.8	141	139	5	32	4.0	3

Start Time:	1120		
Finish Time:	1220		
Initial Leak Check:	C.01	Lpm @ 21	" Hg
Final Leak Check:	C.01	Lpm @ 21	" Hg

DGMCF:	0.980
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Alliance Inc.
NCASI Method ISS/FP-A105.01

VOST #1

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	2
Test location:	APC Outlet No. 1
Date:	March 20, 2024
Project No.:	22327

Measuring Device	MII Number
Control Module	M06498
Barometer	Env Canada

Barometric Pressure:	29.33	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	2705	139	139	21	28	4.0	4.0
5	280.6	141	140	16	30	4.0	4.0
10	290.8	141	139	10	30	4.0	4.0
15	301.2	141	139	8	31	4.0	4.0
20	312.4	141	139	7	31	4.0	4.0
25	323.0	141	139	6	32	4.0	4.0
30	332.4	141	140	6	31	4.0	4.0
35	343.8	141	140	6	32	4.0	4.0
40	354.0	141	138	6	31	4.0	4.0
45	366.1	141	138	6	31	4.0	4.0
50	376.9	141	139	6	31	4.0	4.0
55	382.7	141	140	6	32	4.0	4.0
60	396.4	141	140	6	32	4.0	4.0

Start Time:	1247		
Finish Time:	1347		
Initial Leak Check:	<.01	Lpm @ 16	" Hg
Final Leak Check:	<.01	Lpm @ 15	" Hg

DGMCF:	6.980
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Alliance Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	3
Test location:	APC Outlet No. 1
Date:	MARCH 20, 2024
Project No.:	22327

Voss #1

Measuring Device	MII Number
Control Module	M05498
Barometer	Env Canada

Barometric Pressure:	29.37	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	.65	137	138	21	30	4	4
5	10.2	141	138	16	31	4	4
10	21.1	141	140	16	31	4	4
15	32.0	141	140	16 8	31	4	4
20	42.5	140	139	6	30	4	4
25	53.6	144	137	6	32	4	4
30	64.2	141	138	6	31	4	4
35	74.8	141	138	6	31	4	4
40	85.6	144	138	6	32	4	4
45	96.4	141	138	6	33	4	4
50	107.2	143	140	6	35	4	4
55	118.0	143	140	6	35	4	4
60	128.7	143	140	6	35	4	4

Start Time:	14:05		
Finish Time:	15:05		
Initial Leak Check:	<.01	Lpm @ 15	" Hg
Final Leak Check:	<.01	Lpm @ 15	" Hg

DGMCF:	0.980
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Alliance Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	1
Test location:	APC Outlet No. 2
Date:	MAR 20/24
Project No.:	22327

Measuring Device	MII Number
Control Module	VOST 3
Barometer	Env Canada

Barometric Pressure:	29.31	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	22.0	132	133	9	31	.5	1
5	24.2	131	135	10	32	.5	1
10	26.5	130	135	10	33	.5	1
15	28.9	130	135	9	33	.5	1
20	31.1	130	136	6	34	.5	1
25	33.6	130	136	8	34	.5	1
30	35.2	130	136	8	34	.5	1
35	37.6	130	136	8	34	.5	1
40	40.8	130	136	8	34	.5	1
45	42.8	130	136	8	34	.5	1
50	45.0	130	136	9	34	.5	1
55	47.5	130	136	9	34	.5	1
60	49.8	130	136	9	34	.5	1
						.5	1

Start Time:	12:00		
Finish Time:	13:00		
Initial Leak Check:	<.01	Lpm @ 10	" Hg
Final Leak Check:	<.01	Lpm @ 9	" Hg

DGMCF:	.985
Sample Volume:	27.8
Average DGM Temp:	33.5
Average DGM Δ H:	.5

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Alliance Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	2
Test location:	APC Outlet No. 2
Date:	MAR 20/24
Project No.:	22327

Measuring Device	MII Number
Control Module	VOST 3
Barometer	Env Canada

Barometric Pressure:	29.34	"Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	50.1	130	136	8	31	0.5	1
5	52.6	130	135	8	32	.5	1
10	55.0	130	134	9	33	.5	1
15	57.5	130	134	8	34	.5	1
20	60.2	130	134	8	34	.5	1
25	63.2	130	134	8	34	.5	1
30	65.7	130	134	9	34	.5	1
35	68.5	130	134	9	34	.5	1
40	71.2	130	135	9	34	.5	1
45	73.9	130	135	9	34	.5	1
50	76.4	130	136	9	34	.5	1
55	79.2	130	136	9	35	.5	1
60	81.7	130	136	9	35	.5	1

Start Time:	13:17			
Finish Time:	14:17			
Initial Leak Check:	<.01	Lpm @	10	" Hg
Final Leak Check:	<.01	Lpm @	10	" Hg

DGMCF:	.995
Sample Volume:	31.6
Average DGM Temp:	33.7
Average DGM Δ H:	.5

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator:

ORTECH Consulting Alliance Inc.
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.:	3
Test location:	APC Outlet No. 2
Date:	MAR 20/24
Project No.:	22327

Measuring Device	MII Number
Control Module	V057 3
Barometer	Env Canada

Barometric Pressure:	29.37 "Hg

Clock Time	Dry Gas Meter L	Probe Temp °C	Stack Temp °C	Impinger Outlet °C	Meter Temp Average °C	Meter Pressure Δ H "H_2O	Pump Vacuum "Hg Gauge
0	82.0	130	134	8	32	.5	1
5	84.5	130	134	9	33	.5	1
10	87.3	130	134	9	33	.5	1
15	90.0	130	134	9	34	.5	1
20	92.5	131	135	9	34	.5	1
25	95.0	130	135	9	34	.5	1
30	97.5	131	135	9	34	.5	1
35	100.9	130	135	9	34	.5	1
40	103.5	130	135	9	34	.5	1
45	106.2	130	135	9	34	.5	1
50	108.7	130	135	9	34	.5	1
55	111.0	130	135	9	35	.5	1
60	113.50	131	135	9	35	.5	1

Start Time:	1436		
Finish Time:	1536		
Initial Leak Check:	<.01	Lpm @ 16	" Hg
Final Leak Check:	<.01	Lpm @ 16	" Hg

DGMCF:	0.985
Sample Volume:	31.5
Average DGM Temp:	33.8
Average DGM Δ H:	.5

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: RM

APPENDIX 10

ORTECH Sample Log/Chain of Custody Forms
(9 pages)

ORTECH Consulting Inc. - Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote/ PO: 22327-J2964

ORTECH Sample ID 24-22327-M201A-	Date	Test No.	Location	Sample Description	Sample Media	Sample Analysis
1	MAR 19/24	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
8	MAR 19/24	2	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
9				PM 2.5 cyclone Rinse	Acetone	Particulate
10				PM 2.5 exit & connectors	Acetone	Particulate
11				Back up filter	filter	Particulate
12				Impinger Soln & rinse	Water	Particulate
13				Secondary Filter	Filter	Particulate*
14				Impinger Rinse	Acetone & Hexane	Particulate
15	MAR 19/24	3	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
16				PM 2.5 cyclone Rinse	Acetone	Particulate
17				PM 2.5 exit & connectors	Acetone	Particulate
18				Back up filter	filter	Particulate
19				Impinger Soln & rinse	Water	Particulate
20				Secondary Filter	Filter	Particulate*
21				Impinger Rinse	Acetone & Hexane	Particulate
22	MAR 18/24	1	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
23				PM 2.5 cyclone Rinse	Acetone	Particulate
24				PM 2.5 exit & connectors	Acetone	Particulate
25				Back up filter	filter	Particulate
26				Impinger Soln & rinse	Water	Particulate
27				Secondary Filter	Filter	Particulate*
28				Impinger Rinse	Acetone & Hexane	Particulate
29	MAR 18/24	2	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
30				PM 2.5 cyclone Rinse	Acetone	Particulate
31				PM 2.5 exit & connectors	Acetone	Particulate
32				Back up filter	Filter	Particulate
33				Impinger Soln & rinse	Water	Particulate
34				Secondary Filter	Filter	Particulate*
35				Impinger Rinse	Acetone & Hexane	Particulate

ORTECH Consulting Inc. - Sample Log
Method 201A & Method 202
Covanta

Client: Covanta
Job/Report Number: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote/ PO: 22327-J2964

ORTECH Sample ID 24-22327-M201A-	Date	Test No.	Location	Sample Description	Sample Media	Sample Analysis
36	MAR 18/24	3	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
37				PM 2.5 cyclone Rinse	Acetone	Particulate
38				PM 2.5 exit & connectors	Acetone	Particulate
39				Back up filter	Filter	Particulate
40				Impinger Soln & rinse	Water	Particulate
41				Secondary Filter	Filter	Particulate*
42				Impinger Rinse	Acetone & Hexane	Particulate
43	MAR 19/24	Blank	# 1 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
44				PM 2.5 cyclone Rinse	Acetone	Particulate
45				PM 2.5 exit & connectors	Acetone	Particulate
46				Back up filter	filter	Particulate
47				Impinger Soln & rinse	Water	Particulate
48				Secondary Filter	Filter	Particulate*
49				Impinger Rinse	Acetone & Hexane	Particulate
50	MAR 19/24	Blank	# 2 APC Outlet	Nozzle & PM10 cyclone rinse	Acetone	Particulate
51				PM 2.5 cyclone Rinse	Acetone	Particulate
52				PM 2.5 exit & connectors	Acetone	Particulate
53				Back up filter	Filter	Particulate
54				Impinger Soln & rinse	Water	Particulate
55				Secondary Filter	Filter	Particulate*
56				Impinger Rinse	Acetone & Hexane	Particulate

Note: *To be included in condensible particulate analysis as per US EPA Method 202.

Relinquished To: AARON BURTON Date: 20-MAR-2024 12:30 6.1°C

Relinquished By: CHRIS BELORE Date: MAR. 20/24

ORTECH Consulting Inc. - Sample Log

Acid Gases

Covanta

Client: Covanta
Job/Report Number: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO #: 22327-J2964

ORTECH Sample ID 24-22327-M26A-	Sample Date	Location	Sample Description	Media	Initial Volume(ml)	Final Volume(ml)	Sample Analysis
1	MAR18/24	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	464	HCl, HF & Ammonia
2	↓	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	470	HCl, HF & Ammonia
3	↓	APC Outlet # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	484	HCl, HF & Ammonia
4	MAR19/24	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	492	HCl, HF & Ammonia
5	↓	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	462	HCl, HF & Ammonia
6	↓ MAR18/24	APC Outlet # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	466	HCl, HF & Ammonia
Blank 1	MAR19/24	APC # 1	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	306	HCl, HF & Ammonia
Blank 2		APC # 2	Impinger Soln & rinse	0.1N H_2SO_4 + DH_2O	200	300	HCl, HF & Ammonia

Analyze for HCl, HF and Ammonia

Relinquished By: CHRIS BELORE Date: MAR. 20 / 24

Relinquished To: AARON BURTON Date: 20-MAR-2024

12:30 6.1°C

ORTECH Consulting Inc. - Sample Log
Particulate and Metals Samples
Covanta

Client: Covanta
Project Number: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
QUOTE/PO: 22327-J2964

ORTECH Sample ID 24-22327-PM-	Sample Date	Location	Test No.	Sample Description	Sample Media	Sample Analysis
1	MAR 18/24	#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	MAR 18/24	#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	MAR 19/24	#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	MAR 19/24	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: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
QUOTE/PO: 22327-J2964

ORTECH Sample ID 24-22327-PM-	Sample Date	Location	Test No.	Sample Description	Sample Media	Sample Analysis
25	MAR 19/24	#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	MAR 19/24	#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	MAR 19/24	#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	MAR 19/24	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: CHRIS BELORE Date: MAR. 20, 24

Relinquished To: AARON BOLTON Date: 20-MAR-2024 12:30

6.1°C

ORTECH Consulting Inc. - Sample Log
Semi-Volatile Organics Samples
Covanta

Client: Covanta
Job/Report Number: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO: 22327-J2964

ORTECH Sample ID 24-22327-SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
1	MAR 20/24	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	MAR 20/24	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	MAR 21/24	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	MAR 20/24	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

Refer to letter ~~dated August 03, 2023~~ for lists of analytes.

10:00 5.2°C

Relinquished To: [signature] Date: 22-MAR-2024

Relinquished By: Brydon Rochon Date: 3/22/24

ORTECH Consulting Inc. - Sample Log
Semi-Volatile Organics Samples
Covanta

Client: Covanta
Job/Report Number: 22327
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO: 22327-J2964

ORTECH Sample ID 24-22327-SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
21	MAR 20/24	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	MAR 20/24	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	MAR 21/24	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	MAR 20/24	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

Refer to letter ~~dated August 03, 2023~~ for lists of analytes.

10:00 5.2°C

Relinquished To: [signature] Date: 3/22/24

Relinquished By: [signature] Date: 3/22/24

ORTECH Consulting Alliance Inc. - Recovery & Sample Log
NCASI Method ISS/FP-A105.01

Client: Covanata DYEC
Job/Report Number: 22327
Received By: Chris Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO #: 22327-J2964

Test Number	Test Location	ORTECH Sample ID 24-22327-	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	MARCH 20, 2024	ALD-1	112.9	163.0	178.3	191.6	197.6
2	APC Outlet #1	ALD-2		ALD-2	113.1	163.3	179.7	190.6	195.9
3	APC Outlet #1	ALD-3		ALD-3	112.5	162.8	179.3	193.1	197.7
Blank 1	APC Outlet #1	Blank 1		ALD-4	112.9	163.6	163.6	172.8	181.4
1	APC Outlet #2	ALD-5		ALD-5	113.1	163.0	165.0	176.6	187.1
2	APC Outlet #2	ALD-6		ALD-6	111.6	161.7	164.8	176.1	186.0
3	APC Outlet #2	ALD-7		ALD-7	113.2	163.4	166.3	177.4	192.4
Blank 2	APC Outlet #2	Blank 2		ALD-8	112.2	162.2	162.2	174.9	187.2
	Field BHA&Spike		na	na	na	na	na	na	na
	BHA Blank		na	na	na	na	na	na	na

Analyze each sample for Acetaldehyde, Formaldehyde, Acrolein.

Relinquished by: Broden Andrew. Date: 3/22/24

Relinquished to: Aaron Burton Date: 3/22/24 10:00 5.2°C

ORTECH Consulting Inc. - Sample Log
VOCs

Client: Covanta
Project Number: 22327
Received By: C Belore
Job Assigned To: BV
Quote / PO : 22327-J2965

Test Location	Test Number	ORTECH Sample ID 24-22327-VOST-	Sample Date	Sample Description	Sample Analysis
# 1 APC Outlet	1	1 A,B		Tenax and Tenax/Charcoal	VOCs
	2	2 A,B		Tenax and Tenax/Charcoal	VOCs
	3	3 A,B		Tenax and Tenax/Charcoal	VOCs
	4	4 A,B		Tenax and Tenax/Charcoal	Archive
	Field Blank	5 A,B		Tenax and Tenax/Charcoal	VOCs
# 2 APC Outlet	1	11 A,B		Tenax and Tenax/Charcoal	VOCs
	2	12 A,B		Tenax and Tenax/Charcoal	VOCs
	3	13 A,B		Tenax and Tenax/Charcoal	VOCs
	4	14 A,B		Tenax and Tenax/Charcoal	Archive
	Field Blank	16 A,B		Tenax and Tenax/Charcoal	VOCs
	Trip Blank			Tenax and Tenax/Charcoal	VOCs

Refer to letter dated February 8, 2024 for lists of analytes.

Custody Relinquished by: _____ Date: MAR 21/24

3.3/3.4/4.1

Custody Received by: _____ Date: MAR 21/24 1440

APPENDIX 11

Particulate and Metals Train Recovery Data Sheets
(8 pages)

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MARCH 6/24
Test No.: 1
Test Location: UNIT 1

Nozzle, Probe Liner, Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	284.0
After Act. Rinse:	387.0
Total TS1:	103.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	284.5
After 0.1N HNO_3 Rinse:	442.0
Total TS2:	157.5

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: QZ-10905

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:	622.6
Final Wt:	780.3
1 Gain:	157.7
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	640.0
Initial Wt:	740.0
Final Wt:	945.0
2 Gain:	205.0
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	662.2
Initial Wt:	774.4
Final Wt:	879.4
3 Gain:	105.0
Colour:	clear

Impinger #4 Empty	
Empty Wt:	508.8
Final Wt:	521.8
4 Gain:	13.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.0
w/ Imp. 1-4 Soln:	1091.3
After HNO_3 Rinse:	1202.0
Total TS4:	793.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	622.8
Initial Wt:	732.7
Final Wt:	748.7
5 Gain:	16.0
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	662.7
Initial Wt:	775.7
Final Wt:	782.5
6 Gain:	6.8
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	410.0
With Imp. 5&6 Soln:	650.0
After $KMnO_4$ Rinse:	758.2
7 After100g H_2O Rinse:	857.0
Total TS5-A:	447.0

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:	472.0
After DI H_2O Rinse:	598.5
Total TS5-B:	314.0

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	957.5
Final Wt:	980.0
7 Gain:	22.5

Impinger Box ID: 16

SAMPLE IDENTIFICATION	24-22327-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
T55-A - 1000 ml Amber Glass Bottle
T55-B - 500 ml Amber Glass Bottle

CWTR = 1 to 6: 503.5

WCBDA= 7: 22.5

Train Loaded By:
Train Recovered By:

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: Mar 18/24
Test No.: 2
Test Location: UNIT 1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	281.5
After Act. Rinse:	389.0
Total TS1:	107.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282.5
After 0.1N HNO_3 Rinse:	472.5
Total TS2:	190.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: QZ 10604

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:	576.1
Final Wt:	721.1
1 Gain:	145.0
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	629.5
Initial Wt:	739.0
Final Wt:	946.0
2 Gain:	207.0
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	622.0
Initial Wt:	724.8
Final Wt:	818.8
3 Gain:	94.0
Colour:	clear

Impinger #4 Empty	
Empty Wt:	604.5
Final Wt:	620.5
4 Gain:	16.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.5
w/ Imp. 1-4 Soln:	1093.5
After HNO_3 Rinse:	1201.5
Total TS4:	792.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	677.8
Initial Wt:	793.2
Final Wt:	799.2
5 Gain:	6.0
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	623.3
Initial Wt:	727.0
Final Wt:	735.0
6 Gain:	8.0
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	409.5
With Imp. 5&6 Soln:	632.0
After $KMnO_4$ Rinse:	750.0
After100g H_2O Rinse:	851.5
Total TS5-A:	442.0

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	282.0
With 150 mL DI H_2O:	432.0
After HCl Rinse:	470.2
After DI H_2O Rinse:	599.5
Total TS5-B:	317.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	1035.2
Final Wt:	1057.5
7 Gain:	22.3

Impinger Box ID: 13

SAMPLE IDENTIFICATION	24-22327-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:	476.0
WCBDA= 7:	22.3

Train Loaded By:
Train Recovered By: DT

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 19/24
Test No.: 3
Test Location: UNIT 1

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	294.0
After Act. Rinse:	435.0
Total TS1:	151.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	284.0
After 0.1N HNO_3 Rinse:	494.0
Total TS2:	210.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: QZ10815

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:	623.5
Final Wt:	840.5
1 Gain:	217.0
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	641.0
Initial Wt:	746.0
Final Wt:	891.5
2 Gain:	145.5
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	663.0
Initial Wt:	771.5
Final Wt:	886.5
3 Gain:	115.0
Colour:	clear

Impinger #4 Empty	
Empty Wt:	501.0
Final Wt:	521.5
4 Gain:	12.5
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	411.0
w/ Imp. 1-4 Soln:	1185.5
After HNO_3 Rinse:	1292.5
Total TS4:	881.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	623.0
Initial Wt:	737.5
Final Wt:	752.0
5 Gain:	14.5
Colour:	Purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	663.5
Initial Wt:	772.5
Final Wt:	780.0
6 Gain:	7.5
Colour:	Purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	411.5
With Imp. 5&6 Soln:	652.0
After $KMnO_4$ Rinse:	762.5
After100g H_2O Rinse:	861.0
Total TS5-A:	449.5

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:	470.0
After DI H_2O Rinse:	605.5
Total TS5-B:	321.0

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	980.0
Final Wt:	1004.0
7 Gain:	24.0

Impinger Box ID: i6

SAMPLE IDENTIFICATION	24-22327-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:	512.0
WCBDA= 7:	24.0

Train Loaded By:
Train Recovered By: DT

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: Mar. 19/24
Test No.:
Test Location: BLANK

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	283.5
After Act. Rinse:	434.5
Total TS1:	151.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282.0
After 0.1N HNO_3 Rinse:	500.0
Total TS2:	219.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 27.10797

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

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:	620.7
After HNO_3 Rinse:	722.0
Total TS4:	313.0

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:	409.5
With Imp. 5&6 Soln:	630.9
After $KMnO_4$ Rinse:	739.5
After100g H_2O Rinse:	840.0
Total TS5-A:	430.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	282.5
With 150 mL DI H_2O:	432.5
After HCl Rinse:	480.0
After DI H_2O Rinse:	580.0
Total TS5-B:	297.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	
Final Wt:	
7 Gain:	

Impinger Box ID:

SAMPLE IDENTIFICATION	24-22327-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:

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	22327
Date:	MAR 19/24
Test No.:	1
Test Location:	UNIT 2

Nozzle, Probe Liner, Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	205.0
After Act. Rinse:	355.5
Total TS1:	70.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	285.0
After 0.1N HNO_3 Rinse:	453.5
Total TS2:	165.5

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 02 1030

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:	623.5
Final Wt:	880.0
1 Gain:	256.5
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	641.0
Initial Wt:	747.3
Final Wt:	948.8
2 Gain:	201.5
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	663.7
Initial Wt:	773.5
Final Wt:	817.0
3 Gain:	43.5
Colour:	clear

Impinger #4 Empty	
Empty Wt:	509.0
Final Wt:	514.0
4 Gain:	5.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.5
w/ Imp. 1-4 Soln:	1124.5
After HNO_3 Rinse:	1227.0
Total TS4:	817.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	623.5
Initial Wt:	745.5
Final Wt:	752.5
5 Gain:	7.0
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	667.5
Initial Wt:	761.5
Final Wt:	763.5
6 Gain:	2.0
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	410.0
With Imp. 5&6 Soln:	633.7
After $KMnO_4$ Rinse:	747.7
After100g H_2O Rinse:	847.5
Total TS5-A:	437.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	282.0
With 150 mL DI H_2O:	432.0
After HCl Rinse:	498.3
After DI H_2O Rinse:	617.5
Total TS5-B:	335.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	958.7
Final Wt:	980.2
7 Gain:	21.5

Impinger Box ID: 16

SAMPLE IDENTIFICATION	24-22327-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:	515.5
WCBDA= 7:	21.5

Train Loaded By: DT
Train Recovered By:

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client:	Covanta DYEC
Project No.:	22327
Date:	MAR 19/24
Test No.:	2
Test Location:	UNIT 2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	282.0
After Act. Rinse:	406.0
Total TS1:	124.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	282.5
After 0.1N HNO_3 Rinse:	549.0
Total TS2:	266.5

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: 22 10799

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:	577.0
Final Wt:	728.5
1 Gain:	151.5
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	629.7
Initial Wt:	729.9
Final Wt:	955.5
2 Gain:	225.6
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	622.5
Initial Wt:	733.0
Final Wt:	809.0
3 Gain:	76.0
Colour:	clear

Impinger #4 Empty	
Empty Wt:	604.8
Final Wt:	612.8
4 Gain:	8.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	409.5
w/ Imp. 1-4 Soln:	1072.5
After HNO_3 Rinse:	1197.5
Total TS4:	788.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	678.8
Initial Wt:	790.8
Final Wt:	788.3
5 Gain:	−2.5
Colour:	Purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	625.5
Initial Wt:	733.0
Final Wt:	735.5
6 Gain:	2.5
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	409.5
With Imp. 5&6 Soln:	637.5
After $KMnO_4$ Rinse:	745.5
After100g H_2O Rinse:	851.0
Total TS5-A:	441.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	283.5
With 150 mL DI H_2O:	433.5
After HCl Rinse:	483.5
After DI H_2O Rinse:	631.5
Total TS5-B:	348.0

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	1057.5
Final Wt:	1075.5
7 Gain:	18.0

Impinger Box ID: 13

SAMPLE IDENTIFICATION	24-22327-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:	461.1
WCBDA= 7:	18.0

Train Loaded By:
Train Recovered By: DT

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 19/24
Test No.: 3
Test Location: UNIT 2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	234.5
After Act. Rinse:	346.5
Total TS1:	112.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	283.5
After 0.1N HNO_3 Rinse:	591.5
Total TS2:	308.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: BZ10903

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:	595.2
Final Wt:	755.5
1 Gain:	160.3
Colour:	clear

Impinger #2 HNO_3/H_2O_2	
Empty Wt:	561.7
Initial Wt:	671.7
Final Wt:	891.5
2 Gain:	219.8
Colour:	clear

Impinger #3 HNO_3/H_2O_2	
Empty Wt:	658.8
Initial Wt:	761.0
Final Wt:	862.2
3 Gain:	101.2
Colour:	clear

Impinger #4 Empty	
Empty Wt:	605.7
Final Wt:	613.7
4 Gain:	8.0
Colour:	clear

CONTAINER TS4 WEIGHTS	
Empty Wt:	413.0
w/ Imp. 1-4 Soln:	1103.5
After HNO_3 Rinse:	1215.5
Total TS4:	802.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

Impinger 5 & 6

Impinger #5 $KMnO_4/H_2SO_4$	
Empty Wt:	657.4
Initial Wt:	772.0
Final Wt:	784.5
5 Gain:	12.5
Colour:	purple

Impinger # 6 $KMnO_4/H_2SO_4$	
Empty Wt:	685.8
Initial Wt:	793.0
Final Wt:	803.0
6 Gain:	10.0
Colour:	purple

Impinger 5 & 6

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A	
Empty Wt:	412.5
With Imp. 5&6 Soln:	647.3
After $KMnO_4$ Rinse:	757.3
After100g H_2O Rinse:	875.0
Total TS5-A:	462.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	235.0
With 150 mL DI H_2O:	435.0
After HCl Rinse:	485.0
After DI H_2O Rinse:	672.5
Total TS5-B:	387.5

MARK FLUID LEVEL
SEAL & LABEL TS5-B

Impinger 7

Impinger #7 Silica Gel	
Initial Wt:	941.0
Final Wt:	962.8
7 Gain:	21.8

Impinger Box ID: 5

SAMPLE IDENTIFICATION	24-22327-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: 911.8

WCBDA= 7: 21.8

Train Loaded By:
Train Recovered By:

ORTECH Consulting Alliance Inc.
Particulate and Metals Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 19/24
Test No.:
Test Location: BLANK 2

Nozzle, Probe Liner Cyclone Bypass & F.H. Filter Housing

CONTAINER TS1

Container TS1 Weights	
Empty Wt:	262.5
After Act. Rinse:	474.5
Total TS1:	212.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights	
Empty Wt:	293.5
After 0.1N HNO_3 Rinse:	563.5
Total TS2:	270.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

Filter

Filter ID: QZ 10798

CONTAINER TS3

Initial Wt:	
Final Wt:	
Gain:	
Colour:	WHITE

Seal and label container TS3

SAMPLE IDENTIFICATION	24-22327-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:	410.0
w/ Imp. 1-4 Soln:	621.0
After HNO_3 Rinse:	726.0
Total TS4:	316.0

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:	409.5
With Imp. 5&6 Soln:	632.0
After $KMnO_4$ Rinse:	743.5
After100g H_2O Rinse:	845.0
Total TS5-A:	435.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B	
Empty Wt:	292.0
With 150 mL DI H_2O:	432.0
After HCl Rinse:	480.5
After DI H_2O Rinse:	592.5
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
(38 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#:	L2755021		Mississauga, ON L5J 2Y4
Date of Report	28-Mar-24		Canada
Date of Sample Receipt	20-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 COVANTA

COMMENTS:

Sample Particulate Analysis via Gravimetric USEPA Method 201A (GN 22-Mar-2024)
Sample Particulate Analysis via Gravimetric USEPA Method 202 (GN 22-Mar-2024)

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: _____
Claire Kocharakkal
Project Manager

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-1 TEST#1 APC OUTLET #1		24-22327-M201A-2 TEST#1 APC OUTLET #1		24-22327-M201A-3 TEST#1 APC OUTLET #1	24-22327-M201A-4 TEST#1 APC OUTLET #1		24-22327-M201A-(5-7) TEST#1 APC OUTLET #1
ALS Sample ID		L2755021-1		L2755021-2		L2755021-3	L2755021-4		L2755021-5
Matrix		Stack		Stack		Stack	Stack		Stack
Analysis type		Sample		Sample		Sample	Sample		Sample
Sampling Date/Time		19-Mar-24		19-Mar-24		19-Mar-24	19-Mar-24		19-Mar-24
Date of Receipt		20-Mar-24		20-Mar-24		20-Mar-24	20-Mar-24		20-Mar-24
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	0.2	J	0.1	J	0.6	-		-
	g	**g**		**g**		**g**	**g**		**g**
Acetone Mass	0.02	22.6		15.8		16.9	-		-
PM via Gravimetric Analysis Method 202	**LOR**								
	mg	**mg**		**mg**		**mg**	**mg**		**mg**
Extractable Condensable Particulates	0.4	-		-		-	-		4.7
Non-Extractable Condensable Particulates	0.4	-		-		-	-		3.3
	g	**g**		**g**		**g**	**g**		**g**
Water Mass	0.02	-		-		-	-		205

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-8 TEST#2 APC OUTLET #1	24-22327-M201A-9 TEST#2 APC OUTLET #1	24-22327-M201A-10 TEST#2 APC OUTLET #1	24-22327-M201A-11 TEST#2 APC OUTLET #1	24-22327-M201A-(12-14) TEST#2 APC OUTLET #1
ALS Sample ID		L2755021-6	L2755021-7	L2755021-8	L2755021-9	L2755021-10
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	<	-
Acetone Particulate Matter	0.4	0.6	0.4 J	0.2 J	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	31.1	21.9	20.8	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	4.4
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.2
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	251

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-15 TEST#3 APC OUTLET #1	24-22327-M201A-16 TEST#3 APC OUTLET #1	24-22327-M201A-17 TEST#3 APC OUTLET #1	24-22327-M201A-18 TEST#3 APC OUTLET #1	24-22327-M201A-(19-21) TEST#3 APC OUTLET #1
ALS Sample ID		L2755021-11	L2755021-12	L2755021-13	L2755021-14	L2755021-15
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	<	-
Acetone Particulate Matter	0.4	0.6	0.3 J	1.0	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	34.4	33.7	11.5	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	4.0
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.2
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	259

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-43 BLANK APC OUTLET #1	24-22327-M201A-44 BLANK APC OUTLET #1	24-22327-M201A-45 BLANK APC OUTLET #1	24-22327-M201A-46 BLANK APC OUTLET #1	24-22327-M201A-(47-49) BLANK APC OUTLET #1
ALS Sample ID		L2755021-16	L2755021-17	L2755021-18	L2755021-19	L2755021-20
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	<	-
Acetone Particulate Matter	0.4	0.2 J	0.3 J	0.3 J	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	22.4	22.5	27.6	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	2.9
Non-Extractable Condensable Particulates	0.4	-	-	-	-	0.3 J
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	199

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-22 TEST#1 APC OUTLET #2	24-22327-M201A-23 TEST#1 APC OUTLET #2	24-22327-M201A-24 TEST#1 APC OUTLET #2	24-22327-M201A-25 TEST#1 APC OUTLET #2	24-22327-M201A-(26-28) TEST#1 APC OUTLET #2
ALS Sample ID		L2755021-21	L2755021-22	L2755021-23	L2755021-24	L2755021-25
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 201A	LOR					
	mg	mg	mg	mg	mg	mg
Filter Particulate Matter	0.8	-	-	-	<	-
Acetone Particulate Matter	0.4	0.5	0.6	0.2 J	-	-
	g	g	g	g	g	g
Acetone Mass	0.02	34.6	30.5	12.4	-	-
PM via Gravimetric Analysis Method 202	LOR					
	mg	mg	mg	mg	mg	mg
Extractable Condensable Particulates	0.4	-	-	-	-	3.4
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.0
	g	g	g	g	g	g
Water Mass	0.02	-	-	-	-	260

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-29 TEST#2 APC OUTLET #2		24-22327-M201A-30 TEST#2 APC OUTLET #2		24-22327-M201A-31 TEST#2 APC OUTLET #2	24-22327-M201A-32 TEST#2 APC OUTLET #2	24-22327-M201A-(33-35) TEST#2 APC OUTLET #2
ALS Sample ID		L2755021-26		L2755021-27		L2755021-28	L2755021-29	L2755021-30
Matrix		Stack		Stack		Stack	Stack	Stack
Analysis type		Sample		Sample		Sample	Sample	Sample
Sampling Date/Time		18-Mar-24		18-Mar-24		18-Mar-24	18-Mar-24	18-Mar-24
Date of Receipt		20-Mar-24		20-Mar-24		20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 201A	**LOR**							
	mg	**mg**		**mg**		**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-		-		-	<	-
Acetone Particulate Matter	0.4	0.4	J	0.1	J	0.9	-	-
	g	**g**		**g**		**g**	**g**	**g**
Acetone Mass	0.02	23.6		22.4		54.9	-	-
PM via Gravimetric Analysis Method 202	**LOR**							
	mg	**mg**		**mg**		**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-		-		-	-	4.4
Non-Extractable Condensable Particulates	0.4	-		-		-	-	3.7
	g	**g**		**g**		**g**	**g**	**g**
Water Mass	0.02	-		-		-	-	232

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-36 TEST#3 APC OUTLET #2	24-22327-M201A-37 TEST#3 APC OUTLET #2	24-22327-M201A-38 TEST#3 APC OUTLET #2	24-22327-M201A-39 TEST#3 APC OUTLET #2	24-22327-M201A-(40-42) TEST#3 APC OUTLET #2
ALS Sample ID		L2755021-31	L2755021-32	L2755021-33	L2755021-34	L2755021-35
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 201A	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	-	-	-	<	-
Acetone Particulate Matter	0.4	0.5	0.3 J	<	-	-
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	25.0	30.6	15.2	-	-
PM via Gravimetric Analysis Method 202	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Extractable Condensable Particulates	0.4	-	-	-	-	3.3
Non-Extractable Condensable Particulates	0.4	-	-	-	-	3.2
	g	**g**	**g**	**g**	**g**	**g**
Water Mass	0.02	-	-	-	-	272

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-M201A-50 BLANK APC OUTLET #2		24-22327-M201A-51 BLANK APC OUTLET #2		24-22327-M201A-52 BLANK APC OUTLET #2		24-22327-M201A-53 BLANK APC OUTLET #2		24-22327-M201A-(54-56) BLANK APC OUTLET #2	
ALS Sample ID		L2755021-36		L2755021-37		L2755021-38		L2755021-39		L2755021-40	
Matrix		Stack		Stack		Stack		Stack		Stack	
Analysis type		Sample		Sample		Sample		Sample		Sample	
Sampling Date/Time		19-Mar-24		19-Mar-24		19-Mar-24		19-Mar-24		19-Mar-24	
Date of Receipt		20-Mar-24		20-Mar-24		20-Mar-24		20-Mar-24		20-Mar-24	
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	0.3	J	0.2	J	0.2	J	-		-	
	g	g		g		g		g		g	
Acetone Mass	0.02	18.5		13.5		17.4		-		-	
PM via Gravimetric Analysis Method 202	LOR										
	mg	mg		mg		mg		mg		mg	
Extractable Condensable Particulates	0.4	-		-		-		-		3.5	
Non-Extractable Condensable Particulates	0.4	-		-		-		-		0.4	J
	g	g		g		g		g		g	
Water Mass	0.02	-		-		-		-		188	

ALS Environmental

Sample Analysis Summary Report

Sample Name		MB1		MB2	
ALS Sample ID		L2755021-MB		L2755021-MB	
Matrix		-		-	
Analysis type		Sample		Sample	
Sampling Date/Time		-		-	
Date of Receipt		-		-	
PM via Gravimetric Analysis Method 201A	**LOR**				
	mg	**mg**		**mg**	
Filter Particulate Matter	0.8	0.1	J	-	
Acetone Particulate Matter	0.4	<		0.1	J
	g	**g**		**g**	
Acetone Mass	0.02	31.9		31.9	
PM via Gravimetric Analysis Method 202	**LOR**				
	mg	**mg**		**mg**	
Extractable Condensable Particulates	0.4	<		-	
Non-Extractable Condensable Particulates	0.4	0.2	J	-	
	g	**g**		**g**	
Water Mass	0.02	104		-	

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#:	L2755022		Mississauga, ON L5J 2Y4
Date of Report	27-Mar-24		Canada
Date of Sample Receipt	20-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS:

Sample Particulate Analysis via Gravimetric USEPA Method 5 (GN 22-Mar-2024)

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		24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(7 THRU 12) TEST#2 APC OUTLET #1	24-22327-PM-(13 THRU 18) TEST#3 APC OUTLET #1	24-22327-PM-(19 THRU 24) BLANK1 APC OUTLET #1	24-22327-PM-(25 THRU 30) TEST#1 APC OUTLET #2
ALS Sample ID		L2755022-1	L2755022-2	L2755022-3	L2755022-4	L2755022-5
Matrix		Stack	Stack	Stack	Stack	Stack
Analysis type		Sample	Sample	Sample	Sample	Sample
Sampling Date/Time		18-Mar-24	18-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
PM via Gravimetric Analysis Method 5	**LOR**					
	mg	**mg**	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	3.3	2.7	5.9	3.9	2.9
Acetone Particulate Matter	0.4	3.9	1.1	1.9	0.2 J	4.9
	g	**g**	**g**	**g**	**g**	**g**
Acetone Mass	0.02	89.1	107	151	151	70.6

ALS Environmental

Sample Analysis Summary Report

Sample Name		24-22327-PM-(31 THRU 36) TEST#2 APC OUTLET #2	24-22327-PM-(37 THRU 42) TEST#3 APC OUTLET #2	24-22327-PM-(43 THRU 48) BLANK2 APC OUTLET #2	MB
ALS Sample ID		L2755022-6	L2755022-7	L2755022-8	L2755022-MB
Matrix		Stack	Stack	Stack	n/a
Analysis type		Sample	Sample	Sample	Sample
Sampling Date/Time		19-Mar-24	19-Mar-24	19-Mar-24	n/a
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	n/a
PM via Gravimetric Analysis Method 5	**LOR**				
	mg	**mg**	**mg**	**mg**	**mg**
Filter Particulate Matter	0.8	2.4	3.0	4.4	0.1 J
Acetone Particulate Matter	0.4	3.9	2.7	0.3 J	0.2 J
	g	**g**	**g**	**g**	**g**
Acetone Mass	0.02	121	111	211	31.8

CERTIFICATE OF ANALYSIS

Work Order	: **BU2400055**	Page	: 1 of 4
Client	: **ORTECH Environmental Inc.**	Laboratory	: ALS Environmental - Burlington
Contact	: Chris Belore	Account Manager	: Lynne Wrona
Address	: 804 Southdown Road Mississauga ON Canada L5J 2Y4	Address	: 1435 Norjohn Court, Unit 1 Burlington ON Canada L7L 0E6
Telephone	: 905 822 4120	Telephone	: +1 905 331 3111
Project	: 22327 Covanta	Date Samples Received	: 20-Mar-2024 12:30
PO	: 22327-J2964	Date Analysis Commenced	: 21-Mar-2024
C-O-C number	: ----	Issue Date	: 27-Mar-2024 14:59
Sampler	: Client		
Site	: ----		
Quote number	: Stack SOA		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Gamini Nadu	Analyst	Inorganics, Burlington, Ontario
Milithza Silva	Manager - Inorganics	Inorganics, Burlington, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
L	litres
mg/L	milligrams per litre
mg/sample	milligrams per sample

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Stack Emissions**
(Matrix: **Air**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 24-22327-M26A -1 APC Outlet #1	24-22327-M26A -2 APC Outlet #1	24-22327-M26A -3 APC Outlet #1	24-22327-M26A -4 APC Outlet #2	24-22327-M26A -5 APC Outlet #2
Client sampling date / time					18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
					BU2400055-001	BU2400055-002	BU2400055-003	BU2400055-004	BU2400055-005
					Result	Result	Result	Result	Result
Physical Tests									
Volume, impinger	n/a	EF003.I/BU	0.0010	L	0.430	0.445	0.500	0.510	0.480
Inorganics									
Ammonia (as NH3)	8013-59-0	E253/BU	0.470	mg/L	1.73	2.56	1.92	1.15	1.01
Ammonia, total (as NH3)	7664-41-7	EC253/BU	0.020	mg/sample	0.744	1.14	0.960	0.586	0.485
Chloride, average	16887-00-6	E252/BU	0.47	mg/L	8.06	9.52	8.86	11.3	10.1
Chloride, replicate 1	16887-00-6	E252/BU	0.47	mg/L	8.06	9.51	8.85	11.3	10.1
Chloride, replicate 2	16887-00-6	E252/BU	0.47	mg/L	8.06	9.53	8.86	11.3	10.1
Fluoride, average	---	E252/BU	0.31	mg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Fluoride, replicate 1	---	E252/BU	0.31	mg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Fluoride, replicate 2	---	E252/BU	0.31	mg/L	<0.31	<0.31	<0.31	<0.31	<0.31
Hydrogen chloride, average	7647-01-0	EC252/BU	0.015	mg/sample	3.56	4.36	4.56	5.92	4.99
Hydrogen chloride, replicate 1	7647-01-0	EC252/BU	0.015	mg/sample	3.56	4.35	4.55	5.92	4.99
Hydrogen chloride, replicate 2	7647-01-0	EC252/BU	0.015	mg/sample	3.56	4.36	4.56	5.92	4.99
Hydrogen fluoride, average	7664-39-3	EC252/BU	0.0098	mg/sample	<0.142	<0.147	<0.165	<0.168	<0.158
Hydrogen fluoride, replicate 1	7664-39-3	EC252/BU	0.0098	mg/sample	<0.142	<0.147	<0.165	<0.168	<0.158
Hydrogen fluoride, replicate 2	7664-39-3	EC252/BU	0.0098	mg/sample	<0.142	<0.147	<0.165	<0.168	<0.158

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Stack Emissions**
(Matrix: **Air**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 24-22327-M26A -6 APC Outlet #2	24-22327-M26A -Blank1 APC Outlet #1	24-22327-M26A -Blank2 APC Outlet #2	----	----
					Client sampling date / time: 19-Mar-2024 00:00	18-Mar-2024 00:00	19-Mar-2024 00:00	----	----
					BU2400055-006	BU2400055-007	BU2400055-008	-------	-------
					Result	Result	Result	----	----
Physical Tests									
Volume, impinger	n/a	EF003.I/BU	0.0010	L	0.485	0.320	0.320	----	----
Inorganics									
Ammonia (as NH3)	8013-59-0	E253/BU	0.470	mg/L	0.954	<0.472	<0.472	----	----
Ammonia, total (as NH3)	7664-41-7	EC253/BU	0.020	mg/sample	0.463	<0.020	<0.020	----	----
Chloride, average	16887-00-6	E252/BU	0.47	mg/L	10.4	<0.47	<0.47	----	----
Chloride, replicate 1	16887-00-6	E252/BU	0.47	mg/L	10.5	<0.47	<0.47	----	----
Chloride, replicate 2	16887-00-6	E252/BU	0.47	mg/L	10.4	<0.47	<0.47	----	----
Fluoride, average	----	E252/BU	0.31	mg/L	<0.31	<0.31	<0.31	----	----
Fluoride, replicate 1	----	E252/BU	0.31	mg/L	<0.31	<0.31	<0.31	----	----
Fluoride, replicate 2	----	E252/BU	0.31	mg/L	<0.31	<0.31	<0.31	----	----
Hydrogen chloride, average	7647-01-0	EC252/BU	0.015	mg/sample	5.22	<0.154	<0.154	----	----
Hydrogen chloride, replicate 1	7647-01-0	EC252/BU	0.015	mg/sample	5.24	<0.154	<0.154	----	----
Hydrogen chloride, replicate 2	7647-01-0	EC252/BU	0.015	mg/sample	5.19	<0.154	<0.154	----	----
Hydrogen fluoride, average	7664-39-3	EC252/BU	0.0098	mg/sample	<0.160	<0.106	<0.106	----	----
Hydrogen fluoride, replicate 1	7664-39-3	EC252/BU	0.0098	mg/sample	<0.160	<0.106	<0.106	----	----
Hydrogen fluoride, replicate 2	7664-39-3	EC252/BU	0.0098	mg/sample	<0.160	<0.106	<0.106	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	:**BU2400055**	Page	: 1 of 7
Client	:**ORTECH Environmental Inc.**	Laboratory	: ALS Environmental - Burlington
Contact	:Chris Belore	Account Manager	: Lynne Wrona
Address	:804 Southdown Road Mississauga ON Canada L5J 2Y4	Address	: 1435 Norjohn Court, Unit 1 Burlington, Ontario Canada L7L 0E6
Telephone	:905 822 4120	Telephone	: +1 905 331 3111
Project	:22327 Covanta	Date Samples Received	: 20-Mar-2024 12:30
PO	: 22327-J2964	Issue Date	: 27-Mar-2024 14:59
C-O-C number	:----		
Sampler	:Client		
Site	:----		
Quote number	:Stack SOA		
No. of samples received	:8		
No. of samples analysed	:8		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Air**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-4 APC Outlet #2	E253	19-Mar-2024	21-Mar-2024	14 days	3 days	✓	21-Mar-2024	14 days	3 days	✓
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-5 APC Outlet #2	E253	19-Mar-2024	21-Mar-2024	14 days	3 days	✓	21-Mar-2024	14 days	3 days	✓
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-6 APC Outlet #2	E253	19-Mar-2024	21-Mar-2024	14 days	3 days	✓	21-Mar-2024	14 days	3 days	✓
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-Blank2 APC Outlet #2	E253	19-Mar-2024	21-Mar-2024	14 days	3 days	✓	21-Mar-2024	14 days	3 days	✓
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-1 APC Outlet #1	E253	18-Mar-2024	21-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	4 days	✓
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-2 APC Outlet #1	E253	18-Mar-2024	21-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	4 days	✓
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-3 APC Outlet #1	E253	18-Mar-2024	21-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	4 days	✓

Matrix: **Air**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Inorganics : Ammonia by IC (CTM-027)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-Blank1 APC Outlet #1	E253	18-Mar-2024	21-Mar-2024	14 days	4 days	✓	21-Mar-2024	14 days	4 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-4 APC Outlet #2	E252	19-Mar-2024	21-Mar-2024	28 days	3 days	✓	21-Mar-2024	28 days	3 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-5 APC Outlet #2	E252	19-Mar-2024	21-Mar-2024	28 days	3 days	✓	21-Mar-2024	28 days	3 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-6 APC Outlet #2	E252	19-Mar-2024	21-Mar-2024	28 days	3 days	✓	21-Mar-2024	28 days	3 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-Blank2 APC Outlet #2	E252	19-Mar-2024	21-Mar-2024	28 days	3 days	✓	21-Mar-2024	28 days	3 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-1 APC Outlet #1	E252	18-Mar-2024	21-Mar-2024	28 days	4 days	✓	21-Mar-2024	28 days	4 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-2 APC Outlet #1	E252	18-Mar-2024	21-Mar-2024	28 days	4 days	✓	21-Mar-2024	28 days	4 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-3 APC Outlet #1	E252	18-Mar-2024	21-Mar-2024	28 days	4 days	✓	21-Mar-2024	28 days	4 days	✓
Inorganics : Ion Chromatography Analysis (M26/26A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 24-22327-M26A-Blank1 APC Outlet #1	E252	18-Mar-2024	21-Mar-2024	28 days	4 days	✓	21-Mar-2024	28 days	4 days	✓

Matrix: **Air**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-4 APC Outlet #2	EF003.I	19-Mar-2024	---	---	---		21-Mar-2024	---	2 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-5 APC Outlet #2	EF003.I	19-Mar-2024	---	---	---		21-Mar-2024	---	2 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-6 APC Outlet #2	EF003.I	19-Mar-2024	---	---	---		21-Mar-2024	---	2 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-Blank2 APC Outlet #2	EF003.I	19-Mar-2024	---	---	---		21-Mar-2024	---	2 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-1 APC Outlet #1	EF003.I	18-Mar-2024	---	---	---		21-Mar-2024	---	3 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-2 APC Outlet #1	EF003.I	18-Mar-2024	---	---	---		21-Mar-2024	---	3 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-3 APC Outlet #1	EF003.I	18-Mar-2024	---	---	---		21-Mar-2024	---	3 days	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4)										
24-22327-M26A-Blank1 APC Outlet #1	EF003.I	18-Mar-2024	---	---	---		21-Mar-2024	---	3 days	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Air**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Ammonia by IC (CTM-027)	E253	1374915	1	8	12.5	5.0	✓
Ion Chromatography Analysis (M26/26A Anions)	E252	1374910	1	8	12.5	5.0	✓
Laboratory Control Samples (LCS)							
Ammonia by IC (CTM-027)	E253	1374915	1	8	12.5	5.0	✓
Ion Chromatography Analysis (M26/26A Anions)	E252	1374910	1	8	12.5	5.0	✓
Method Blanks (MB)							
Ammonia by IC (CTM-027)	E253	1374915	1	8	12.5	5.0	✓
Ion Chromatography Analysis (M26/26A Anions)	E252	1374910	1	8	12.5	5.0	✓
Matrix Spikes (MS)							
Ammonia by IC (CTM-027)	E253	1374915	1	8	12.5	5.0	✓
Ion Chromatography Analysis (M26/26A Anions)	E252	1374910	1	8	12.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Description
Ion Chromatography Analysis (M26/26A Anions)	E252 ALS Environmental - Burlington	Air	USEPA Methods 26 and 26A	Client supplied liquid samples are split and buffered (acidic media) then sub-sampled (or sub-sampled directly for basic media) for IC analysis. Results are reported as hydrogen halides (acidic media) or halogens (basic media).
Ammonia by IC (CTM-027)	E253 ALS Environmental - Burlington	Air	EPA Method CTM-027 (mod)	Client-supplied acidic samples are sub-sampled for analysis, after a total volume is determined. Analytical results are reported as Total Ammonia, from the quantified Ammonium (NH4+) ion.
Ion Chromatography Analysis (M26/26A Anions)	EC252 ALS Environmental - Burlington	Air	unit conversion	Convert mg/L to mg/sample
Ammonia by IC (Method CTM-027)	EC253 ALS Environmental - Burlington	Air	unit conversion	Conversion from mg/L to mg/sample
Stack Emission Impinger volume (L)	EF003.I ALS Environmental - Burlington	Air		Volume of impinger contents is measured in the laboratory for use in later calculations.

QUALITY CONTROL REPORT

Work Order	: **BU2400055**	Page	: 1 of 4
Client	: ORTECH Environmental Inc.	Laboratory	: ALS Environmental - Burlington
Contact	: Chris Belore	Account Manager	: Lynne Wrona
Address	: 804 Southdown Road Mississauga ON Canada L5J 2Y4	Address	: 1435 Norjohn Court, Unit 1 Burlington, Ontario Canada L7L 0E6
Telephone	:	Telephone	: +1 905 331 3111
Project	: 22327 Covanta	Date Samples Received	: 20-Mar-2024 12:30
PO	: 22327-J2964	Date Analysis Commenced	: 21-Mar-2024
C-O-C number	: ----	Issue Date	: 27-Mar-2024 15:00
Sampler	: Client 905 822 4120		
Site	: ----		
Quote number	: Stack SOA		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Gamini Nadu	Analyst	Burlington Inorganics, Burlington, Ontario
Milithza Silva	Manager - Inorganics	Burlington Inorganics, Burlington, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Air**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Inorganics (QC Lot: 1374910)											
BU2400055-001	24-22327-M26A-1 APC Outlet #1	Chloride, average	16887-00-6	E252	0.47	mg/L	8.06	7.94	1.44%	20%	---
		Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	8.06	7.94	1.38%	20%	---
		Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	8.06	7.95	1.39%	20%	---
		Fluoride, average	---	E252	0.31	mg/L	<0.31	<0.31	0	Diff <2x LOR	---
		Fluoride, replicate 1	---	E252	0.31	mg/L	<0.31	<0.31	0	Diff <2x LOR	---
		Fluoride, replicate 2	---	E252	0.31	mg/L	<0.31	<0.31	0	Diff <2x LOR	---
Inorganics (QC Lot: 1374915)											
BU2400055-001	24-22327-M26A-1 APC Outlet #1	Ammonia (as NH3)	8013-59-0	E253	0.472	mg/L	1.73	1.75	0.016	Diff <2x LOR	---

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Air**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Inorganics (QCLot: 1374910)						
Chloride, average	16887-00-6	E252	0.47	mg/L	<0.47	---
Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	<0.47	---
Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	<0.47	---
Fluoride, average	---	E252	0.31	mg/L	<0.31	---
Fluoride, replicate 1	---	E252	0.31	mg/L	<0.31	---
Fluoride, replicate 2	---	E252	0.31	mg/L	<0.31	---
Inorganics (QCLot: 1374915)						
Ammonia (as NH3)	8013-59-0	E253	0.47	mg/L	<0.470	---

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Air**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Inorganics (QCLot: 1374910)									
Chloride, average	16887-00-6	E252	0.47	mg/L	15 mg/L	101	90.0	110	---
Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	15 mg/L	101	90.0	110	---
Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	15 mg/L	101	90.0	110	---
Fluoride, average	---	E252	0.31	mg/L	10 mg/L	103	90.0	110	---
Fluoride, replicate 1	---	E252	0.31	mg/L	10 mg/L	103	90.0	110	---
Fluoride, replicate 2	---	E252	0.31	mg/L	10 mg/L	103	90.0	110	---
Inorganics (QCLot: 1374915)									
Ammonia (as NH3)	8013-59-0	E253	0.47	mg/L	9.441 mg/L	98.1	90.0	110	---

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND -- Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Air**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Inorganics (QCLot: 1374910)										
BU2400055-001	24-22327-M26A-1 APC Outlet #1	Chloride, average	16887-00-6	E252	15.6 mg/L	15 mg/L	104	90.0	110	---
		Chloride, replicate 1	16887-00-6	E252	15.6 mg/L	15 mg/L	104	90.0	110	---
		Chloride, replicate 2	16887-00-6	E252	15.6 mg/L	15 mg/L	104	90.0	110	---
		Fluoride, average	---	E252	10.4 mg/L	10 mg/L	104	90.0	110	---
		Fluoride, replicate 1	---	E252	10.4 mg/L	10 mg/L	104	90.0	110	---
		Fluoride, replicate 2	---	E252	10.4 mg/L	10 mg/L	104	90.0	110	---
Inorganics (QCLot: 1374915)										
BU2400055-001	24-22327-M26A-1 APC Outlet #1	Ammonia (as NH3)	8013-59-0	E253	9.65 mg/L	9.441 mg/L	102	85.0	115	---

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2755022		Mississauga, ON L5J 2Y4
Date of Report	10-Apr-24		Canada
Date of Sample Receipt	20-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS:
Metals analysed via ICP-MS Method USEPA 6020B (SA 08-Apr-24)
Sample Preparation via USEPA Method 29 (KC11 05-Apr-2024)

ANALYST COMMENTS:
Cr, Cu, Mo and Ni observed in the front half MB at a level significantly above its LOR. Sample data within a factor of 5X, may be biased high as a result of this background contribution. SA 9-Apr 2024

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		24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(7 THRU 12) TEST#2 APC OUTLET #1	24-22327-PM-(13 THRU 18) TEST#3 APC OUTLET #1	24-22327-PM-(19 THRU 24) BLANK1 APC OUTLET #1	24-22327-PM-(25 THRU 30) TEST#1 APC OUTLET #2	24-22327-PM-(31 THRU 36) TEST#2 APC OUTLET #2
ALS Sample ID		L2755022-1	L2755022-2	L2755022-3	L2755022-4	L2755022-5	L2755022-6
Matrix		Stack	Stack	Stack	Stack	Stack	Stack
Analysis Type		Sample	Sample	Sample	Sample	Sample	Sample
Sampling Date		18-Mar-24	18-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
Multi-Metals via ICP-MS	**LOR**						
	ug	**ug**	**ug**	**ug**	**ug**	**ug**	**ug**
Front Half HF Fraction 1A							
Antimony	0.2	0.315	<	<	<	<	<
Arsenic	1	<	<	<	<	<	<
Barium	5	47.3	46.4	47.4	46.5	47.0	47.9
Beryllium	0.2	<	<	<	<	<	<
Cadmium	0.1	0.165	0.510	<	<	<	0.243
Chromium	1	3.59	3.32	3.03	4.80	3.42	3.26
Cobalt	0.2	<	<	<	<	<	<
Copper	1	4.56	3.89	2.89	3.02	4.24	3.75
Lead	0.5	1.26	0.747	0.534	<	0.714	0.624
Molybdenum	0.2	18.2	19.2	17.5	19.2	18.2	18.4
Nickel	0.2	1.90	1.91	1.29	2.27	1.64	1.96
Selenium	2	<	<	<	<	<	<
Silver	0.2	<	<	<	<	<	<
Thallium	0.2	<	<	<	<	<	<
Vanadium	1	<	<	<	<	<	<
Zinc	6	56.4	40.0	36.2	32.8	40.2	40.9
Back Half (HNO3 / H2O2) Fraction 2A							
Antimony	0.1	<	<	<	<	<	<
Arsenic	0.2	<	<	<	<	<	<
Barium	0.5	0.773	0.830	0.729	0.512	0.597	0.680
Beryllium	0.1	<	<	<	<	<	<
Cadmium	0.05	0.233	0.231	<	<	0.0630	<
Chromium	0.15	0.791	1.35	0.584	0.452	0.630	0.588
Cobalt	0.1	0.147	<	<	<	0.191	<
Copper	0.3	7.78	3.53	3.27	4.98	1.79	2.87
Lead	0.05	1.06	0.440	0.261	0.290	0.279	0.314
Molybdenum	0.1	<	<	<	<	<	<
Nickel	0.1	1.19	1.58	0.987	0.273	0.629	0.636
Selenium	1	<	<	<	<	<	<
Silver	0.1	<	0.134	<	<	<	<
Thallium	0.05	<	<	<	<	<	<
Vanadium	0.1	<	<	<	<	<	<
Zinc	3	8.54	6.55	6.40	<	4.60	6.65

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Sample Analysis Summary Report

Sample Name		24-22327-PM-(37 THRU 42) TEST#3 APC OUTLET #2	24-22327-PM-(43 THRU 48) BLANK2 APC OUTLET #2	MB
ALS Sample ID		L2755022-7	L2755022-8	L2755022-MB
Matrix		Stack	Stack	n/a
Analysis Type		Sample	Sample	Sample
Sampling Date		19-Mar-24	19-Mar-24	n/a
Date of Receipt		20-Mar-24	20-Mar-24	n/a
Multi-Metals via ICP-MS	**LOR ug**	**ug**	**ug**	**ug**
Front Half HF Fraction 1A				
Antimony	0.2	<	<	<
Arsenic	1	<	<	<
Barium	5	50.2	46.8	<
Beryllium	0.2	<	<	<
Cadmium	0.1	0.336	<	<
Chromium	1	3.49	4.85	2.14
Cobalt	0.2	<	<	<
Copper	1	2.13	2.85	5.76
Lead	0.5	0.756	<	<
Molybdenum	0.2	18.1	21.2	33.9
Nickel	0.2	1.95	2.30	1.29
Selenium	2	<	<	<
Silver	0.2	<	<	<
Thallium	0.2	<	<	<
Vanadium	1	<	<	<
Zinc	6	39.5	33.3	<
Back Half (HNO3 / H2O2) Fraction 2A				
Antimony	0.1	<	<	-
Arsenic	0.2	<	<	-
Barium	0.5	0.981	0.521	-
Beryllium	0.1	<	<	-
Cadmium	0.05	0.111	<	-
Chromium	0.15	0.696	0.449	-
Cobalt	0.1	<	<	-
Copper	0.3	2.87	2.37	-
Lead	0.05	0.708	0.183	-
Molybdenum	0.1	<	<	-
Nickel	0.1	0.635	0.303	-
Selenium	1	<	<	-
Silver	0.1	<	<	-
Thallium	0.05	<	<	-
Vanadium	0.1	<	<	-
Zinc	3	5.02	<	-

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Sample QC Summary Report

Sample Name		RB	LCS	LCS	LCSD	LCSD
ALS Sample ID		RB	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	<	11.9	99	11.8	98
Arsenic	1	<	62.3	103	61.0	101
Barium	5	<	61.2	102	59.9	100
Beryllium	0.2	<	61.2	102	60.0	100
Cadmium	0.1	<	29.8	99	29.0	97
Chromium	1	<	59.0	98	59.9	100
Cobalt	0.2	<	60.0	100	59.5	99
Copper	1	<	60.2	100	59.9	100
Lead	0.5	<	57.3	95	56.3	94
Molybdenum	0.2	<	30.0	100	29.8	99
Nickel	0.2	<	60.9	101	58.5	97
Selenium	2	<	59.0	98	57.9	97
Silver	0.2	<	30.3	101	30.2	101
Thallium	0.2	<	57.0	95	55.4	92
Vanadium	1	<	60.9	102	59.3	99
Zinc	6	<	118	98	118	98
Back Half (HNO3 / H2O2) Fraction 2A						
Antimony	0.1	<	5.81	97	5.53	92
Arsenic	0.2	<	29.4	98	29.1	97
Barium	0.5	<	28.8	96	29.6	99
Beryllium	0.1	<	27.9	93	28.5	95
Cadmium	0.05	<	14.5	97	14.6	97
Chromium	0.15	<	29.3	97	28.7	95
Cobalt	0.1	<	29.4	98	28.7	96
Copper	0.3	<	29.6	98	29.0	97
Lead	0.05	<	28.0	93	26.6	89
Molybdenum	0.1	<	14.8	99	13.9	92
Nickel	0.1	<	29.0	96	28.6	95
Selenium	1	<	28.5	95	28.5	95
Silver	0.1	<	15.0	100	14.1	94
Thallium	0.05	<	28.2	94	26.5	88
Vanadium	0.1	<	29.1	97	29.1	97
Zinc	3	<	57.6	96	54.5	91

ALS Environmental

Sample QC Summary Report

Sample Name		24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1
ALS Sample ID		L2755022-1	L2755022-1	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		18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24
Date of Receipt		20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
Multi-Metals via ICP-MS	**LOR ug**	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
Front Half HF Fraction 1A							
Antimony	0.2	0.315	0.306	24.2	99	26.1	107
Arsenic	1	<	<	124	103	125	104
Barium	5	47.3	46.6	172	104	171	103
Beryllium	0.2	<	<	120	100	121	101
Cadmium	0.1	0.165	0.195	61.0	101	63.4	105
Chromium	1	3.59	3.74	122	98	125	101
Cobalt	0.2	<	<	119	99	121	101
Copper	1	4.56	4.51	125	100	128	103
Lead	0.5	1.26	1.23	117	97	118	98
Molybdenum	0.2	18.2	17.7	76.3	97	80.4	104
Nickel	0.2	1.90	1.97	123	101	123	101
Selenium	2	<	<	118	98	123	103
Silver	0.2	<	<	60.5	101	63.7	106
Thallium	0.2	<	<	115	96	119	99
Vanadium	1	<	<	121	101	121	101
Zinc	6	56.4	56.6	297	100	307	104
Back Half (HNO3 / H2O2) Fraction 2A							
Antimony	0.1	<	<	11.3	94	11.6	97
Arsenic	0.2	<	<	60.6	101	59.4	99
Barium	0.5	0.773	0.776	62.4	103	60.7	100
Beryllium	0.1	<	<	58.5	97	57.8	96
Cadmium	0.05	0.233	0.216	29.3	97	30.1	100
Chromium	0.15	0.791	0.707	61.7	102	59.9	99
Cobalt	0.1	0.147	0.147	61.6	102	60.1	100
Copper	0.3	7.78	7.75	68.0	100	68.6	101
Lead	0.05	1.06	1.18	58.1	95	57.7	94
Molybdenum	0.1	<	<	29.1	97	29.0	97
Nickel	0.1	1.19	1.15	62.2	102	61.1	100
Selenium	1	<	<	57.3	95	55.3	92
Silver	0.1	<	<	29.1	97	30.0	100
Thallium	0.05	<	<	57.2	95	55.1	92
Vanadium	0.1	<	<	61.7	103	59.2	99
Zinc	3	8.54	8.51	128	99	124	97

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2755022		Mississauga, ON L5J 2Y4
Date of Report	10-Apr-24		Canada
Date of Sample Receipt	20-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS:

Sample Preparation via USEPA Method 29 (KC11 05-Apr-2024)
Mercury Analysis via CVAA using Method USEPA 7470A (KC11 09-Apr-2024)

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			24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(7 THRU 12) TEST#2 APC OUTLET #1	24-22327-PM-(13 THRU 18) TEST#3 APC OUTLET #1	24-22327-PM-(19 THRU 24) BLANK1 APC OUTLET #1	24-22327-PM-(25 THRU 30) TEST#1 APC OUTLET #2
ALS Sample ID			L2755022-1	L2755022-2	L2755022-3	L2755022-4	L2755022-5
Matrix			Stack	Stack	Stack	Stack	Stack
Analysis type			Sample	Sample	Sample	Sample	Sample
Sampling Date/Time			18-Mar-24	18-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt			20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
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	<0.39	<0.39	0.574	<0.15	0.491
	Analytical Fraction 3B	0.025	<0.0225	<0.0225	<0.0225	<0.0225	<0.0225
	Analytical Fraction 3C	0.25	<0.225	0.302	1.07	<0.225	1.48

ALS Environmental

Sample Analysis Summary Report

Sample Name			24-22327-PM-(31 THRU 36) TEST#2 APC OUTLET #2	24-22327-PM-(37 THRU 42) TEST#3 APC OUTLET #2	24-22327-PM-(43 THRU 48) BLANK2 APC OUTLET #2
ALS Sample ID			L2755022-6	L2755022-7	L2755022-8
Matrix			Stack	Stack	Stack
Analysis type			Sample	Sample	Sample
Sampling Date/Time			19-Mar-24	19-Mar-24	19-Mar-24
Date of Receipt			20-Mar-24	20-Mar-24	20-Mar-24
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	0.860	<0.395	<0.15
	Analytical Fraction 3B	0.025	0.0482	<0.0225	<0.0225
	Analytical Fraction 3C	0.25	4.41	<0.225	<0.225

ALS Environmental

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	0.274	91%	0.284	94%
Analytical Fraction 2B	0.050	<0.05	0.957	96%	0.960	96%
Analytical Fraction 3B	0.025	<0.025	0.470	94%	0.473	95%
Analytical Fraction 3C	0.25	<0.25	4.65	93%	4.71	94%

ALS Environmental

Sample QC Summary Report

Sample Name			24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1	24-22327-PM-(1 THRU 6) TEST#1 APC OUTLET #1
ALS Sample ID			L2755022-1	L2755022-1DUP	L2755022-1MS	L2755022-1MS	L2755022-1MSD	L2755022-1MSD
Matrix			Stack	Stack	Stack	Stack	Stack	Stack
Analysis type			Sample	Duplicate	Matrix Spike	Matrix Spike	Matrix Spike Dup	Matrix Spike Dup
Sampling Date/Time			18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24	18-Mar-24
Date of Receipt			20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
Mercury via CVAA		**LOR**						
	Method 29	**ug**	**ug**	**ug**	**ug**	**% Rec**	**ug**	**% Rec**
	Analytical Fraction 1B	0.015	<0.015	<0.015	0.285	95%	0.283	94%
	Analytical Fraction 2B	0.050	<0.39	<0.39	7.64	97%	7.64	97%
	Analytical Fraction 3B	0.025	<0.0225	<0.0225	0.405	90%	0.393	87%
	Analytical Fraction 3C	0.250	<0.225	<0.225	4.38	93%	4.31	91%

APPENDIX 13

Particle Size Distribution Train Recovery Data Sheets
(8 pages)

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: Mar 19/24

Test No.: 1
Test Location: UNIT 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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Filter ID: 22/0830
			Colour: WHITE
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

SAMPLE IDENTIFICATION	24-22327-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: DJ/ST
Train Recovered By: DJ/DM

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	491.0
	Final Wt:	633.0
1	Gain:	142
	Colour:	CLEAR

	Impinger #2 Empty	
	Empty Wt:	620.5
	Final Wt:	620.5
2	Gain:	0
	Colour:	—

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	642.8
	Initial Wt:	732.4
	Final Wt:	728.9
3	Gain:	-3.5
	Colour:	CLEAR

	Impinger #4 Silica Gel	
	Initial Wt:	928.5
	Final Wt:	937.5
4	Gain:	9.0
	% 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: 10:50
Purge Off: 11:50

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:	138.5
WCBDA=4:	9.0

9

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC

Project No.: 22327

Date: MAR 19/24

Test No.: 2

Test Location: UNIT 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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Filter ID: R210873
			Colour: WHITE
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

SAMPLE IDENTIFICATION	24-22327-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_20 and rinse)	12
TS6 (Secondary Filter)	13
TS7 (Acetone / Hexane rinse)	14

Train Loaded By: BT/BH

Train Recovered By:

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	526.0
	Final Wt:	691.5
1	Gain:	165.5
	Colour:	clear

	Impinger #2 Empty	
	Empty Wt:	655.5
	Final Wt:	655.5
2	Gain:	0
	Colour:	clear

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	567.3
	Initial Wt:	671.3
	Final Wt:	670.1
3	Gain:	-1.2
	Colour:	clear

	Impinger #4 Silica Gel	
	Initial Wt:	981.0
	Final Wt:	989.5
4	Gain:	8.5
	% Spent:	

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)

** if there is no gain purge is not required.*

Purge On:	13:30
Purge Off:	14:30

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:	164.3
WCBDA=4:	8.5

10

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 19/24

Test No.: 3
Test Location: UNIT 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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Filter ID: Q210834
			Colour: WHITE
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

SAMPLE IDENTIFICATION	24-22327-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_20 and rinse)	19
TS6 (Secondary Filter)	20
TS7 (Acetone / Hexane rinse)	21

Train Loaded By: DT/DM
Train Recovered By:

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	491.0
Final Wt:	640.0
1 Gain:	149.0
Colour:	clear

Impinger #2 Empty	
Empty Wt:	620.5
Final Wt:	620.5
2 Gain:	0
Colour:	—

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	642.8
Initial Wt:	728.9
Final Wt:	727.0
3 Gain:	-1.9
Colour:	clear

Impinger #4 Silica Gel	
Initial Wt:	937.5
Final Wt:	946.0
4 Gain:	8.5
% Spent:	

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	16:20
Purge Off:	17:20

Rinse all glassware from filter to front half 2nd filter with di H_2O 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:	147.1
WCBDA=4:	8.5

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 18/24

Test No.: 1
Test Location: UNIT 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.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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Filter ID: QZ10827
			Colour: WHITE
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

SAMPLE IDENTIFICATION	24-22327-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_20 and rinse)	26
TS6 (Secondary Filter)	27
TS7 (Acetone / Hexane rinse)	28

Train Loaded By: DU
Train Recovered By: DU/DT

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	525.9
	Final Wt:	700.0
1	Gain:	174.1
	Colour:	CLEAR

	Impinger #2 Empty	
	Empty Wt:	655.7
	Final Wt:	655.7
2	Gain:	0
	Colour:	—

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	569.3
	Initial Wt:	673.8
	Final Wt:	672.8
3	Gain:	-1.0
	Colour:	CLEAR

	Impinger #4 Silica Gel	
	Initial Wt:	962.7
	Final Wt:	971.2
4	Gain:	8.5
	% Spent:	

CONTAINER TSS & 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: 12:45
Purge Off: 13:45

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:	173.1
WCBDA=4:	8.5

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 18/24

Test No.: 2
Test Location: UNIT 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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Filter ID: 07 10823
			Colour: WHITE
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

SAMPLE IDENTIFICATION	24-22327-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: DU
Train Recovered By: DU/DT

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	491.7
Final Wt:	659.3
1 Gain:	168.1
Colour:	CLEAR

Impinger #2 Empty	
Empty Wt:	620.5
Final Wt:	620.5
2 Gain:	0
Colour:	—

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	642.8
Initial Wt:	732.9
Final Wt:	732.4
3 Gain:	−0.5
Colour:	CLEAR

Impinger #4 Silica Gel	
Initial Wt:	919.5
Final Wt:	928.5
4 Gain:	9.0
% Spent:	—

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:	16:45
Purge Off:	17:45

Rinse all glassware from filter to front half 2nd filter with di H_2O 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:	167.6
WCBDA=4:	9.0

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR. 18/24

Test No.: 3
Test Location: UNIT 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.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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
			Filter ID: 2210829
			Colour: WHITE
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

SAMPLE IDENTIFICATION	24-22327-M201A-
TS1 (Part. > 10)	36
TS2 (Part. > 2.5)	37
TS3 (Part. < 2.5)	38
TS4 (Back Up Filter, <2.5)	39
TS5 (Imp 2 H_2O and rinse)	40
TS6 (Secondary Filter)	41
TS7 (Acetone / Hexane rinse)	42

Train Loaded By: DU/DT
Train Recovered By: DT/DU

Impingers 1, 2, 3, 4

	Impinger #1 Knock Out	
	Empty Wt:	526.0
	Final Wt:	698.7
1	Gain:	172.7
	Colour:	CLEAR

	Impinger #2 Empty	
	Empty Wt:	655.5
	Final Wt:	655.5
2	Gain:	0
	Colour:	—

Secondary Filter

	Impinger #3 H_2O	
	Empty Wt:	569.3
	Initial Wt:	672.8
	Final Wt:	671.3
3	Gain:	-1.5
	Colour:	CLEAR

	Impinger #4 Silica Gel	
	Initial Wt:	971.2
	Final Wt:	981.0
4	Gain:	9.8
	% Spent:	

CONTAINER TS5 & TS6

Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On: 19:00
Purge Off: 20:00

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: 171.2
WCBDA=4: 9.8

ORTECH Consulting Alliance Inc.

PM_{10} , $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 19/24

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 2.5 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
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4
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	Filter ID: AZ10831 Colour: WHITE Seal and label container TS4

SAMPLE IDENTIFICATION	24-22327-M201A-
TS1 (Part. > 10)	43
TS2 (Part. > 2.5)	44
TS3 (Part. < 2.5)	45
TS4 (Back Up Filter, <2.5)	46
TS5 (Imp 2 H_2O and rinse)	47
TS6 (Secondary Filter)	48
TS7 (Acetone / Hexane rinse)	49

Train Loaded By:
Train Recovered By:

Impingers 1, 2, 3, 4		CONTAINER TS5 & TS6	CONTAINER TS7
Impinger #1 Knock Out		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
Empty Wt:			
Final Wt:			
1 Gain:			
Colour:			
Impinger #2 Empty		Purge On:	Acetone/Hexane Rinse
Empty Wt:		Purge Off:	
Final Wt:			Mark Fluid Level and Seal and Label Container
2 Gain:		Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	
Colour:			
Secondary Filter			
Impinger #3 H_2O		CONTAINER TS5	
Empty Wt:		Mark Fluid Level and Seal and Label Container	
Initial Wt:			
Final Wt:			
3 Gain:			
Colour:		CONTAINER TS6	
		Secondary Filter	
Impinger #4 Silica Gel			
Initial Wt:		Seal and label container TS6	
Final Wt:			
4 Gain:			CWTR=1+2+3:
% Spent:			WCBDA=4:

ORTECH Consulting Alliance Inc.

PM_{10}, $PM_{2.5}$ & Condensate Recovery Data Sheet

Client: Covanta DYEC
Project No.: 22327
Date: MAR 19/24

Test No.: BLANK 2
Test Location:

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem
CONTAINER TS1
Mark Fluid Level and Seal and label container TS1

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem
CONTAINER TS2
Mark Fluid Level and Seal and label container TS2

Exit Stem, and Connecting Tubing to Filter, and Filter Top
CONTAINER TS3
Mark Fluid Level and Seal and label container TS3

Back-Up Filter
CONTAINER TS4
Filter ID: QZ 10832
Colour: WHITE
Seal and label container TS4

Impingers 1, 2, 3, 4

Impinger #1 Knock Out	
Empty Wt:	
Final Wt:	
1 Gain:	
Colour:	

Impinger #2 Empty	
Empty Wt:	
Final Wt:	
2 Gain:	
Colour:	

Secondary Filter

Impinger #3 H_2O	
Empty Wt:	
Initial Wt:	
Final Wt:	
3 Gain:	
Colour:	

Impinger #4 Silica Gel	
Initial Wt:	
Final Wt:	
4 Gain:	
% Spent:	

CONTAINER TS5 & TS6
Perform nitrogen purge of imp 1 transfered to Impaction stem impinger (14 lpm for 1 hr)
** if there is no gain purge is not required.*

Purge On:
Purge Off:

Rinse all glassware from filter to 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:	
WCBDA=4:	

SAMPLE IDENTIFICATION	24-22327-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: DT
Train Recovered By:

APPENDIX 14

SVOC Train Recovery Data Sheets
(8 pages)

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC

22327

Sample Batch No.: 24-22327-SVOC-

Test No.: 1

Test Date: MAR 20/24

Test Location: UNIT 1

Sample ID 1	Sample ID 2	Sample ID 3	Sample ID 4	Sample ID 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: 282.0	Colour: WHITE	Initial Wt: 412.8	Impinger #1 Empty	Empty Wt: 412.0	Initial Wt: 961.4
After Acetone/ Hexane Rinse: 526.4	FOLD IN FOIL	1 Final Wt: 418.0	Empty Wt: 650.2	After Acetone/ Hexane Rinse: 598.0	Final Wt: 965.0
Total TS1: 244.4		Gain: 5.2	Final Wt: 976.5	5 Total TS5: 186.0	Gain: 20.6
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: 326.3		% Spent:
MARK FLUID LEVEL		SEAL TRAP	Colour: CLEAR		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Impinger #2 Ethylene Glycol		
		LABEL AS CONTAINER TS3	Empty Wt: 653.7		
			Initial Wt: 765.1		
			Final Wt: 963.3		
			3 Gain: 198.2		
			Colour: Clear		
			Impinger #3 Empty		
			Empty Wt: 475.2		
			Final Wt: 667.4		
			4 Gain: 192.2		
			Colour: clear		

Impinger Box ID: 12

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	50
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Container TS4 Weights	
Empty Wt:	414.0
With Imp Soln:	1229.5
After ~100g H_2O Rinse:	1346.0
Total TS4:	932.0

CWTR = 1 + 2 + 3 + 4: 721.9

WCBDA=5: 20.6

Train Loaded By: DU

Train Recovered By: DT

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
22327
Sample Batch No.: 24-22327-SVOC-

Test No.: 2
Test Date: MAR 20/24
Test Location: UNIT 1

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
		409			
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 282.0	Colour: WHITE	Initial Wt: 391.6	Impinger #1 Empty	Empty Wt: 404.5	Initial Wt: 892.9
After Acetone/ Hexane Rinse: 546.6	FOLD IN FOIL	1 Final Wt: 396.8	Empty Wt: 559.6	After Acetone/ Hexane Rinse: 608.0	Final Wt: 908.8
Total TS1: 264.6		Gain: 5.2	Final Wt: 1103.7	5 Total TS5: 203.5	Gain: 16.0
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: 544.1		% Spent:
		SEAL TRAP	Colour: clear		
MARK FLUID LEVEL			Impinger #2 Ethylene Glycol		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Empty Wt: 660.3		
			Initial Wt: 753.3		
		LABEL AS CONTAINER TS3	Final Wt: 972.3		
			3 Gain: 219.0		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 533.8		
			Final Wt: 533.8		
			4 Gain: 0		
			Colour: clear		
			Container TS4 Weights		
			Empty Wt: 403.5		
			With Imp Soln: 1251.0		
			After ~100g H_2O Rinse: 1374.0		
			Total TS4: 970.5		

Impinger Box ID: 6

CWTR = 1 + 2 + 3 + 4: 768.3

WCBDA=5: 16.0

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: DT
Train Recovered By:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC

22327

Sample Batch No.: 24-22327-SVOC-

Test No.: 3
Test Date: MAR 21/24
Test Location: UNIT 1

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
		46 393.4			
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 284.0	Colour: WHITE	Initial Wt: ~~405.3~~	Impinger #1 Empty	Empty Wt: 410.0	Initial Wt: 919.6
After Acetone/ Hexane Rinse: 490.4	FOLD IN FOIL	Final Wt: 400.6	Empty Wt: 602.5	After Acetone/ Hexane Rinse: 592.4	Final Wt: 939.0
Total TS1: 206.4		1 Gain: 7.2	Final Wt: 1124.7	5 Total TS5: 182.4	Gain: 19.4
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: 522.2		% Spent:
		SEAL TRAP	Colour: clear		
MARK FLUID LEVEL		WRAP IN FOIL	Impinger #2 Ethylene Glycol		
SEAL AND LABEL CONTAINER TS1		LABEL AS CONTAINER TS3	Empty Wt: 657.6		
			Initial Wt: ~~759.6~~		
			Final Wt: 984.0		
			3 Gain: 224.4		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 644.8		
			Final Wt: 645.5		
			4 Gain: 0.7		
			Colour: clear		

Impinger Box ID: 8

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	~~ST~~ 46
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Container TS4 Weights	
Empty Wt:	404.0
With Imp Soln:	1241.5
After ~100g H_2O Rinse:	1363.0
Total TS4:	959.0

CWTR = 1 + 2 + 3 + 4: 754.5

WCBDA=5: 19.4

Train Loaded By: KT

Train Recovered By:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC

22327

Sample Batch No.: 24-22327-SVOC-

Test No.: BLANK 1

Test Date: MAR 20/24

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
		47			
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 281.5	Colour: WHITE	Initial Wt: 405.3	Impinger #1 Empty	Empty Wt: 413.6	Initial Wt:
After Acetone/ Hexane Rinse: 411.5	FOLD IN FOIL	1 Final Wt: 405.3	Empty Wt: 494.0	After Acetone/ Hexane Rinse: 632.0	Final Wt:
Total TS1: 130.0		Gain: —	Final Wt: 494.0	5 Total TS5: 218.4	Gain:
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: —		% Spent:
			Colour: —		
MARK FLUID LEVEL		SEAL TRAP	Impinger #2 Ethylene Glycol		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Empty Wt: 460.5		
			Initial Wt: 562.0		
		LABEL AS CONTAINER TS3	Final Wt: 562.0		
			3 Gain: —		
			Colour: —		
			Impinger #3 Empty		
			Empty Wt: 570.0		
			Final Wt: 570.0		
			4 Gain: —		
			Colour: —		
			Container TS4 Weights		
			Empty Wt: 412.2		
			With Imp Soln: 520.0		
			After ~100g H_2O Rinse: 625.0		
			Total TS4: 212.8		

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: AT

Train Recovered By:

Impinger Box ID:

CWTR = 1 + 2 + 3 + 4:

WCBDA=5:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
22327
Sample Batch No.: 24-22327-SVOC-

Test No.: 1
Test Date: MAR 20/24
Test Location: UNIT 2

Sample ID 21	Sample ID 22	Sample ID 23	Sample ID 24	Sample ID 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
		53			
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 252.0	Colour: WHITE	Initial Wt: 389.7	Impinger #1 Empty	Empty Wt: 413.5	Initial Wt: 950.8
After Acetone/ Hexane Rinse: 465.0	FOLD IN FOIL	1 Final Wt: 393.9	Empty Wt: 619.1	After Acetone/ Hexane Rinse: 611.0	5 Final Wt: 963.8
Total TS1: 193.0	SEAL AND LABEL CONTAINER TS2	Gain: 4.2	2 Final Wt: 1134.5	Total TS5: 197.5	Gain: 13.0
MARK FLUID LEVEL		Colour: WHITE	Gain: 515.4		% Spent:
SEAL AND LABEL CONTAINER TS1		SEAL TRAP	Colour: clear		
		WRAP IN FOIL	Impinger #2 Ethylene Glycol		
		LABEL AS CONTAINER TS3	Empty Wt: 530.9		
			Initial Wt: 654.6		
			Final Wt: 794.2		
			3 Gain: 139.6		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 626.9		
			Final Wt: 627.2		
			4 Gain: 0.3		
			Colour: clear		
			Container TS4 Weights		
			Empty Wt: 412.5		
			With Imp Soln: 1181.5		
			After ~100g H_2O Rinse: 1332.0		
			Total TS4: 919.5		

Impinger Box ID: 14

CWTR = 1 + 2 + 3 + 4: 659.5

WCBDA=5: 13.0

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: DU
Train Recovered By: DT

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC

22327

Sample Batch No.: 24-22327-SVOC-

Test No.: 2

Test Date: MAR 20/24

Test Location: UNIT 2

Sample ID 26	Sample ID 27	Sample ID 28	Sample ID 29	Sample ID 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: 252.0	Colour: WHITE	Initial Wt: 330.0	Impinger #1 Empty	Empty Wt: 410.0	Initial Wt: 938.5
After Acetone/ Hexane Rinse: 523.4	FOLD IN FOIL	1 Final Wt: 336.2	Empty Wt: 444.8	After Acetone/ Hexane Rinse: 641.0	Final Wt: 952.8
Total TS1: 271.4	SEAL AND LABEL CONTAINER TS2	Gain: 6.2	Final Wt: 718.7 1144.5	5 Gain: 231.0	Gain: 14.3
MARK FLUID LEVEL		Colour: WHITE	2 Gain: 273.5	Total TS5:	% Spent:
SEAL AND LABEL CONTAINER TS1		SEAL TRAP	Colour: clear		
		WRAP IN FOIL	Impinger #2 Ethylene Glycol		
		LABEL AS CONTAINER TS3	Empty Wt: 562.2		
			Initial Wt: 718.7		
			Final Wt: 926.9		
			3 Gain: 208.2		
			Colour: clear		
			Impinger #3 Empty		
			Empty Wt: 627.7		
			Final Wt: 627.7		
			4 Gain: 0		
			Colour: —		
			Container TS4 Weights		
			Empty Wt: 408.5		
			With Imp Soln: 1267.0		
			After ~100g H_2O Rinse: 1406.5		
			Total TS4:		

Impinger Box ID: 15

CWTR = 1 + 2 + 3 + 4: 714.9

WCBDA=5: 14.3

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	45
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: DM

Train Recovered By: DT

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
22327
Sample Batch No.: 24-22327-SVOC-

Test No.: 3
Test Date: MAR 21/24
Test Location: UNIT 2

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
				43						
CONTAINER TS1		CONTAINER TS2		CONTAINER TS3		CONTAINER TS4		CONTAINER TS5		CONTAINER TS6 (Impinger)
Empty Wt:	281.5	Colour:	WHITE	Initial Wt:	391.2	Impinger #1 Empty		Empty Wt:	410.0	Initial Wt: 917.2
After Acetone/ Hexane Rinse:	514.0	FOLD IN FOIL		1 Final Wt:	393.2	Empty Wt:	612.0	After Acetone/ Hexane Rinse:	628.2	5 Final Wt: 932.6
Total TS1:	232.5	SEAL AND LABEL CONTAINER TS2		Gain:	7.0	Final Wt:	1147.8	Total TS5:	218.0	Gain: 15.4
MARK FLUID LEVEL				Colour:	WHITE	2 Gain:	535.8			% Spent:
SEAL AND LABEL CONTAINER TS1				SEAL TRAP		Colour:	Clear			
				WRAP IN FOIL		Impinger #2 Ethylene Glycol				
				LABEL AS CONTAINER TS3		Empty Wt:	~~687.0~~ 585.0			
						Initial Wt:	687.0			
						Final Wt:	796.5			
						3 Gain:	109.5			
						Colour:	clear			
						Impinger #3 Empty				
						Empty Wt:	~~525.0~~			
						Final Wt:	525.7			
						4 Gain:	0.7			
						Colour:	Clear			
						Container TS4 Weights				
						Empty Wt:	409.0			
						With Imp Soln:	1146.0			
						After ~100g H_2O Rinse:	1230.5			
						Total TS4:	829.5			

Impinger Box ID: 6

525.0

CWTR = 1 + 2 + 3 + 4: 653.0

WCBDA=5: 15.4

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: DT
Train Recovered By:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
22327
Sample Batch No.: 24-22327-SVOC-

Test No.: BLANK 2
Test Date: MAR 20/24
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	Impingers 1, 2 & 3	Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel
		48			
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4	CONTAINER TS5	CONTAINER TS6 (Impinger)
Empty Wt: 285.0	Colour: WHITE	Initial Wt: 353.6	Impinger #1 Empty	Empty Wt: 411.7	Initial Wt:
After Acetone/ Hexane Rinse: 510.0	FOLD IN FOIL	1 Final Wt: 353.6	Empty Wt: 602.0	After Acetone/ Hexane Rinse: 571.2	Final Wt:
Total TS1: 225.0		Gain: —	Final Wt: 602.0	Total TS5: 159.5	5 Gain:
	SEAL AND LABEL CONTAINER TS2	Colour: WHITE	2 Gain: —		% Spent:
			Colour: —		
MARK FLUID LEVEL		SEAL TRAP	Impinger #2 Ethylene Glycol		
SEAL AND LABEL CONTAINER TS1		WRAP IN FOIL	Empty Wt: 652.0		
			Initial Wt: 756.6		
		LABEL AS CONTAINER TS3	Final Wt: 756.6		
			3 Gain: —		
			Colour: —		
			Impinger #3 Empty		
			Empty Wt: 643.8		
			Final Wt: 643.8		
			4 Gain: —		
			Colour: —		
			Container TS4 Weights		
			Empty Wt: 412.0		
			With Imp Soln: 515.6		
			After ~100g H_2O Rinse: 618.0		
			Total TS4: 204.0		

Impinger Box ID:

CWTR = 1 + 2 + 3 + 4:

WCBDA=5:

Train & Proofing Identification	
Glassware Train Proofing Provided By:	ALS
Trap ID:	
H2O Batch No.:	ALS
Ethylene Gylcol Batch No.:	
Hexane Batch No.:	
Acetone Batch No.:	

Train Loaded By: DT
Train Recovered By:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

APPENDIX 15

SVOC Analytical Report
(70 pages)

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2755049		Mississauga, ON
Date of Report	11-Apr-24		L5J 2Y4
Date of Sample Receipt	22-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **PCDD/F by EPA M23**

For the sample 24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1, the recovery of 13C12-1,2,3,6,7,8-HxCDF standard was marginally above the method control limits. Target analytes, calculated via isotope dilutions are not expected to be biased. In addition, the recoveries of some of the labelled field standards were marginally below the method control limits.

Certified by:

Sabrina Jin
Technical Specialist

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Sample Analysis summary Report

Sample Name	24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1	24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1	24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1	24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1	24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2	24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2
ALS Sample ID	L2755049-1	L2755049-2	L2755049-3	L2755049-4	L2755049-5	L2755049-6
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	20-Mar-24	20-Mar-24	21-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
Extraction Date	3-Apr-24	3-Apr-24	3-Apr-24	3-Apr-24	3-Apr-24	3-Apr-24
Target Analytes	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
2,3,7,8-TCDD	<1.5	<1.3	<1.1	<0.61	<1.0	<0.72
1,2,3,7,8-PeCDD	3.90	4.25	4.45	<1.1	2.96	<2.0
1,2,3,4,7,8-HxCDD	5.90	5.60	5.06	<1.1	4.47	<4.3
1,2,3,6,7,8-HxCDD	<12	14.3	<11	<1.0	<9.8	13.5
1,2,3,7,8,9-HxCDD	8.36	7.86	6.82	<0.99	5.74	6.28
1,2,3,4,6,7,8-HpCDD	96.7	114	93.7	4.42	78.1	108
OCDD	115	151	110	8.95	81.9	132
2,3,7,8-TCDF	<1.8	10.2	2.40	<0.51	<1.2	<3.1
1,2,3,7,8-PeCDF	4.87	<6.5	<4.4	2.95	<4.1	<4.2
2,3,4,7,8-PeCDF	<6.4	15.3	<6.6	<0.85	<6.3	8.27
1,2,3,4,7,8-HxCDF	<3.6	6.93	<3.0	<0.53	<2.5	<3.6
1,2,3,6,7,8-HxCDF	5.61	8.36	4.93	<0.52	3.64	5.47
2,3,4,6,7,8-HxCDF	6.74	10.8	7.33	<0.54	6.63	<7.4
1,2,3,7,8,9-HxCDF	<2.4	<6.1	<2.2	<0.65	<2.0	3.24
1,2,3,4,6,7,8-HpCDF	17.2	26.8	<17	<0.79	12.0	20.6
1,2,3,4,7,8,9-HpCDF	<3.7	6.71	3.01	<0.98	2.44	<4.4
OCDF	16.7	<22	16.2	<2.7	<9.1	20.3
Field Spike Standards	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	97	96	77	104	103	100
13C12-1,2,3,4,7,8-HxCDD	87	85	65	98	89	81
13C12-2,3,4,7,8-PeCDF	94	94	65	106	98	81
13C12-1,2,3,4,7,8-HxCDF	81	80	61	95	85	74
13C12-1,2,3,4,7,8,9-HpCDF	87	83	65	95	87	82
Extraction Standards						
13C12-2,3,7,8-TCDD	75	81	95	77	77	82
13C12-1,2,3,7,8-PeCDD	78	83	92	73	84	80
13C12-1,2,3,6,7,8-HxCDD	91	94	123	99	94	113
13C12-1,2,3,4,6,7,8-HpCDD	82	87	104	82	89	98
13C12-OCDD	68	74	83	63	78	78
13C12-2,3,7,8-TCDF	82	86	111	90	81	101
13C12-1,2,3,7,8-PeCDF	70	78	88	71	78	75
13C12-1,2,3,6,7,8-HxCDF	98	100	136	106	98	122
13C12-1,2,3,4,6,7,8-HpCDF	84	89	111	87	90	103
Cleanup Standard						
13C12-1,2,3,7,8,9-HxCDF	101	97	118	107	94	110
Homologue Group Totals	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
Total-TCDD	82.8	91.2	96.5	<0.61	86.6	69.5
Total-PeCDD	153	95.2	92.3	<1.1	152	153
Total-HxCDD	265	247	262	<1.1	215	239
Total-HpCDD	203	235	198	4.42	156	218
Total-TCDF	38.9	268	44.9	0.574	16.6	31.4
Total-PeCDF	32.3	84.3	15.4	2.95	15.6	40.9
Total-HxCDF	42.2	69.0	26.4	<0.65	32.9	45.0
Total-HpCDF	17.2	33.5	9.48	<0.98	14.4	28.0
Toxic Equivalency - (WHO 2005)						
Lower Bound PCDD/F TEQ (WHO 2005)	7.89	16.8	8.11	0.135	5.96	6.66
Mid Point PCDD/F TEQ (WHO 2005)	13.3	18.2	13.1	1.42	10.5	11.0
Upper Bound PCDD/F TEQ (WHO 2005)	13.3	18.9	13.1	2.70	10.5	11.4

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Sample Analysis summary Report

Sample Name	24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2	24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2
ALS Sample ID	L2755049-7	L2755049-8
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	Stack	Stack
Sampling Date	21-Mar-24	20-Mar-24
Extraction Date	3-Apr-24	3-Apr-24
Target Analytes	**pg**	**pg**
2,3,7,8-TCDD	<0.85	<0.78
1,2,3,7,8-PeCDD	<2.4	<0.97
1,2,3,4,7,8-HxCDD	4.33	<0.96
1,2,3,6,7,8-HxCDD	11.2	<0.93
1,2,3,7,8,9-HxCDD	6.67	<0.91
1,2,3,4,6,7,8-HpCDD	100	2.37
OCDD	123	4.89
2,3,7,8-TCDF	2.36	<0.47
1,2,3,7,8-PeCDF	<2.7	2.19
2,3,4,7,8-PeCDF	5.32	<0.67
1,2,3,4,7,8-HxCDF	3.30	<0.48
1,2,3,6,7,8-HxCDF	4.84	<0.47
2,3,4,6,7,8-HxCDF	8.50	<0.48
1,2,3,7,8,9-HxCDF	<2.9	<0.59
1,2,3,4,6,7,8-HpCDF	16.9	<0.53
1,2,3,4,7,8,9-HpCDF	<3.2	<0.65
OCDF	18.2	2.49
Field Spike Standards	**% Rec**	**% Rec**
37Cl4-2,3,7,8-TCDD	104	109
13C12-1,2,3,4,7,8-HxCDD	96	100
13C12-2,3,4,7,8-PeCDF	101	112
13C12-1,2,3,4,7,8-HxCDF	90	95
13C12-1,2,3,4,7,8,9-HpCDF	98	103
Extraction Standards		
13C12-2,3,7,8-TCDD	83	69
13C12-1,2,3,7,8-PeCDD	81	69
13C12-1,2,3,6,7,8-HxCDD	101	100
13C12-1,2,3,4,6,7,8-HpCDD	92	93
13C12-OCDD	76	81
13C12-2,3,7,8-TCDF	94	84
13C12-1,2,3,7,8-PeCDF	77	64
13C12-1,2,3,6,7,8-HxCDF	110	106
13C12-1,2,3,4,6,7,8-HpCDF	93	93
Cleanup Standard		
13C12-1,2,3,7,8,9-HxCDF	107	101
Homologue Group Totals	**pg**	**pg**
Total-TCDD	86.3	<0.78
Total-PeCDD	44.6	<0.97
Total-HxCDD	266	<0.96
Total-HpCDD	194	2.37
Total-TCDF	32.3	<0.47
Total-PeCDF	25.6	2.19
Total-HxCDF	28.1	<0.59
Total-HpCDF	30.0	<0.65
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	6.93	0.0916
Mid Point PCDD/F TEQ (WHO 2005)	10.2	1.34
Upper Bound PCDD/F TEQ (WHO 2005)	10.6	2.58

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG3788861-1	WG3788861-2
Sample Size	1	1
Sample size units	sample	n/a
Percent Moisture	n/a	n/a
Sample Matrix	MEDIA	MEDIA
Sampling Date	n/a	n/a
Extraction Date	3-Apr-24	3-Apr-24
Target Analytes	**pg**	**% Rec**
2,3,7,8-TCDD	<0.61	96
1,2,3,7,8-PeCDD	<0.85	107
1,2,3,4,7,8-HxCDD	<0.92	95
1,2,3,6,7,8-HxCDD	<0.89	93
1,2,3,7,8,9-HxCDD	<0.87	96
1,2,3,4,6,7,8-HpCDD	3.09	101
OCDD	6.93	99
2,3,7,8-TCDF	<0.53	95
1,2,3,7,8-PeCDF	<2.3	113
2,3,4,7,8-PeCDF	<0.70	104
1,2,3,4,7,8-HxCDF	<0.69	88
1,2,3,6,7,8-HxCDF	<0.47	99
2,3,4,6,7,8-HxCDF	<1.2	88
1,2,3,7,8,9-HxCDF	<1.2	95
1,2,3,4,6,7,8-HpCDF	3.88	102
1,2,3,4,7,8,9-HpCDF	<0.69	95
OCDF	<3.9	105
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	85	72
13C12-1,2,3,7,8-PeCDD	87	75
13C12-1,2,3,6,7,8-HxCDD	106	102
13C12-1,2,3,4,6,7,8-HpCDD	99	87
13C12-OCDD	85	73
13C12-2,3,7,8-TCDF	95	86
13C12-1,2,3,7,8-PeCDF	77	67
13C12-1,2,3,6,7,8-HxCDF	113	109
13C12-1,2,3,4,6,7,8-HpCDF	100	91
Cleanup Standard		
13C12-1,2,3,7,8,9-HxCDF	106	106
Homologue Group Totals	**pg**	
Total-TCDD	<0.61	
Total-PeCDD	<0.74	
Total-HxCDD	<0.92	
Total-HpCDD	3.09	
Total-TCDF	<0.53	
Total-PeCDF	<0.74	
Total-HxCDF	<0.52	
Total-HpCDF	3.88	
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	0.0718	
Mid Point PCDD/F TEQ (WHO 2005)	1.92	
Upper Bound PCDD/F TEQ (WHO 2005)	2.50	

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Sample Analysis Report

Sample Name	**24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-1	Extraction Date	3-Apr-24		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-240409A09
Run Date	09-Apr-24 14:12
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	28.42	<1.5	0.84	J,R	1.5	30
1,2,3,7,8-PeCDD	1	31.47	3.90	1.0	J		150
1,2,3,4,7,8-HxCDD	0.1	33.65	5.90	1.9	J		150
1,2,3,6,7,8-HxCDD	0.1	33.72	<12	1.9	J,R	12	150
1,2,3,7,8,9-HxCDD	0.1	33.91	8.36	1.8	J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.16	96.7	1.2	J		150
OCDD	0.0003	39.01	115	2.8	J		300
2,3,7,8-TCDF	0.1	27.85	<1.8	1.5	M,J,R	1.8	30
1,2,3,7,8-PeCDF	0.03	30.74	4.87	1.1	M,J		150
2,3,4,7,8-PeCDF	0.3	31.37	<6.4	1.0	J,R	6.4	150
1,2,3,4,7,8-HxCDF	0.1	33.08	<3.6	0.86	J,R	3.6	150
1,2,3,6,7,8-HxCDF	0.1	33.17	5.61	0.84	J		150
2,3,4,6,7,8-HxCDF	0.1	33.59	6.74	0.87	J		150
1,2,3,7,8,9-HxCDF	0.1	34.30	<2.4	1.1	J,R	2.4	150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	17.2	0.60	J,B		150
1,2,3,4,7,8,9-HpCDF	0.01	36.81	<3.7	0.74	M,J,R	3.7	150
OCDF	0.0003	39.36	16.7	2.2	M,J		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.40	97	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.62	87	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.35	94	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.07	81	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.80	87	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.39	75	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.46	78	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	91	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	82	25-130			
13C12-OCDD	24000	39.00	68	25-130			
13C12-2,3,7,8-TCDF	12000	27.84	82	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.73	70	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	98	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	84	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	101	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	**LQL**
Total-TCDD	3	82.8	0.84	30
Total-PeCDD	7	153	1.0	150
Total-HxCDD	5	265	1.9	150
Total-HpCDD	2	203	1.2	150
Total-TCDF	6	38.9	1.5	30
Total-PeCDF	4	32.3	1.1	150
Total-HxCDF	8	42.2	1.1	150
Total-HpCDF	1	17.2	0.74	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	7.89
Mid Point PCDD/F TEQ (WHO 2005)	13.3
Upper Bound PCDD/F TEQ (WHO 2005)	13.3

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.
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	**24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-2	Extraction Date	3-Apr-24		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-240409A10
Run Date	09-Apr-24 14:56
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<1.3	1.3	U		30
1,2,3,7,8-PeCDD	1	31.47	4.25	1.1	M,J		150
1,2,3,4,7,8-HxCDD	0.1	33.64	5.60	0.78	J		150
1,2,3,6,7,8-HxCDD	0.1	33.71	14.3	0.76	J		150
1,2,3,7,8,9-HxCDD	0.1	33.91	7.86	0.74	J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.16	114	1.5	J		150
OCDD	0.0003	39.01	151	3.0	J		300
2,3,7,8-TCDF	0.1	27.84	10.2	1.4	J		30
1,2,3,7,8-PeCDF	0.03	30.74	<6.5	0.82	J,R	6.5	150
2,3,4,7,8-PeCDF	0.3	31.36	15.3	0.77	J		150
1,2,3,4,7,8-HxCDF	0.1	33.08	6.93	0.71	J		150
1,2,3,6,7,8-HxCDF	0.1	33.17	8.36	0.69	J		150
2,3,4,6,7,8-HxCDF	0.1	33.59	10.8	0.72	J		150
1,2,3,7,8,9-HxCDF	0.1	34.30	<6.1	0.87	J,R	6.1	150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	26.8	1.1	J,B		150
1,2,3,4,7,8,9-HpCDF	0.01	36.81	6.71	1.3	J		150
OCDF	0.0003	39.37	<22	2.7	M,J,R	22	300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.41	96	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.63	85	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.35	94	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.07	80	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.79	83	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.38	81	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	83	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.70	94	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	87	25-130			
13C12-OCDD	24000	39.00	74	25-130			
13C12-2,3,7,8-TCDF	12000	27.83	86	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.74	78	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	100	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	89	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.28	97	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	**LQL**
Total-TCDD	6	91.2	1.3	30
Total-PeCDD	4	95.2	1.1	150
Total-HxCDD	5	247	0.78	150
Total-HpCDD	2	235	1.5	150
Total-TCDF	16	268	1.4	30
Total-PeCDF	7	84.3	0.82	150
Total-HxCDF	8	69.0	0.87	150
Total-HpCDF	2	33.5	1.3	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	16.8
Mid Point PCDD/F TEQ (WHO 2005)	18.2
Upper Bound PCDD/F TEQ (WHO 2005)	18.9

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	**24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1**	Sampling Date	21-Mar-24		
ALS Sample ID	L2755049-3	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A11
Run Date	09-Apr-24 15:41
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	28.42	<1.1	0.92	M,J,R	1.1	30
1,2,3,7,8-PeCDD	1	31.48	4.45	0.85	J		150
1,2,3,4,7,8-HxCDD	0.1	33.65	5.06	0.70	J		150
1,2,3,6,7,8-HxCDD	0.1	33.72	<11	0.68	M,J,R	11	150
1,2,3,7,8,9-HxCDD	0.1	33.92	6.82	0.66	J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.17	93.7	1.1	J		150
OCDD	0.0003	39.02	110	2.4	J		300
2,3,7,8-TCDF	0.1	27.86	2.40	1.6	M,J		30
1,2,3,7,8-PeCDF	0.03	30.76	<4.4	1.0	J,R	4.4	150
2,3,4,7,8-PeCDF	0.3	31.37	<6.6	0.97	J,R	6.6	150
1,2,3,4,7,8-HxCDF	0.1	33.09	<3.0	0.45	J,R	3.0	150
1,2,3,6,7,8-HxCDF	0.1	33.18	4.93	0.44	J		150
2,3,4,6,7,8-HxCDF	0.1	33.60	7.33	0.46	J		150
1,2,3,7,8,9-HxCDF	0.1	34.30	<2.2	0.56	M,J,R	2.2	150
1,2,3,4,6,7,8-HpCDF	0.01	35.24	<17	1.0	M,J,R	17	150
1,2,3,4,7,8,9-HpCDF	0.01	36.81	3.01	1.3	M,J		150
OCDF	0.0003	39.39	16.2	1.6	J		300

Field Spike Standards	**pg**		**% Rec**	**Limits**
37Cl4-2,3,7,8-TCDD	1200	28.42	77	70-130
13C12-1,2,3,4,7,8-HxCDD	12000	33.64	65	70-130
13C12-2,3,4,7,8-PeCDF	12000	31.36	65	70-130
13C12-1,2,3,4,7,8-HxCDF	12000	33.07	61	70-130
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.81	65	70-130
Extraction Standards				
13C12-2,3,7,8-TCDD	12000	28.40	95	40-130
13C12-1,2,3,7,8-PeCDD	12000	31.47	92	40-130
13C12-1,2,3,6,7,8-HxCDD	12000	33.72	123	40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.16	104	25-130
13C12-OCDD	24000	39.01	83	25-130
13C12-2,3,7,8-TCDF	12000	27.84	111	40-130
13C12-1,2,3,7,8-PeCDF	12000	30.74	88	40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.17	136	40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	111	25-130
Cleanup Standard	**pg**			
13C12-1,2,3,7,8,9-HxCDF	18000	34.28	118	40-130

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	
Total-TCDD	4	96.5	0.92	30
Total-PeCDD	4	92.3	0.85	150
Total-HxCDD	5	262	0.70	150
Total-HpCDD	2	198	1.1	150
Total-TCDF	8	44.9	1.6	30
Total-PeCDF	2	15.4	1.0	150
Total-HxCDF	4	26.4	0.56	150
Total-HpCDF	2	9.48	1.3	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	8.11
Mid Point PCDD/F TEQ (WHO 2005)	13.1
Upper Bound PCDD/F TEQ (WHO 2005)	13.1

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.
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	**24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1**	Sampling Date	20-Mar-24		
ALS Sample ID	L2755049-4	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A12
Run Date	09-Apr-24 16:25
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<0.61	0.61	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<1.1	1.1	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<1.1	1.1	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<1.0	1.0	U		150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<0.99	0.99	U		150
1,2,3,4,6,7,8-HpCDD	0.01	36.18	4.42	1.4	M,J,B		150
OCDD	0.0003	39.02	8.95	3.6	M,J,B		300
2,3,7,8-TCDF	0.1	NotFnd	<0.51	0.51	U		30
1,2,3,7,8-PeCDF	0.03	30.76	2.95	0.90	M,J		150
2,3,4,7,8-PeCDF	0.3	NotFnd	<0.85	0.85	U		150
1,2,3,4,7,8-HxCDF	0.1	33.08	<0.53	0.53	U	0.45	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	NotFnd	<0.65	0.65	U		150
1,2,3,4,6,7,8-HpCDF	0.01	NotFnd	<0.79	0.79	U		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<0.98	0.98	U		150
OCDF	0.0003	NotFnd	<2.7	2.7	U		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.42	104	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.64	98	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.36	106	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.07	95	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.81	95	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.40	77	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.47	73	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.72	99	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.16	82	25-130			
13C12-OCDD	24000	39.00	63	25-130			
13C12-2,3,7,8-TCDF	12000	27.84	90	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.74	71	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.17	106	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	87	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.28	107	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<0.61	0.61	U	30
Total-PeCDD	0	<1.1	1.1	U	150
Total-HxCDD	0	<1.1	1.1	U	150
Total-HpCDD	1	4.42	1.4		150
Total-TCDF	1	0.574	0.51		30
Total-PeCDF	1	2.95	0.90		150
Total-HxCDF	0	<0.65	0.65	U	150
Total-HpCDF	0	<0.98	0.98	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.135
Mid Point PCDD/F TEQ (WHO 2005)	1.42
Upper Bound PCDD/F TEQ (WHO 2005)	2.70

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.
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	**24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2**	Sampling Date	20-Mar-24		
ALS Sample ID	L2755049-5	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A13
Run Date	09-Apr-24 17:09
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 Z8-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	28.40	<1.0	0.71	M,J,R	1.0	30
1,2,3,7,8-PeCDD	1	31.46	2.96	0.86	J		150
1,2,3,4,7,8-HxCDD	0.1	33.64	4.47	0.89	J		150
1,2,3,6,7,8-HxCDD	0.1	33.71	<9.8	0.86	J,R	9.8	150
1,2,3,7,8,9-HxCDD	0.1	33.91	5.74	0.84	J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.16	78.1	0.93	J		150
OCDD	0.0003	39.00	81.9	2.0	J		300
2,3,7,8-TCDF	0.1	27.87	<1.2	1.1	M,J,R	1.2	30
1,2,3,7,8-PeCDF	0.03	30.74	<4.1	1.1	J,R	4.1	150
2,3,4,7,8-PeCDF	0.3	31.36	<6.3	1.0	J,R	6.3	150
1,2,3,4,7,8-HxCDF	0.1	33.07	<2.5	0.48	J,R	2.5	150
1,2,3,6,7,8-HxCDF	0.1	33.17	3.64	0.47	J		150
2,3,4,6,7,8-HxCDF	0.1	33.59	6.63	0.49	J		150
1,2,3,7,8,9-HxCDF	0.1	34.28	<2.0	0.59	J,R	2.0	150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	12.0	0.50	J,B		150
1,2,3,4,7,8,9-HpCDF	0.01	36.80	2.44	0.62	M,J		150
OCDF	0.0003	39.36	<9.1	1.5	M,J,R	9.1	300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.40	103	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.62	89	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.35	98	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.06	85	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.80	87	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.39	77	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.46	84	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	94	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	89	25-130			
13C12-OCDD	24000	38.99	78	25-130			
13C12-2,3,7,8-TCDF	12000	27.82	81	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.73	78	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	98	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	90	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	94	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	**LQL**
Total-TCDD	5	86.6	0.71	30
Total-PeCDD	8	152	0.86	150
Total-HxCDD	4	215	0.89	150
Total-HpCDD	2	156	0.93	150
Total-TCDF	7	16.6	1.1	30
Total-PeCDF	3	15.6	1.1	150
Total-HxCDF	6	32.9	0.59	150
Total-HpCDF	2	14.4	0.62	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	5.96
Mid Point PCDD/F TEQ (WHO 2005)	10.5
Upper Bound PCDD/F TEQ (WHO 2005)	10.5

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.
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	**24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-6	Extraction Date	3-Apr-24		*K.NGUYEN*
Analysis Method	EPA M23	Sample Size	1	sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	7-240409A14
Run Date	09-Apr-24 17:53
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<0.72	0.72	U		30
1,2,3,7,8-PeCDD	1	31.46	<2.0	1.1	M,J,R	2.0	150
1,2,3,4,7,8-HxCDD	0.1	33.64	<4.3	1.1	J,R	4.3	150
1,2,3,6,7,8-HxCDD	0.1	33.71	13.5	1.1	J		150
1,2,3,7,8,9-HxCDD	0.1	33.90	6.28	1.1	J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.16	108	0.93	J		150
OCDD	0.0003	39.00	132	2.4	J		300
2,3,7,8-TCDF	0.1	27.85	<3.1	0.86	J,R	3.1	30
1,2,3,7,8-PeCDF	0.03	30.73	<4.2	1.1	J,R	4.2	150
2,3,4,7,8-PeCDF	0.3	31.36	8.27	1.1	M,J		150
1,2,3,4,7,8-HxCDF	0.1	33.07	<3.6	0.83	J,R	3.6	150
1,2,3,6,7,8-HxCDF	0.1	33.16	5.47	0.81	J		150
2,3,4,6,7,8-HxCDF	0.1	33.58	<7.4	0.84	J,R	7.4	150
1,2,3,7,8,9-HxCDF	0.1	34.29	3.24	1.0	J		150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	20.6	0.96	J,B		150
1,2,3,4,7,8,9-HpCDF	0.01	36.81	<4.4	1.2	M,J,R	4.4	150
OCDF	0.0003	39.35	20.3	1.9	M,J		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.40	100	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.62	81	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.35	81	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.06	74	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.78	82	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.39	82	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	80	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.70	113	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	98	25-130			
13C12-OCDD	24000	38.99	78	25-130			
13C12-2,3,7,8-TCDF	12000	27.82	101	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.72	75	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.15	122	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	103	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	110	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	**LQL**
Total-TCDD	3	69.5	0.72	30
Total-PeCDD	4	153	1.1	150
Total-HxCDD	4	239	1.1	150
Total-HpCDD	2	218	0.93	150
Total-TCDF	7	31.4	0.86	30
Total-PeCDF	6	40.9	1.1	150
Total-HxCDF	11	45.0	1.0	150
Total-HpCDF	2	28.0	1.2	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	6.66
Mid Point PCDD/F TEQ (WHO 2005)	11.0
Upper Bound PCDD/F TEQ (WHO 2005)	11.4

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	**24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2**	Sampling Date	21-Mar-24		
ALS Sample ID	L2755049-7	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A15
Run Date	09-Apr-24 18:38
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<0.85	0.85	U		30
1,2,3,7,8-PeCDD	1	31.46	<2.4	1.6	J,R	2.4	150
1,2,3,4,7,8-HxCDD	0.1	33.64	4.33	0.95	J		150
1,2,3,6,7,8-HxCDD	0.1	33.71	11.2	0.92	J		150
1,2,3,7,8,9-HxCDD	0.1	33.91	6.67	0.89	J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.16	100	1.4	J		150
OCDD	0.0003	39.00	123	2.4	J		300
2,3,7,8-TCDF	0.1	27.85	2.36	1.1	J		30
1,2,3,7,8-PeCDF	0.03	30.74	<2.7	1.2	J,R	2.7	150
2,3,4,7,8-PeCDF	0.3	31.36	5.32	1.1	J		150
1,2,3,4,7,8-HxCDF	0.1	33.08	3.30	0.85	J		150
1,2,3,6,7,8-HxCDF	0.1	33.17	4.84	0.83	J		150
2,3,4,6,7,8-HxCDF	0.1	33.59	8.50	0.86	J		150
1,2,3,7,8,9-HxCDF	0.1	34.30	<2.9	1.0	J,R	2.9	150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	16.9	0.71	J,B		150
1,2,3,4,7,8,9-HpCDF	0.01	36.80	<3.2	0.88	J,R	3.2	150
OCDF	0.0003	39.37	18.2	2.0	M,J		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.40	104	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.62	96	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.35	101	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.07	90	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.80	98	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.39	83	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.46	81	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	101	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	92	25-130			
13C12-OCDD	24000	38.99	76	25-130			
13C12-2,3,7,8-TCDF	12000	27.84	94	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.73	77	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	110	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	93	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	107	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**	**LQL**
Total-TCDD	6	86.3	0.85	30
Total-PeCDD	1	44.6	1.6	150
Total-HxCDD	6	266	0.95	150
Total-HpCDD	2	194	1.4	150
Total-TCDF	7	32.3	1.1	30
Total-PeCDF	5	25.6	1.2	150
Total-HxCDF	5	28.1	1.0	150
Total-HpCDF	3	30.0	0.88	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	6.93
Mid Point PCDD/F TEQ (WHO 2005)	10.2
Upper Bound PCDD/F TEQ (WHO 2005)	10.6

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	**24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2**	Sampling Date	20-Mar-24		
ALS Sample ID	L2755049-8	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A16
Run Date	09-Apr-24 19:22
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<0.78	0.78	U		30
1,2,3,7,8-PeCDD	1	NotFnd	<0.97	0.97	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<0.96	0.96	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<0.93	0.93	U		150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<0.91	0.91	U		150
1,2,3,4,6,7,8-HpCDD	0.01	36.17	2.37	0.77	M,J,B		150
OCDD	0.0003	38.99	4.89	2.2	M,J,B		300
2,3,7,8-TCDF	0.1	NotFnd	<0.47	0.47	U		30
1,2,3,7,8-PeCDF	0.03	30.74	2.19	0.72	J		150
2,3,4,7,8-PeCDF	0.3	NotFnd	<0.67	0.67	U		150
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<0.48	0.48	U		150
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<0.47	0.47	U		150
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<0.48	0.48	U		150
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<0.59	0.59	U		150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	<0.53	0.53	U	0.45	150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<0.65	0.65	U		150
OCDF	0.0003	39.36	2.49	1.5	M,J		300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	1200	28.40	109	70-130			
13C12-1,2,3,4,7,8-HxCDD	12000	33.62	100	70-130			
13C12-2,3,4,7,8-PeCDF	12000	31.35	112	70-130			
13C12-1,2,3,4,7,8-HxCDF	12000	33.06	95	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	12000	36.78	103	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.39	69	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	69	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.70	100	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	93	25-130			
13C12-OCDD	24000	38.99	81	25-130			
13C12-2,3,7,8-TCDF	12000	27.82	84	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.73	64	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	106	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	93	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	101	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<0.78	0.78	U	30
Total-PeCDD	0	<0.97	0.97	U	150
Total-HxCDD	0	<0.96	0.96	U	150
Total-HpCDD	1	2.37	0.77		150
Total-TCDF	0	<0.47	0.47	U	30
Total-PeCDF	1	2.19	0.72		150
Total-HxCDF	0	<0.59	0.59	U	150
Total-HpCDF	0	<0.65	0.65	U	150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.0916
Mid Point PCDD/F TEQ (WHO 2005)	1.34
Upper Bound PCDD/F TEQ (WHO 2005)	2.58

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.
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	WG3788861-1	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	sample	*K.NGUYEN*
Analysis Type	Blank	Percent Moisture	n/a		--e-signature--
Sample Matrix	MEDIA	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A07
Run Date	09-Apr-24 12:44
Final Volume	10 uL
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
2,3,7,8-TCDD	1	NotFnd	<0.61	0.61	U		30
1,2,3,7,8-PeCDD	1	31.48	<0.85	0.74	J,R	0.85	150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<0.92	0.92	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<0.89	0.89	U		150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<0.87	0.87	U		150
1,2,3,4,6,7,8-HpCDD	0.01	36.17	3.09	0.72	J		150
OCDD	0.0003	39.01	6.93	2.5	M,J		300
2,3,7,8-TCDF	0.1	NotFnd	<0.53	0.53	U		30
1,2,3,7,8-PeCDF	0.03	30.74	<2.3	0.74	J,R	2.3	150
2,3,4,7,8-PeCDF	0.3	NotFnd	<0.70	0.70	U		150
1,2,3,4,7,8-HxCDF	0.1	33.08	<0.69	0.43	J,R	0.69	150
1,2,3,6,7,8-HxCDF	0.1	33.17	<0.47	0.42	J,R	0.47	150
2,3,4,6,7,8-HxCDF	0.1	33.59	<1.2	0.43	M,J,R	1.2	150
1,2,3,7,8,9-HxCDF	0.1	34.28	<1.2	0.52	M,J,R	1.2	150
1,2,3,4,6,7,8-HpCDF	0.01	35.24	3.88	0.55	J		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<0.69	0.69	U		150
OCDF	0.0003	39.37	<3.9	1.6	M,J,R	3.9	300
Field Spike Standards	**pg**		**% Rec**	**Limits**			
37Cl4-2,3,7,8-TCDD	0		NS				
13C12-1,2,3,4,7,8-HxCDD	0		NS				
13C12-2,3,4,7,8-PeCDF	0		NS				
13C12-1,2,3,4,7,8-HxCDF	0		NS				
13C12-1,2,3,4,7,8,9-HpCDF	0		NS				
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.39	85	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.46	87	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	106	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	99	25-130			
13C12-OCDD	24000	38.99	85	25-130			
13C12-2,3,7,8-TCDF	12000	27.84	95	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.73	77	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	113	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	100	25-130			
Cleanup Standard	**pg**						
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	106	40-130			

Homologue Group Totals	**# peaks**	**Conc. pg**	**EDL pg**		**LQL**
Total-TCDD	0	<0.61	0.61	U	30
Total-PeCDD	0	<0.74	0.74	U	150
Total-HxCDD	0	<0.92	0.92	U	150
Total-HpCDD	1	3.09	0.72		150
Total-TCDF	0	<0.53	0.53	U	30
Total-PeCDF	0	<0.74	0.74	U	150
Total-HxCDF	0	<0.52	0.52	U	150
Total-HpCDF	1	3.88	0.69		150

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCDD/F TEQ (WHO 2005)	0.0718
Mid Point PCDD/F TEQ (WHO 2005)	1.92
Upper Bound PCDD/F TEQ (WHO 2005)	2.50

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.
NS	Indicates that this compound was not spiked.
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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Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a		
ALS Sample ID	WG3788861-2	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA M23	Sample Size	1	n/a	*K.NGUYEN*
Analysis Type	LCS	Percent Moisture	n/a		--e-signature--
Sample Matrix	MEDIA	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	7-240409A02
Run Date	09-Apr-24 10:34
Final Volume	10 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS 7 ZB-DX-1161297

Target Analytes	**pg**	**Ret. Time**	**% Rec**	**Limits**	**Flags**
2,3,7,8-TCDD	1200	28.42	96	70-130	
1,2,3,7,8-PeCDD	6000	31.48	107	70-130	
1,2,3,4,7,8-HxCDD	6000	33.65	95	70-130	
1,2,3,6,7,8-HxCDD	6000	33.72	93	70-130	
1,2,3,7,8,9-HxCDD	6000	33.91	96	70-130	
1,2,3,4,6,7,8-HpCDD	6000	36.17	101	70-130	
OCDD	12000	39.01	99	70-130	
2,3,7,8-TCDF	1200	27.85	95	70-130	
1,2,3,7,8-PeCDF	6000	30.74	113	70-130	
2,3,4,7,8-PeCDF	6000	31.37	104	70-130	
1,2,3,4,7,8-HxCDF	6000	33.08	88	70-130	
1,2,3,6,7,8-HxCDF	6000	33.18	99	70-130	
2,3,4,6,7,8-HxCDF	6000	33.59	88	70-130	
1,2,3,7,8,9-HxCDF	6000	34.29	95	70-130	
1,2,3,4,6,7,8-HpCDF	6000	35.24	102	70-130	
1,2,3,4,7,8,9-HpCDF	6000	36.81	95	70-130	
OCDF	12000	39.37	105	70-130	
Field Spike Standards	**pg**		**% Rec**	**Limits**	
37Cl4-2,3,7,8-TCDD	0		NS		
13C12-1,2,3,4,7,8-HxCDD	0		NS		
13C12-2,3,4,7,8-PeCDF	0		NS		
13C12-1,2,3,4,7,8-HxCDF	0		NS		
13C12-1,2,3,4,7,8,9-HpCDF	0		NS		
Extraction Standards					
13C12-2,3,7,8-TCDD	12000	28.40	72	40-130	
13C12-1,2,3,7,8-PeCDD	12000	31.46	75	40-130	
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	102	40-130	
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.16	87	25-130	
13C12-OCDD	24000	39.00	73	25-130	
13C12-2,3,7,8-TCDF	12000	27.84	86	40-130	
13C12-1,2,3,7,8-PeCDF	12000	30.74	67	40-130	
13C12-1,2,3,6,7,8-HxCDF	12000	33.17	109	40-130	
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	91	25-130	
Cleanup Standard	**pg**				
13C12-1,2,3,7,8,9-HxCDF	18000	34.28	106	40-130	

NS Indicates that this compound was not spiked.

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2755049		Mississauga, ON
Date of Report	11-Apr-24		L5J 2Y4
Date of Sample Receipt	22-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 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

For the laboratory control sample (LCS), the recoveries of many of the labelled extraction standards were marginally below the method control limits. However, the recoveries of the target analytes are all well in control. No bias to sample data is expected.

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1	24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1	24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1	24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1	24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2	24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2
ALS Sample ID	L2755049-1	L2755049-2	L2755049-3	L2755049-4	L2755049-5	L2755049-6
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	20-Mar-24	20-Mar-24	21-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
Extraction Date	3-Apr-24	3-Apr-24	3-Apr-24	3-Apr-24	3-Apr-24	3-Apr-24
Target Analytes	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
PCB-081	<8.3	20.6	<11	<3.9	<6.0	49.9
PCB-077	277	345	364	<6.4	49.3	1300
PCB-123	56.6	207	153	<4.3	<15	624
PCB-118	2930	11600	11300	<30	1200	46300
PCB-114	77.2	302	281	<4.2	33.2	1150
PCB-105	905	3780	3080	16.3	364	11900
PCB-126	<5.5	26.6	<11	<4.1	<6.8	30.1
PCB-167	27.4	104	72.7	<2.6	13.4	278
PCB-156/157	84.1	311	176	6.89	<30	626
PCB-169	<6.5	8.41	7.22	<2.6	<3.7	<8.7
PCB-189	<2.9	<2.4	<2.5	<2.0	<1.5	<3.4
Extraction Standards	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
13C12-PCB-081	52	51	52	47	51	56
13C12-PCB-077	53	51	53	46	51	57
13C12-PCB-123	55	50	52	45	51	56
13C12-PCB-118	56	53	54	46	53	65
13C12-PCB-114	53	49	52	44	50	56
13C12-PCB-105	55	52	54	47	54	57
13C12-PCB-126	55	52	54	48	54	58
13C12-PCB-167	56	54	55	48	55	59
13C12-PCB-156/157	57	54	57	48	55	60
13C12-PCB-169	59	57	59	51	58	62
13C12-PCB-189	51	48	51	45	50	54
Field Spike Standards						
13C12-PCB-031	104	102	102	102	104	105
13C12-PCB-095	71	73	72	72	71	73
13C12-PCB-153	98	96	94	94	93	90
Cleanup Standards						
13C12-PCB-028	52	47	42	45	45	49
13C12-PCB-111	58	51	50	52	51	57
13C12-PCB-178	61	55	53	53	54	59
Toxic Equivalency - (WHO 2005)	**pg**	**pg**	**pg**	**pg**	**pg**	**pg**
Lower Bound PCB TEQ	0.150	3.44	0.705	0.000696	0.0532	4.98
Mid Point PCB TEQ	0.896	3.44	1.81	0.247	0.791	5.24
Upper Bound PCB TEQ	0.898	3.44	1.81	0.492	0.847	5.24

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2	24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2
ALS Sample ID	L2755049-7	L2755049-8
Sample Size	1	1
Sample size units	Sample	Sample
Percent Moisture	n/a	n/a
Sample Matrix	Stack	Stack
Sampling Date	21-Mar-24	20-Mar-24
Extraction Date	3-Apr-24	3-Apr-24
Target Analytes	**pg**	**pg**
PCB-081	<10	<4.7
PCB-077	162	<4.8
PCB-123	78.9	<5.2
PCB-118	6020	<16
PCB-114	168	<5.3
PCB-105	2050	<5.5
PCB-126	<9.6	<5.2
PCB-167	60.6	<3.1
PCB-156/157	183	<4.5
PCB-169	<4.3	<3.2
PCB-189	3.37	<2.5
Extraction Standards	**% Rec**	**% Rec**
13C12-PCB-081	42	39
13C12-PCB-077	42	38
13C12-PCB-123	42	37
13C12-PCB-118	43	38
13C12-PCB-114	40	37
13C12-PCB-105	42	39
13C12-PCB-126	43	39
13C12-PCB-167	44	39
13C12-PCB-156/157	44	40
13C12-PCB-169	47	43
13C12-PCB-189	41	38
Field Spike Standards		
13C12-PCB-031	104	101
13C12-PCB-095	74	73
13C12-PCB-153	95	96
Cleanup Standards		
13C12-PCB-028	39	37
13C12-PCB-111	45	39
13C12-PCB-178	48	39
Toxic Equivalency - (WHO 2005)	**pg**	**pg**
Lower Bound PCB TEQ	0.273	0.00
Mid Point PCB TEQ	1.30	0.310
Upper Bound PCB TEQ	1.37	0.619

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Quality Control Summary Report

Sample Name	Method Blank
ALS Sample ID	WG3788861-1
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	MEDIA
Sampling Date	n/a
Extraction Date	3-Apr-24

Target Analytes	pg
PCB-081	<5.8
PCB-077	<5.8
PCB-123	<6.8
PCB-118	<6.3
PCB-114	<6.8
PCB-105	<6.2
PCB-126	<6.4
PCB-167	<5.3
PCB-156/157	<7.5
PCB-169	<5.2
PCB-189	<3.0
Extraction Standards	**% Rec**
13C12-PCB-081	30
13C12-PCB-077	29
13C12-PCB-123	29
13C12-PCB-118	30
13C12-PCB-114	28
13C12-PCB-105	30
13C12-PCB-126	32
13C12-PCB-167	32
13C12-PCB-156/157	33
13C12-PCB-169	36
13C12-PCB-189	32
Field Spike Standards	
13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS
Cleanup Standards	
13C12-PCB-028	27
13C12-PCB-111	29
13C12-PCB-178	31

Toxic Equivalency - (WHO 2005)	pg
Lower Bound PCB TEQ	0.00
Mid Point PCB TEQ	0.400
Upper Bound PCB TEQ	0.800

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Sample Analysis Summary Report

Sample Name	Laboratory Control Sample
ALS Sample ID	WG3788861-2
Sample Size	1
Sample size units	n/a
Percent Moisture	n/a
Sample Matrix	MEDIA
Sampling Date	n/a
Extraction Date	3-Apr-24
Target Analytes	**% Rec**
PCB-081	95
PCB-077	93
PCB-123	96
PCB-118	95
PCB-114	102
PCB-105	91
PCB-126	95
PCB-167	100
PCB-156/157	97
PCB-169	101
PCB-189	92
Extraction Standards	**% Rec**
13C12-PCB-081	32
13C12-PCB-077	32
13C12-PCB-123	33
13C12-PCB-118	33
13C12-PCB-114	32
13C12-PCB-105	35
13C12-PCB-126	36
13C12-PCB-167	36
13C12-PCB-156/157	37
13C12-PCB-169	40
13C12-PCB-189	36
Field Spike Standards	
13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS
Cleanup Standards	
13C12-PCB-028	29
13C12-PCB-111	34
13C12-PCB-178	36

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Sample Analysis Report

Sample Name	**24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1**	Sampling Date	20-Mar-24		
ALS Sample ID	L2755049-1	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA 1668C	Sample Size	1	Sample	*E. Sabljic*
Analysis Type	Sample	Percent Moisture	n/a		--e-signature--
Sample Matrix	Stack	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	5-240406A24
Run Date	07-Apr-24 08:46
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<8.3	8.3	U		150
PCB-077	0.0001	22.10	277	7.6			150
PCB-123	0.00003	23.05	56.6	5.3	M,J		150
PCB-118	0.00003	23.24	2930	4.8			150
PCB-114	0.00003	23.55	77.2	5.5	J		150
PCB-105	0.00003	23.91	905	5.1			150
PCB-126	0.1	25.49	<5.5	5.5	J,R	5.5	150
PCB-167	0.00003	26.36	27.4	4.3	J		150
PCB-156/157	0.00003	26.99	84.1	6.2	J		300
PCB-169	0.03	28.63	<6.5	4.6	M,J,R	6.5	150
PCB-189	0.00003	NotFnd	<2.9	2.9	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.78	52	10-145
13C12-PCB-077	12000	22.09	53	10-145
13C12-PCB-123	12000	23.06	55	10-145
13C12-PCB-118	12000	23.23	56	10-145
13C12-PCB-114	12000	23.53	53	10-145
13C12-PCB-105	12000	23.90	55	10-145
13C12-PCB-126	12000	25.47	55	10-145
13C12-PCB-167	12000	26.35	56	10-145
13C12-PCB-156/157	24000	27.00	57	10-145
13C12-PCB-169	12000	28.63	59	10-145
13C12-PCB-189	12000	29.90	51	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.82	104	70-130
13C12-PCB-095	12000	19.13	71	70-130
13C12-PCB-153	12000	24.14	98	70-130
Cleanup Standards				
13C12-PCB-028	18000	15.99	52	5-145
13C12-PCB-111	18000	21.99	58	10-145
13C12-PCB-178	18000	25.03	61	10-145

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.150
Mid Point PCB TEQ	0.896
Upper Bound PCB TEQ	0.898

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	**24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-2	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-240406A25
Run Date	07-Apr-24 09:28
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	21.79	20.6	8.0	M,J		150
PCB-077	0.0001	22.10	345	7.9			150
PCB-123	0.00003	23.06	207	6.8	M		150
PCB-118	0.00003	23.26	11600	6.0			150
PCB-114	0.00003	23.56	302	6.7			150
PCB-105	0.00003	23.92	3780	6.4			150
PCB-126	0.1	25.49	26.6	6.8	M,J		150
PCB-167	0.00003	26.37	104	4.5	J		150
PCB-156/157	0.00003	27.00	311	6.6			300
PCB-169	0.03	28.65	8.41	4.7	M,J		150
PCB-189	0.00003	NotFnd	<2.4	2.4	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.79	51	10-145
13C12-PCB-077	12000	22.09	51	10-145
13C12-PCB-123	12000	23.07	50	10-145
13C12-PCB-118	12000	23.24	53	10-145
13C12-PCB-114	12000	23.55	49	10-145
13C12-PCB-105	12000	23.91	52	10-145
13C12-PCB-126	12000	25.48	52	10-145
13C12-PCB-167	12000	26.36	54	10-145
13C12-PCB-156/157	24000	27.00	54	10-145
13C12-PCB-169	12000	28.65	57	10-145
13C12-PCB-189	12000	29.92	48	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.82	102	70-130
13C12-PCB-095	12000	19.14	73	70-130
13C12-PCB-153	12000	24.15	96	70-130
Cleanup Standards				
13C12-PCB-028	18000	15.99	47	5-145
13C12-PCB-111	18000	21.99	51	10-145
13C12-PCB-178	18000	25.04	55	10-145

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	3.44
Mid Point PCB TEQ	3.44
Upper Bound PCB TEQ	3.44

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.
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	**24-22327-SVOC-(11 THRU 1S) TEST#3 APC OUTLET #1**	Sampling Date	21-Mar-24		Approved:
ALS Sample ID	L2755049-3	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-240406A26
Run Date	07-Apr-24 10:10
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	21.80	<11	7.5	M,J,R	11	150
PCB-077	0.0001	22.10	364	7.3			150
PCB-123	0.00003	23.07	153	5.9	M		150
PCB-118	0.00003	23.26	11300	5.2			150
PCB-114	0.00003	23.56	281	5.8			150
PCB-105	0.00003	23.92	3080	5.6			150
PCB-126	0.1	25.49	<11	5.8	M,J,R	11	150
PCB-167	0.00003	26.37	72.7	3.9	J		150
PCB-156/157	0.00003	27.00	176	5.5	J		300
PCB-169	0.03	28.65	7.22	4.0	M,J		150
PCB-189	0.00003	29.92	<2.5	2.4	M,J,R	2.5	150
Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**			
13C12-PCB-081	12000	21.79	52	10-145			
13C12-PCB-077	12000	22.09	53	10-145			
13C12-PCB-123	12000	23.07	52	10-145			
13C12-PCB-118	12000	23.24	54	10-145			
13C12-PCB-114	12000	23.55	52	10-145			
13C12-PCB-105	12000	23.91	54	10-145			
13C12-PCB-126	12000	25.48	54	10-145			
13C12-PCB-167	12000	26.36	55	10-145			
13C12-PCB-156/157	24000	27.00	57	10-145			
13C12-PCB-169	12000	28.65	59	10-145			
13C12-PCB-189	12000	29.92	51	10-145			
Field Spike Standards							
13C12-PCB-031	12000	15.83	102	70-130			
13C12-PCB-095	12000	19.14	72	70-130			
13C12-PCB-153	12000	24.15	94	70-130			
Cleanup Standards							
13C12-PCB-028	18000	16.00	42	5-145			
13C12-PCB-111	18000	22.00	50	10-145			
13C12-PCB-178	18000	25.04	53	10-145			

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.705
Mid Point PCB TEQ	1.81
Upper Bound PCB TEQ	1.81

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.
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	**24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-4	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-240406A22
Run Date	07-Apr-24 07:21
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-2B3299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<3.9	3.9	U		150
PCB-077	0.0001	22.10	<6.4	4.0	J,R	6.4	150
PCB-123	0.00003	NotFnd	<4.3	4.3	U		150
PCB-118	0.00003	23.23	<30	3.9	J,R	30	150
PCB-114	0.00003	NotFnd	<4.2	4.2	U		150
PCB-105	0.00003	23.91	16.3	3.9	J		150
PCB-126	0.1	NotFnd	<4.1	4.1	U		150
PCB-167	0.00003	NotFnd	<2.6	2.6	U		150
PCB-156/157	0.00003	26.99	6.89	3.7	M,J		300
PCB-169	0.03	28.62	<2.6	2.6	M,U	2.0	150
PCB-189	0.00003	NotFnd	<2.0	2.0	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.78	47	10-145
13C12-PCB-077	12000	22.09	46	10-145
13C12-PCB-123	12000	23.06	45	10-145
13C12-PCB-118	12000	23.23	46	10-145
13C12-PCB-114	12000	23.53	44	10-145
13C12-PCB-105	12000	23.90	47	10-145
13C12-PCB-126	12000	25.47	48	10-145
13C12-PCB-167	12000	26.35	48	10-145
13C12-PCB-156/157	24000	26.99	48	10-145
13C12-PCB-169	12000	28.63	51	10-145
13C12-PCB-189	12000	29.90	45	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.81	102	70-130
13C12-PCB-095	12000	19.12	72	70-130
13C12-PCB-153	12000	24.14	94	70-130
Cleanup Standards				
13C12-PCB-028	18000	15.98	45	5-145
13C12-PCB-111	18000	21.98	52	10-145
13C12-PCB-178	18000	25.03	53	10-145

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.000696
Mid Point PCB TEQ	0.247
Upper Bound PCB TEQ	0.492

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	**24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-5	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-240406A27
Run Date	07-Apr-24 10:52
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<6.0	6.0	U		150
PCB-077	0.0001	22.12	49.3	5.5	J		150
PCB-123	0.00003	23.07	<15	5.8	M,J,R	15	150
PCB-118	0.00003	23.26	1200	5.2			150
PCB-114	0.00003	23.56	33.2	5.9	J		150
PCB-105	0.00003	23.92	364	5.3			150
PCB-126	0.1	25.49	<6.8	5.6	M,J,R	6.8	150
PCB-167	0.00003	26.36	13.4	3.6	M,J		150
PCB-156/157	0.00003	27.01	<30	5.2	J,R	30	300
PCB-169	0.03	28.66	<3.7	3.7	M,U	2.8	150
PCB-189	0.00003	NotFnd	<1.5	1.5	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.80	51	10-145
13C12-PCB-077	12000	22.10	51	10-145
13C12-PCB-123	12000	23.07	51	10-145
13C12-PCB-118	12000	23.24	53	10-145
13C12-PCB-114	12000	23.55	50	10-145
13C12-PCB-105	12000	23.91	54	10-145
13C12-PCB-126	12000	25.48	54	10-145
13C12-PCB-167	12000	26.36	55	10-145
13C12-PCB-156/157	24000	27.01	55	10-145
13C12-PCB-169	12000	28.65	58	10-145
13C12-PCB-189	12000	29.92	50	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.83	104	70-130
13C12-PCB-095	12000	19.14	71	70-130
13C12-PCB-153	12000	24.15	93	70-130
Cleanup Standards				
13C12-PCB-028	18000	15.99	45	5-145
13C12-PCB-111	18000	22.00	51	10-145
13C12-PCB-178	18000	25.04	54	10-145

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.0532
Mid Point PCB TEQ	0.791
Upper Bound PCB TEQ	0.847

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	**24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-6	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**	**Run 2**
Filename	5-240406A28	5-240409A13
Run Date	07-Apr-24 11:34	09-Apr-24 22:36
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SP8OCTYL-283299-05	HRMS-5 SP8OCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	21.79	49.9	10	M,J		150						
PCB-077	0.0001	22.10	1300	10			150						
PCB-123	0.00003	23.06	624	8.7	M		150						
PCB-118	0.00003							23.23	46300	51			1500
PCB-114	0.00003	23.55	1150	8.8			150						
PCB-105	0.00003	23.91	11900	8.4			150						
PCB-126	0.1	25.49	30.1	8.7	J		150						
PCB-167	0.00003	26.36	278	4.0			150						
PCB-156/157	0.00003	26.99	626	5.9			300						
PCB-169	0.03	28.63	<8.7	4.4	M,J,R	8.7	150						
PCB-189	0.00003	29.93	<3.4	2.3	J,R	3.4	150						

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.78	56	10-145			
13C12-PCB-077	12000	22.09	57	10-145			
13C12-PCB-123	12000	23.06	56	10-145			
13C12-PCB-118	12000				23.22	65	10-145
13C12-PCB-114	12000	23.53	56	10-145			
13C12-PCB-105	12000	23.90	57	10-145			
13C12-PCB-126	12000	25.47	58	10-145			
13C12-PCB-167	12000	26.35	59	10-145			
13C12-PCB-156/157	24000	26.99	60	10-145			
13C12-PCB-169	12000	28.63	62	10-145			
13C12-PCB-189	12000	29.90	54	10-145			
Field Spike Standards							
13C12-PCB-031	12000	15.81	105	70-130			
13C12-PCB-095	12000	19.13	73	70-130			
13C12-PCB-153	12000	24.15	90	70-130			
Cleanup Standards							
13C12-PCB-028	18000	15.98	49	5-145			
13C12-PCB-111	18000	21.98	57	10-145			
13C12-PCB-178	18000	25.03	59	10-145			

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	4.98
Mid Point PCB TEQ	5.24
Upper Bound PCB TEQ	5.24

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.
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	**24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2**	Sampling Date	21-Mar-24		Approved:
ALS Sample ID	L2755049-7	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-240406A29
Run Date	07-Apr-24 12:17
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<10	10	U		150
PCB-077	0.0001	22.10	162	9.9			150
PCB-123	0.00003	23.07	78.9	6.9	M,J		150
PCB-118	0.00003	23.26	6020	6.3			150
PCB-114	0.00003	23.56	168	7.2			150
PCB-105	0.00003	23.92	2050	6.6			150
PCB-126	0.1	25.50	<9.6	6.9	M,J,R	9.6	150
PCB-167	0.00003	26.36	60.6	4.3	J		150
PCB-156/157	0.00003	26.99	183	6.2	J		300
PCB-169	0.03	NotFnd	<4.3	4.3	U		150
PCB-189	0.00003	29.93	3.37	2.8	M,J		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.79	42	10-145
13C12-PCB-077	12000	22.09	42	10-145
13C12-PCB-123	12000	23.07	42	10-145
13C12-PCB-118	12000	23.24	43	10-145
13C12-PCB-114	12000	23.55	40	10-145
13C12-PCB-105	12000	23.91	42	10-145
13C12-PCB-126	12000	25.48	43	10-145
13C12-PCB-167	12000	26.36	44	10-145
13C12-PCB-156/157	24000	27.00	44	10-145
13C12-PCB-169	12000	28.65	47	10-145
13C12-PCB-189	12000	29.92	41	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.82	104	70-130
13C12-PCB-095	12000	19.13	74	70-130
13C12-PCB-153	12000	24.15	95	70-130
Cleanup Standards				
13C12-PCB-028	18000	15.99	39	5-145
13C12-PCB-111	18000	21.99	45	10-145
13C12-PCB-178	18000	25.04	48	10-145

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.273
Mid Point PCB TEQ	1.30
Upper Bound PCB TEQ	1.37

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	**24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2**	Sampling Date	20-Mar-24		Approved:
ALS Sample ID	L2755049-8	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	Sample	--e-signature--
Analysis Type	Sample	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	Stack	Split Ratio	6		

Run Information	**Run 1**
Filename	5-240406A23
Run Date	07-Apr-24 08:03
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<4.7	4.7	U		150
PCB-077	0.0001	NotFnd	<4.8	4.8	U		150
PCB-123	0.00003	NotFnd	<5.2	5.2	U		150
PCB-118	0.00003	23.26	<16	4.6	J,R	16	150
PCB-114	0.00003	NotFnd	<5.3	5.3	U		150
PCB-105	0.00003	23.92	<5.5	4.7	J,R	5.5	150
PCB-126	0.1	NotFnd	<5.2	5.2	U		150
PCB-167	0.00003	NotFnd	<3.1	3.1	U		150
PCB-156/157	0.00003	NotFnd	<4.5	4.5	U		300
PCB-169	0.03	NotFnd	<3.2	3.2	U		150
PCB-189	0.00003	NotFnd	<2.5	2.5	U		150

Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**
13C12-PCB-081	12000	21.79	39	10-145
13C12-PCB-077	12000	22.09	38	10-145
13C12-PCB-123	12000	23.06	37	10-145
13C12-PCB-118	12000	23.23	38	10-145
13C12-PCB-114	12000	23.53	37	10-145
13C12-PCB-105	12000	23.90	39	10-145
13C12-PCB-126	12000	25.47	39	10-145
13C12-PCB-167	12000	26.35	39	10-145
13C12-PCB-156/157	24000	27.00	40	10-145
13C12-PCB-169	12000	28.63	43	10-145
13C12-PCB-189	12000	29.90	38	10-145
Field Spike Standards				
13C12-PCB-031	12000	15.82	101	70-130
13C12-PCB-095	12000	19.13	73	70-130
13C12-PCB-153	12000	24.15	96	70-130
Cleanup Standards				
13C12-PCB-028	18000	15.98	37	5-145
13C12-PCB-111	18000	21.99	39	10-145
13C12-PCB-178	18000	25.03	39	10-145

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.00
Mid Point PCB TEQ	0.310
Upper Bound PCB TEQ	0.619

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.
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 Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a		
ALS Sample ID	WG378B861-1	Extraction Date	3-Apr-24		Approved:
Analysis Method	EPA 1668C	Sample Size	1	Sample	*E. Sabljic*
Analysis Type	Blank	Percent Moisture	n/a		--e-signature--
Sample Matrix	MEDIA	Split Ratio	6		10-Apr-2024

Run Information	**Run 1**
Filename	5-240406A20
Run Date	07-Apr-24 05:57
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL-283299-05

Target Analytes	**TEF (WHO 2005)**	**Ret. Time**	**Conc. pg**	**EDL pg**	**Flags**	**EMPC pg**	**LQL**
PCB-081	0.0003	NotFnd	<5.8	5.8	U		150
PCB-077	0.0001	NotFnd	<5.8	5.8	U		150
PCB-123	0.00003	NotFnd	<6.8	6.8	U		150
PCB-118	0.00003	23.27	<6.3	6.1	M,J,R	6.3	150
PCB-114	0.00003	NotFnd	<6.8	6.8	U		150
PCB-105	0.00003	NotFnd	<6.2	6.2	U		150
PCB-126	0.1	NotFnd	<6.4	6.4	U		150
PCB-167	0.00003	NotFnd	<5.3	5.3	U		150
PCB-156/157	0.00003	NotFnd	<7.5	7.5	U		300
PCB-169	0.03	NotFnd	<5.2	5.2	U		150
PCB-189	0.00003	NotFnd	<3.0	3.0	U		150
Extraction Standards	**pg**	**Time**	**% Rec**	**Limits**			
13C12-PCB-081	12000	21.79	30	10-145			
13C12-PCB-077	12000	22.09	29	10-145			
13C12-PCB-123	12000	23.06	29	10-145			
13C12-PCB-118	12000	23.23	30	10-145			
13C12-PCB-114	12000	23.55	28	10-145			
13C12-PCB-105	12000	23.90	30	10-145			
13C12-PCB-126	12000	25.48	32	10-145			
13C12-PCB-167	12000	26.35	32	10-145			
13C12-PCB-156/157	24000	27.00	33	10-145			
13C12-PCB-169	12000	28.65	36	10-145			
13C12-PCB-189	12000	29.90	32	10-145			
Field Spike Standards							
13C12-PCB-031	0		NS				
13C12-PCB-095	0		NS				
13C12-PCB-153	0		NS				
Cleanup Standards							
13C12-PCB-028	18000	15.99	27	5-145			
13C12-PCB-111	18000	21.99	29	10-145			
13C12-PCB-178	18000	25.04	31	10-145			

Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.00
Mid Point PCB TEQ	0.400
Upper Bound PCB TEQ	0.800

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.
NS	Indicates that this compound was not spiked.
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		Approved:
ALS Sample ID	WG3788861-2	Extraction Date	3-Apr-24		*E. Sabljic*
Analysis Method	EPA 1668C	Sample Size	1	n/a	--e-signature--
Analysis Type	LCS	Percent Moisture	n/a		10-Apr-2024
Sample Matrix	MEDIA	Split Ratio	1		

Run Information	**Run 1**
Filename	5-240406A18
Run Date	07-Apr-24 04:33
Final Volume	25 ul
Dilution Factor	1
Analysis Units	% Rec
Instrument - Column	HRMS-5 SPBOCTYL-2B3299-05

Target Analytes	**pg**	**Ret. Time**	**% Rec**	**Limits**	**Flags**
PCB-081	6000	21.81	95	60-135	
PCB-077	6000	22.11	93	60-135	
PCB-123	6000	23.09	96	60-135	
PCB-118	6000	23.26	95	60-135	
PCB-114	6000	23.56	102	60-135	
PCB-105	6000	23.92	91	60-135	
PCB-126	6000	25.49	95	60-135	
PCB-167	6000	26.37	100	60-135	
PCB-156/157	12000	27.03	97	60-135	
PCB-169	6000	28.66	101	60-135	
PCB-189	6000	29.93	92	60-135	
Extraction Standards		**Time**	**% Rec**	**Limits**	
13C12-PCB-081	12000	21.80	32	40-145	
13C12-PCB-077	12000	22.10	32	40-145	
13C12-PCB-123	12000	23.07	33	40-145	
13C12-PCB-118	12000	23.24	33	40-145	
13C12-PCB-114	12000	23.55	32	40-145	
13C12-PCB-105	12000	23.91	35	40-145	
13C12-PCB-126	12000	25.48	36	40-145	
13C12-PCB-167	12000	26.36	36	40-145	
13C12-PCB-156/157	24000	27.01	37	40-145	
13C12-PCB-169	12000	28.65	40	40-145	
13C12-PCB-189	12000	29.92	36	40-145	
Field Spike Standards					
13C12-PCB-031	0		NS		
13C12-PCB-095	0		NS		
13C12-PCB-153	0		NS		
Cleanup Standards					
13C12-PCB-028	18000	16.00	29	15-145	
13C12-PCB-111	18000	22.00	34	40-145	
13C12-PCB-178	18000	25.04	36	40-145	

NS Indicates that this compound was not spiked.

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 Rd.
ALS WO#:	L2755049		Mississauga, ON L5J 2Y4
Date of Report	16-Apr-24		Canada
Date of Sample Receipt	22-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **CB by HRGC/SRM QQQ - Isotope dilution**

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1		24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1		24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1		24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1	
ALS Sample ID	WG3788861-1		L2755049-1		L2755049-2		L2755049-3		L2755049-4	
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		20-Mar-24		20-Mar-24		21-Mar-24		20-Mar-24	
Extraction Date	3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
Chlorobenzene	<12	U	516		418		572		<12	U
1,3-Dichlorobenzene	<12	U	55.8		58.2		80.8		<12	U
1,4-Dichlorobenzene	13.3		50.5		60.0		56.3		17.7	B
1,2-Dichlorobenzene	<12	U	30.6		32.7		37.5		<12	U
1,3,5-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U
1,2,4-Trichlorobenzene	<12	U	<12	U	<12	U	15		<12	U
1,2,3-Trichlorobenzene	<12	U	<12	U	<12	U	16.4		<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<12	U	<12		<12		<12		<12	U
1,2,3,4-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U
Pentachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U
Hexachlorobenzene	<12	U	<12	U	<12	U	<12	U	<12	U
Extraction Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	
13C6-Chlorobenzene	30		30		22		28		27	
13C6-1,4-Dichlorobenzene	38		38		30		37		35	
13C6-1,2,3-Trichlorobenzene	38		38		30		38		35	
13C6-1,2,3,4-Tetrachlorobenzene	35		38		30		40		35	
13C6-Pentachlorobenzene	37		39		30		37		35	
13C6-Hexachlorobenzene	34		36		28		37		33	

U Indicates that this compound was not detected above the LOD.

B Indicates that this compound was detected in the method blank at greater than 10% of the sample value.

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2		24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2		24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2		24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2		Laboratory Control Sample	Laboratory Control Sample
ALS Sample ID	L2755049-5		L2755049-6		L2755049-7		L2755049-8		WG3788861-2	WG3788861-5
Sample Size	1		1		1		1		1	1
Sample units	sample		sample		sample		sample		n/a	n/a
Moisture Content	n/a		n/a		n/a		n/a		n/a	n/a
Matrix	Stack		Stack		Stack		Stack		QC	QC
Sampling Date	20-Mar-24		20-Mar-24		21-Mar-24		20-Mar-24		n/a	n/a
Extraction Date	3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24	3-Apr-24
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**% Recovery**	**% Recovery**
Chlorobenzene	649		197		621		<12	U	NS	NS
1,3-Dichlorobenzene	67.4		32.2		70.9		<12	U	100	110
1,4-Dichlorobenzene	54.8		30.4		48.7		22.6		96	128
1,2-Dichlorobenzene	45.5		18.4		45.8		<12	U	102	105
1,3,5-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	87	132
1,2,4-Trichlorobenzene	<12	U	<12	U	17.6		<12	U	89	109
1,2,3-Trichlorobenzene	<12	U	<12	U	<12	U	<12	U	94	116
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	108	125
1,2,3,4-Tetrachlorobenzene	<12	U	<12	U	<12	U	<12	U	108	114
Pentachlorobenzene	<12	U	<12	U	<12	U	<12	U	104	124
Hexachlorobenzene	<12	U	<12	U	<12	U	<12	U	115	125
Extraction Standards	**%Rec**		**%Rec**		**%Rec**		**%Rec**		**%Rec**	**%Rec**
13C6-Chlorobenzene	23		61		26		21		27	31
13C6-1,4-Dichlorobenzene	31		80		37		28		35	39
13C6-1,2,3-Trichlorobenzene	32		82		39		28		41	42
13C6-1,2,3,4-Tetrachlorobenzene	31		74		38		26		34	38
13C6-Pentachlorobenzene	31		74		43		26		36	41
13C6-Hexachlorobenzene	27		67		40		27		33	39

U Indicates that this compound was not detected above the LOD.
NS Indicates that this compound was not spiked.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3788861-1	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041014.D
Run Date	4/10/2024 19:03
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	3.86	<12	U
1,3-Dichlorobenzene	6.22	<12	U
1,4-Dichlorobenzene	6.22	13.3	
1,2-Dichlorobenzene	6.22	<12	U
1,3,5-Trichlorobenzene		<12	U
1,2,4-Trichlorobenzene		<12	U
1,2,3-Trichlorobenzene		<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen		<12	U
1,2,3,4-Tetrachlorobenzene		<12	U
Pentachlorobenzene	11.26	<12	U
Hexachlorobenzene	13.53	<12	U

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	3.99	30
13C6-1,4-Dichlorobenzene	300	6.22	38
13C6-1,2,3-Trichlorobenzene	300	8.62	38
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	35
13C6-Pentachlorobenzene	300	11.64	37
13C6-Hexachlorobenzene	300	13.27	34

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-1	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041020.D
Run Date	4/10/2024 21:06
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes		**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene		3.99	516	
1,3-Dichlorobenzene		6.13	55.8	
1,4-Dichlorobenzene		6.22	50.5	
1,2-Dichlorobenzene		6.51	30.6	
1,3,5-Trichlorobenzene		7.70	<12	U
1,2,4-Trichlorobenzene		8.20	<12	U
1,2,3-Trichlorobenzene		8.61	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen		9.56	<12	
1,2,3,4-Tetrachlorobenzene			<12	U
Pentachlorobenzene		11.41	<12	U
Hexachlorobenzene		13.40	<12	U
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	3.99	30	
13C6-1,4-Dichlorobenzene	300	6.22	38	
13C6-1,2,3-Trichlorobenzene	300	8.61	38	
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	38	
13C6-Pentachlorobenzene	300	11.64	39	
13C6-Hexachlorobenzene	300	13.26	36	

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-2	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041021.D
Run Date	4/10/2024 21:27
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes		**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene		3.99	418	
1,3-Dichlorobenzene		6.13	58.2	
1,4-Dichlorobenzene		6.22	60	
1,2-Dichlorobenzene		6.51	32.7	
1,3,5-Trichlorobenzene		7.69	<12	U
1,2,4-Trichlorobenzene		7.83	<12	U
1,2,3-Trichlorobenzene		8.20	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen			<12	
1,2,3,4-Tetrachlorobenzene			<12	U
Pentachlorobenzene		11.88	<12	U
Hexachlorobenzene		13.27	<12	U
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	3.98	22	
13C6-1,4-Dichlorobenzene	300	6.22	30	
13C6-1,2,3-Trichlorobenzene	300	8.62	30	
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	30	
13C6-Pentachlorobenzene	300	11.64	30	
13C6-Hexachlorobenzene	300	13.26	28	

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1**	Sampling Date	21-Mar-24
ALS Sample ID	L2755049-3	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041022.D
Run Date	4/10/2024 21:47
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes		**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene		3.99	572	
1,3-Dichlorobenzene		6.13	80.8	
1,4-Dichlorobenzene		6.22	56.3	
1,2-Dichlorobenzene		6.51	37.5	
1,3,5-Trichlorobenzene		7.70	<12	U
1,2,4-Trichlorobenzene		8.21	15	
1,2,3-Trichlorobenzene		8.62	16.4	
1,2,3,5/1,2,4,5-Tetrachlorobenzen		9.83	<12	
1,2,3,4-Tetrachlorobenzene			<12	U
Pentachlorobenzene		11.26	<12	U
Hexachlorobenzene		13.09	<12	U
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	3.99	28	
13C6-1,4-Dichlorobenzene	300	6.22	37	
13C6-1,2,3-Trichlorobenzene	300	8.61	38	
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	40	
13C6-Pentachlorobenzene	300	11.64	37	
13C6-Hexachlorobenzene	300	13.26	37	

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-4	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041018.D
Run Date	4/10/2024 20:25
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.20	<12	U
1,3-Dichlorobenzene	6.13	<12	U
1,4-Dichlorobenzene	6.22	17.7	B
1,2-Dichlorobenzene	6.22	<12	U
1,3,5-Trichlorobenzene	7.72	<12	U
1,2,4-Trichlorobenzene		<12	U
1,2,3-Trichlorobenzene		<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen		<12	U
1,2,3,4-Tetrachlorobenzene		<12	U
Pentachlorobenzene	11.65	<12	U
Hexachlorobenzene		<12	U

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	3.99	27
13C6-1,4-Dichlorobenzene	300	6.22	35
13C6-1,2,3-Trichlorobenzene	300	8.62	35
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	35
13C6-Pentachlorobenzene	300	11.64	35
13C6-Hexachlorobenzene	300	13.26	33

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-5	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041023.D
Run Date	4/10/2024 22:08
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	3.99	649	
1,3-Dichlorobenzene	6.13	67.4	
1,4-Dichlorobenzene	6.22	54.8	
1,2-Dichlorobenzene	6.52	45.5	
1,3,5-Trichlorobenzene	7.69	<12	U
1,2,4-Trichlorobenzene	8.20	<12	U
1,2,3-Trichlorobenzene	8.20	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	9.82	<12	U
1,2,3,4-Tetrachlorobenzene		<12	U
Pentachlorobenzene	11.64	<12	U
Hexachlorobenzene	13.26	<12	U

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	11.64	23
13C6-1,4-Dichlorobenzene	300	13.26	31
13C6-1,2,3-Trichlorobenzene	300	3.99	32
13C6-1,2,3,4-Tetrachlorobenzene	300	6.22	31
13C6-Pentachlorobenzene	300	8.61	31
13C6-Hexachlorobenzene	300	10.31	27

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-6	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041024.D
Run Date	4/10/2024 22:28
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	3.99	197	
1,3-Dichlorobenzene	6.13	32.2	
1,4-Dichlorobenzene	6.22	30.4	
1,2-Dichlorobenzene	6.52	18.4	
1,3,5-Trichlorobenzene	7.69	<12	U
1,2,4-Trichlorobenzene	8.20	<12	U
1,2,3-Trichlorobenzene	8.61	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	9.83	<12	U
1,2,3,4-Tetrachlorobenzene	10.30	<12	U
Pentachlorobenzene	11.64	<12	U
Hexachlorobenzene	13.10	<12	U

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	3.99	61
13C6-1,4-Dichlorobenzene	300	6.22	80
13C6-1,2,3-Trichlorobenzene	300	8.61	82
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	74
13C6-Pentachlorobenzene	300	11.64	74
13C6-Hexachlorobenzene	300	13.26	67

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2**	Sampling Date	21-Mar-24
ALS Sample ID	L2755049-7	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041025.D
Run Date	4/10/2024 22:49
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes		**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene		3.99	621	
1,3-Dichlorobenzene		6.13	70.9	
1,4-Dichlorobenzene		6.22	48.7	
1,2-Dichlorobenzene		6.51	45.8	
1,3,5-Trichlorobenzene		7.71	<12	U
1,2,4-Trichlorobenzene		8.21	17.6	
1,2,3-Trichlorobenzene		8.62	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen		9.80	<12	U
1,2,3,4-Tetrachlorobenzene			<12	U
Pentachlorobenzene		11.65	<12	U
Hexachlorobenzene			<12	U
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	3.98	26	
13C6-1,4-Dichlorobenzene	300	6.22	37	
13C6-1,2,3-Trichlorobenzene	300	8.61	39	
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	38	
13C6-Pentachlorobenzene	300	11.64	43	
13C6-Hexachlorobenzene	300	13.26	40	

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-8	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041019.D
Run Date	4/10/2024 20:46
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Chlorobenzene	4.20	<12	U
1,3-Dichlorobenzene	6.13	<12	U
1,4-Dichlorobenzene	6.22	22.6	
1,2-Dichlorobenzene	6.40	<12	U
1,3,5-Trichlorobenzene	7.72	<12	U
1,2,4-Trichlorobenzene	8.63	<12	U
1,2,3-Trichlorobenzene	8.69	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzen	9.56	<12	U
1,2,3,4-Tetrachlorobenzene		<12	U
Pentachlorobenzene	11.77	<12	U
Hexachlorobenzene		<12	U

Extraction Standards			**%Rec**
13C6-Chlorobenzene	300	3.99	21
13C6-1,4-Dichlorobenzene	300	6.22	28
13C6-1,2,3-Trichlorobenzene	300	8.62	28
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	26
13C6-Pentachlorobenzene	300	11.64	26
13C6-Hexachlorobenzene	300	13.26	27

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	WG3788861-2	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041012.D
Run Date	4/10/2024 18:22
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**
Chlorobenzene	0		NS	
1,3-Dichlorobenzene	300	6.13	100	
1,4-Dichlorobenzene	300	6.22	96	
1,2-Dichlorobenzene	300	6.51	102	
1,3,5-Trichlorobenzene	300	7.69	87	
1,2,4-Trichlorobenzene	300	8.21	89	
1,2,3-Trichlorobenzene	300	8.62	94	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	600	9.83	108	
1,2,3,4-Tetrachlorobenzene	300	10.31	108	
Pentachlorobenzene	300	11.64	104	
Hexachlorobenzene	300	13.27	115	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	3.99	27	
13C6-1,4-Dichlorobenzene	300	6.22	35	
13C6-1,2,3-Trichlorobenzene	300	8.62	41	
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	34	
13C6-Pentachlorobenzene	300	11.64	36	
13C6-Hexachlorobenzene	300	13.26	33	

NS Indicates that this compound was not spiked.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3788861-5	Extraction Date	3-Apr-24
Analysis Method	CB by 8270		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6		

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24041011.D
Run Date	4/10/2024 18:01
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US0587231

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**
Chlorobenzene	0		NS	
1,3-Dichlorobenzene	45	6.14	110	
1,4-Dichlorobenzene	45	6.22	128	
1,2-Dichlorobenzene	45	6.52	105	
1,3,5-Trichlorobenzene	45	7.69	132	
1,2,4-Trichlorobenzene	45	8.21	109	
1,2,3-Trichlorobenzene	45	8.62	116	
1,2,3,5/1,2,4,5-Tetrachlorobenzen	90	9.83	125	
1,2,3,4-Tetrachlorobenzene	45	10.32	114	
Pentachlorobenzene	45	11.64	124	
Hexachlorobenzene	45	13.27	125	
Extraction Standards			**%Rec**	
13C6-Chlorobenzene	300	3.99	31	
13C6-1,4-Dichlorobenzene	300	6.22	39	
13C6-1,2,3-Trichlorobenzene	300	8.62	42	
13C6-1,2,3,4-Tetrachlorobenzene	300	10.31	38	
13C6-Pentachlorobenzene	300	11.64	41	
13C6-Hexachlorobenzene	300	13.27	39	

NS Indicates that this compound was not spiked.

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2755049		Mississauga, ON L5J 2Y4
Date of Report	26-Apr-24		Canada
Date of Sample Receipt	22-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **Chlorophenols by modifed EPA 8270E - isotope dilution**

Revised extraction scheme designed for improved monochlorobenzene recoveries removed the acidied/extraction step that enhanced chlorophenol recoveries. Therefore chlorophenol recoveries were in some cases very low.
Re-analysis using another fraction of the extract (on extracts where chlorobenzene fracton that showed good recoveries of the chlorobenzenes) did not provide improved data but showed similar recoveries.
Reporting limits were raised for very low recoveries corresponding to observable levels after correction for recoveries..
LCS target recoveries confirmed that in general targets by isotope dilution technique still provided estimates of chlorophenols even in the presence of poor ES recoveries.
Selected samples with very low monochlorophenol ES recovies had insufficient responses to provide even estimates on the monochlorophenol targets.

Certified by:

Ron McLeod, Ph.D.
Technical Director

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Media Blank		24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1		24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1		24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1		24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1	
ALS Sample ID	WG3788861-1		L2755049-1		L2755049-2		L2755049-3		L2755049-4	
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		20-Mar-24		20-Mar-24		21-Mar-24		20-Mar-24	
Extraction Date	3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
2-Chlorophenol	<60	U	<300	U	<1000	U	N/A		N/A	
3/4-Chlorophenol	<60	U	<300	U	<1000	U	N/A		N/A	
2,4/2,5-Dichlorophenol	<60	U	<300	U	<1000	U	<1000	U	<500	U
2,3-Dichlorophenol	<200	U	<300	U	<1000	U	<1000	U	<500	U
2,6-Dichlorophenol	<200	U	<300	U	<1000	U	<1000	U	<500	U
3,5-Dichlorophenol	<200	U	<300	U	<1000	U	<1000	U	1210	
3,4-Dichlorophenol	<200	U	787	M	3980		2570		1930	
2,3,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,4,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	<60	U
2,4,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	82.6	
2,3,4-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
3,4,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	249	
2,3,5,6-Tetrachlorophenol	<60	U	<60	U	83.1		114		60.4	
2,3,4,5/2,3,4,6-Tetrachlorophenol	<60	U	119	M	160	M	205		146	M
Pentachlorophenol	<60	U	278	M	1400		273		215	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
13C6-4-Chlorophenol (ES)	20.9		2.9	M	1.0	M	0.2	M	0.3	
13C6-2,4-Dichlorophenol (ES)	5.0		6.3		0.7		1.1		2.0	
13C6-2,4,5-Trichlorophenol (ES)	34.3		40.9		16.4		3.3		30.7	
13C6-2,3,4,5-Tetrachlorophenol (ES)	58.1		86.8		53.1	M	31.5		76.0	
13C6-Pentachlorophenol (ES)	22.3		27.4		6.3	M	18.6		33.7	

U Indicates that this compound was not detected above the LOD.

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2		24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2		24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2		24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2		Laboratory Control Sample	Laboratory Control Sample	
ALS Sample ID	L2755049-5		L2755049-6		L2755049-7		L2755049-8		WG3788861-2	WG3788861-5	
Sample Size	1		1		1		1		1	1	
Sample units	sample		sample		sample		sample		n/a	n/a	
Moisture Content	n/a		n/a		n/a		n/a		n/a	n/a	
Matrix	Stack		Stack		Stack		Stack		QC	QC	
Sampling Date	20-Mar-24		20-Mar-24		21-Mar-24		20-Mar-24		n/a	n/a	
Extraction Date	3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24	3-Apr-24	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**% Recovery**	**% Recovery**	
2-Chlorophenol	N/A		N/A		<1000	U	<500	U	121	64	
3/4-Chlorophenol	N/A		N/A		<1000	U	<500	U			
2,4/2,5-Dichlorophenol	<1000	U	<1000	U	<1000	U	<500	U	60	62	
2,3-Dichlorophenol	<1000	U	<1000	U	<1000	U	<500	U			
2,6-Dichlorophenol	<1000	U	<1000	U	<1000	U	<500	U	68	58	
3,5-Dichlorophenol	<1000	U	<1000	U	<1000	U	856				
3,4-Dichlorophenol	2940		1400		1790		1270	M			
2,3,5-Trichlorophenol	<60	U	<60	U	<60	U	<60	U			
2,4,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U	18	53	
2,4,5-Trichlorophenol	<60	U	<60	U	<60	U	86.4		113	174	
2,3,4-Trichlorophenol	<60	U	<60	U	<60	U	<60	U			
2,3,6-Trichlorophenol	<60	U	<60	U	<60	U	<60	U			
3,4,5-Trichlorophenol	1110	M	<60	U	<60	U	251				
2,3,5,6-Tetrachlorophenol	72.6		60.7	M	73.1		64.9		99	46	
2,3,4,5/2,3,4,6-Tetrachlorophenol	162		164	M	173	M	124	M	80	61	M
Pentachlorophenol	1070		90.3	M	107		247		130	119	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	**% Rec**	
13C6-4-Chlorophenol (ES)	0.2	M	0.2	M	0.9	M	1.4	M	75.3	2.2	M
13C6-2,4-Dichlorophenol (ES)	0.4	M	1.5		1.6	M	3.6	M	49.7	1.3	
13C6-2,4,5-Trichlorophenol (ES)	4.2		3.1		2.5	M	39.8	M	71.0	4.1	
13C6-2,3,4,5-Tetrachlorophenol (ES)	38.0		38.8		35.1	M	95.3	M	101.1	21	
13C6-Pentachlorophenol (ES)	4.4		51		37.2	M	33.8		54.9	8.2	

U Indicates that this compound was not detected above the LOD.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Media Blank**	Sampling Date	n/a
ALS Sample ID	WG3788861-1	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	Blank		
Sample Matrix	QC		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041116.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.02	<60	U
3/4-Chlorophenol	8.34	<60	U
2,4/2,5-Dichlorophenol	8.14	<60	U
2,3-Dichlorophenol	8.29	<200	U
2,6-Dichlorophenol	8.53	<200	U
3,5-Dichlorophenol	10.33	<200	U
3,4-Dichlorophenol	10.62	<200	U
2,3,5-Trichlorophenol	9.89	<60	U
2,4,6-Trichlorophenol	10.06	<60	U
2,4,5-Trichlorophenol	10.13	<60	U
2,3,4-Trichlorophenol	10.23	<60	U
2,3,6-Trichlorophenol	10.37	<60	U
3,4,5-Trichlorophenol	12.50	<60	U
2,3,5,6-Tetrachlorophenol	11.86	<60	U
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.94	<60	U
Pentachlorophenol	13.63	<60	U

Extraction Standards				**Limits**
13C6-4-Chlorophenol (ES)	1200	8.39	20.9	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.13	5	50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.13	34.3	50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.91	58.1	50-150
13C6-Pentachlorophenol (ES)	1200	13.62	22.3	50-150

U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-1	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041120.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.05	<300	U
3/4-Chlorophenol	8.31	<300	U
2,4/2,5-Dichlorophenol	8.11	<300	U
2,3-Dichlorophenol	8.11	<300	U
2,6-Dichlorophenol	8.50	<300	U
3,5-Dichlorophenol	10.31	<300	U
3,4-Dichlorophenol	10.57	787	M
2,3,5-Trichlorophenol	9.87	<60	U
2,4,6-Trichlorophenol	10.02	<60	U
2,4,5-Trichlorophenol	10.10	<60	U
2,3,4-Trichlorophenol	10.10	<60	U
2,3,6-Trichlorophenol	10.34	<60	U
3,4,5-Trichlorophenol	12.41	<60	U
2,3,5,6-Tetrachlorophenol	11.83	<60	U
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.88	119	M
Pentachlorophenol	13.59	278	M

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.38	2.9	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.11	6.3		50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.10	40.9		50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.88	86.8		50-150
13C6-Pentachlorophenol (ES)	1200	13.59	27.4		50-150

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	**24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-2	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041121.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.02	<1000	U
3/4-Chlorophenol	8.31	<1000	U
2,4/2,5-Dichlorophenol	8.10	<1000	U
2,3-Dichlorophenol	8.10	<1000	U
2,6-Dichlorophenol	8.10	<1000	U
3,5-Dichlorophenol	10.31	<1000	U
3,4-Dichlorophenol	10.56	3980	
2,3,5-Trichlorophenol	9.61	<60	U
2,4,6-Trichlorophenol	10.06	<60	U
2,4,5-Trichlorophenol	10.10	<60	U
2,3,4-Trichlorophenol	10.10	<60	U
2,3,6-Trichlorophenol	10.34	<60	U
3,4,5-Trichlorophenol	12.37	<60	U
2,3,5,6-Tetrachlorophenol	11.83	83.1	
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.88	160	M
Pentachlorophenol	13.59	1400	

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.36	1	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.10	0.7		50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.10	16.4		50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.87	53.1	M	50-150
13C6-Pentachlorophenol (ES)	1200	13.59	6.3	M	50-150

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	**24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1**	Sampling Date	21-Mar-24
ALS Sample ID	L2755049-3	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041122.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.02	N/A	
3/4-Chlorophenol	8.36	N/A	
2,4/2,5-Dichlorophenol	7.85	<1000	U
2,3-Dichlorophenol	7.85	<1000	U
2,6-Dichlorophenol	9.06	<1000	U
3,5-Dichlorophenol	10.31	<1000	U
3,4-Dichlorophenol	10.57	2570	
2,3,5-Trichlorophenol	10.10	<60	U
2,4,6-Trichlorophenol	10.10	<60	U
2,4,5-Trichlorophenol	10.10	<60	U
2,3,4-Trichlorophenol	10.26	<60	U
2,3,6-Trichlorophenol	10.26	<60	U
3,4,5-Trichlorophenol	12.37	<60	U
2,3,5,6-Tetrachlorophenol	11.82	114	
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.88	205	
Pentachlorophenol	13.59	273	

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.38	0.2	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.11	1.1		50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.09	3.3		50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.87	31.5		50-150
13C6-Pentachlorophenol (ES)	1200	13.58	18.6		50-150

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	**24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-4	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041118.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.01	N/A	
3/4-Chlorophenol	8.31	N/A	
2,4/2,5-Dichlorophenol	8.13	<500	U
2,3-Dichlorophenol	8.26	<500	U
2,6-Dichlorophenol	8.50	<500	U
3,5-Dichlorophenol	10.30	1210	
3,4-Dichlorophenol	10.56	1930	
2,3,5-Trichlorophenol	9.85	<60	U
2,4,6-Trichlorophenol	10.02	<60	U
2,4,5-Trichlorophenol	10.09	82.6	
2,3,4-Trichlorophenol	10.20	<60	U
2,3,6-Trichlorophenol	10.20	<60	U
3,4,5-Trichlorophenol	12.41	249	
2,3,5,6-Tetrachlorophenol	11.82	60.4	
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.87	146	M
Pentachlorophenol	13.58	215	

Extraction Standards			**% Rec**	**Limits**
13C6-4-Chlorophenol (ES)	1200	8.32	0.3	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.10	2	50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.09	30.7	50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.87	76	50-150
13C6-Pentachlorophenol (ES)	1200	13.58	33.7	50-150

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	**24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-5	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041123.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.02	N/A	
3/4-Chlorophenol	8.31	N/A	
2,4/2,5-Dichlorophenol	8.10	<1000	U
2,3-Dichlorophenol	8.26	<1000	U
2,6-Dichlorophenol	8.50	<1000	U
3,5-Dichlorophenol	10.31	<1000	U
3,4-Dichlorophenol	10.57	2940	
2,3,5-Trichlorophenol	9.86	<60	U
2,4,6-Trichlorophenol	10.03	<60	U
2,4,5-Trichlorophenol	10.10	<60	U
2,3,4-Trichlorophenol	10.10	<60	U
2,3,6-Trichlorophenol	10.31	<60	U
3,4,5-Trichlorophenol	12.43	1110	M
2,3,5,6-Tetrachlorophenol	11.83	72.6	
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.88	162	
Pentachlorophenol	13.58	1070	

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.35	0.2	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.11	0.4	M	50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.10	4.2		50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.87	38		50-150
13C6-Pentachlorophenol (ES)	1200	13.58	4.4		50-150

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	**24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-6	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041124.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.02	N/A	
3/4-Chlorophenol	8.31	N/A	
2,4/2,5-Dichlorophenol	8.15	<1000	U
2,3-Dichlorophenol	8.15	<1000	U
2,6-Dichlorophenol	8.50	<1000	U
3,5-Dichlorophenol	10.32	<1000	U
3,4-Dichlorophenol	10.57	1400	
2,3,5-Trichlorophenol	9.61	<60	U
2,4,6-Trichlorophenol	10.11	<60	U
2,4,5-Trichlorophenol	10.31	<60	U
2,3,4-Trichlorophenol	10.31	<60	U
2,3,6-Trichlorophenol	10.31	<60	U
3,4,5-Trichlorophenol	12.37	<60	U
2,3,5,6-Tetrachlorophenol	11.83	60.7	M
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.89	164	M
Pentachlorophenol	13.59	90.3	M

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.34	0.2	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.12	1.5		50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.10	3.1		50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.88	38.8		50-150
13C6-Pentachlorophenol (ES)	1200	13.59	51		50-150

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	**24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2**	Sampling Date	21-Mar-24
ALS Sample ID	L2755049-7	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041125.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.02	<1000	U
3/4-Chlorophenol	8.31	<1000	U
2,4/2,5-Dichlorophenol	8.15	<1000	U
2,3-Dichlorophenol	8.15	<1000	U
2,6-Dichlorophenol	8.50	<1000	U
3,5-Dichlorophenol	10.06	<1000	U
3,4-Dichlorophenol	10.58	1790	
2,3,5-Trichlorophenol	9.86	<60	U
2,4,6-Trichlorophenol	10.10	<60	U
2,4,5-Trichlorophenol	10.10	<60	U
2,3,4-Trichlorophenol	10.26	<60	U
2,3,6-Trichlorophenol	10.26	<60	U
3,4,5-Trichlorophenol	12.40	<60	U
2,3,5,6-Tetrachlorophenol	11.83	73.1	
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.88	173	M
Pentachlorophenol	13.59	107	

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.33	0.9	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.12	1.6	M	50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.10	2.5	M	50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.88	35.1	M	50-150
13C6-Pentachlorophenol (ES)	1200	13.59	37.2	M	50-150

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	**24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-8	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041119.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
2-Chlorophenol	6.03	<100	U
3/4-Chlorophenol	8.33	<100	U
2,4/2,5-Dichlorophenol	8.12	<500	U
2,3-Dichlorophenol	8.21	<500	U
2,6-Dichlorophenol	8.50	<500	U
3,5-Dichlorophenol	10.31	856	
3,4-Dichlorophenol	10.56	1270	M
2,3,5-Trichlorophenol	9.86	<60	U
2,4,6-Trichlorophenol	10.02	<60	U
2,4,5-Trichlorophenol	10.10	86.4	
2,3,4-Trichlorophenol	10.22	<60	U
2,3,6-Trichlorophenol	10.34	<60	U
3,4,5-Trichlorophenol	12.41	251	
2,3,5,6-Tetrachlorophenol	11.83	64.9	
2,3,4,5/2,3,4,6-Tetrachlorophenol	11.87	124	M
Pentachlorophenol	13.58	247	

Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.37	1.4	M	50-150
13C6-2,4-Dichlorophenol (ES)	1200	8.11	3.6	M	50-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.10	39.8	M	50-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.87	95.3	M	50-150
13C6-Pentachlorophenol (ES)	1200	13.58	33.8		50-150

M	Indicates that a peak has been manually integrated.
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	WG3788861-2	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041113.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**	**Limits**
2-Chlorophenol	1000	6.10	121		50-150
2,4/2,5-Dichlorophenol	2000	8.10	60		50-150
2,6-Dichlorophenol	1000	8.48	68		50-150
2,4,6-Trichlorophenol	1000	10.02	18		50-150
2,4,5-Trichlorophenol	1000	10.07	113		50-150
2,3,5,6-Tetrachlorophenol	1000	11.82	99		50-150
2,3,4,5/2,3,4,6-Tetrachlorophenol	2000	11.86	80		50-150
Pentachlorophenol	1000	13.58	130		50-150
Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.34	75.3		30-150
13C6-2,4-Dichlorophenol (ES)	1200	8.09	49.7		30-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.07	71		30-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.86	101.1		30-150
13C6-Pentachlorophenol (ES)	1200	13.58	54.9		30-150

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3788861-5	Extraction Date	3-Apr-24
Analysis Method	Chlorophenols by 8270E		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
19-Apr-2024

Run Information	**Run 1**
Filename	45394
Run Date	24041112.D
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS USR123112H

Target Analytes	**ug spiked**	**Ret. Time**	**% Recovery**	**Flags**	**Limits**
2-Chlorophenol	1000	6.01	64		50-150
2,4/2,5-Dichlorophenol	2000	8.11	62		50-150
2,6-Dichlorophenol	1000	8.48	58		50-150
2,4,6-Trichlorophenol	1000	10.02	53		50-150
2,4,5-Trichlorophenol	1000	10.09	174		50-150
2,3,5,6-Tetrachlorophenol	1000	11.82	46		50-150
2,3,4,5/2,3,4,6-Tetrachlorophenol	2000	11.87	61	M	50-150
Pentachlorophenol	1000	13.58	119		50-150
Extraction Standards			**% Rec**		**Limits**
13C6-4-Chlorophenol (ES)	1200	8.35	2.2	M	30-150
13C6-2,4-Dichlorophenol (ES)	1200	8.10	1.3		30-150
13C6-2,4,5-Trichlorophenol (ES)	1200	10.08	4.1		30-150
13C6-2,3,4,5-Tetrachlorophenol (ES)	1200	11.86	21		30-150
13C6-Pentachlorophenol (ES)	1200	13.58	8.2		30-150

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2755049		Mississauga, ON L5J2Y4
Date of Report	26-Apr-24		Canada
Date of Sample Receipt	22-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **PAH by CARB method 429 (LR option)- Isotope dilution**

Certified by:

Bradley Reimer
GC/MS Laboratory Senior Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1		24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1		24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1		24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1		24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2	
ALS Sample ID	WG3788861-1		L2755049-1		L2755049-2		L2755049-3		L2755049-4		L2755049-5	
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		Stack		Stack		Stack		Stack		Stack	
Sampling Date	n/a		20-Mar-24		20-Mar-24		21-Mar-24		20-Mar-24		20-Mar-24	
Extraction Date	3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**	
Naphthalene	74.5		102	B	308	B	172	B	63.2	B	71.0	B
2-Methylnaphthalene	<12	U	38.3		123		96.5		14.6		22.1	
1-Methylnaphthalene	<12	U	26.8		71.3		54.8		<12	U	12.4	U
Acenaphthylene	<12	U	<12	U	15.8		<12	U	<12	U	<12	U
Acenaphthene	<12	U	<12	U	21.2		12.1		<12	U	<12	U
Fluorene	<12	U	39.1		60.2		55.1		<12	U	<12	U
Phenanthrene	<12	U	444		766		644		26.5		72.0	
Anthracene	<12	U	<12	U	17.3	M	<12	U	<12	U	<12	U
Fluoranthene	<12	U	71.8		153		88.3		<12	U	19.4	U
Pyrene	<12	U	98.4		150		75.8		<12	U	26.3	U
Benzo(a)Anthracene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Chrysene/Triphenlyene	<12	U	<12	U	177		<12	U	<12	U	<12	U
Benzo(b)Fluoranthene	<12	U	<12	U	32.3	M	<12	U	<12	U	<12	U
Benzo(k)Fluoranthene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(e)Pyrene	<12	U	<12	U	25.8		20.4	M	<12	U	<12	U
Benzo(a)Pyrene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Perylene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Indeno(1,2,3-cd)Pyrene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Dibenzo(a,h/a,c)Anthracene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(g,h,i)Perylene	<12	U	<12	U	<12	U	15.7	M	<12	U	34.7	U
Additional Analytes												
Tetralin	20.3		41.5	B	32.8	B	42.0	B	19.1	B	17.9	B
2-Chloronaphthalene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Biphenyl	<12	U	41.2		89.6		458		<12	U	14.9	U
o-Terphenyl	<12	U	<12	U	12.0		17.5		<12	U	<12	U
1-Methylphenanthrene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
9-Methylphenanthrene	<12	U	27.7		67.7		42.0		<12	U	<12	U
2-methylanthracene	<12	U	<12	U	23.1		15.1		<12	U	<12	U
9,10-dimethylanthracene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
m-terphenyl	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
p-terphenyl	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
Benzo(a)fluorene	<12	U	<12	U	16.4	M	<12	U	<12	U	<12	U
Benzo(b)fluorene	<12	U	<12	U	<12	U	<12	U	<12	U	<12	U
7,12-Dimethylbenzo(a)anthracene	<12	U	<12	U	60.0		<12	U	<12	U	<12	U
3-Methylcholanthrene	<60	U	<60	U	<60	U	<60	U	<60	U	<60	U
Picene	<60	U	<60	U	<60	U	<60	U	<60	U	<60	U
Dibenzo(a,e)pyrene	<60	U	<60	U	<60	U	<60	U	<60	U	<60	U
Coronene	<60	U	<60	U	<60	U	<60	U	<60	U	<60	U
Field Sampling Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	NS		102.7		100.6		100.9		102		93.1	
Fluorene D10	NS		105.7		100.2		104.6		110.5		105.1	
Terphenyl D14(Surr.)	NS		89.5		109.4	M	99.3		116.8	M	91.6	M
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Naphthalene D8	53.9		80.8		78.4		73.2		50.7		66.2	
2-Methylnaphthalene-D10	42		83.8		82.6		76.7		50.5		74.5	
Acenaphthylene D8	36.9		84.3		79.9		75.3		38.3		63	
Phenanthrene D10	38.5		96.7		94.5		88.9		52.1		85.4	
Anthracene-D10	32.2		62.1		71.5		59.4		39.4	M	49.8	M
Fluoranthene D10	38.2		90.1		96		88.1		51.6		78.6	
Benz(a)Anthracene-D12	22.7		40.1		55.3		46.4		19.5		36.7	
Chrysene D12	23.5		59.6		69.2		61.5		36	M	56.9	M
Benzo(b)Fluoranthene-D12	37		52.7		60.4		49.8		35.3		46.1	
Benzo(k)Fluoranthene-D12	25.7		50.1		56.6		45.1		35.9	M	41.2	M
Benzo(a)Pyrene D12	32.6		58.3		61.9		57.1		59.2	M	57	M
Perylene D12	31.4		52.1		52.5		42.2		30.7		39.8	
Indeno(1,2,3,cd)Pyrene-D12	25.5		33.5		37.3		31.5		31.4	M	33.2	M
Dibenz(a,h)Anthracene-D14	19.7	M	27.3	M	40.5	M	30.9	M	27.9	M	30.6	M
Benzo(g,h,i)Perylene D12	25.2		50.2		53.4		46.2		33.6		46.5	

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.
NS	Indicates that this compound was not spiked.

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2		24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2		24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2		Laboratory Control Sample	
ALS Sample ID	L2755049-6		L2755049-7		L2755049-8		WG3788861-2	
Sample Size	1		1		1		1	
Sample units	Sample		Sample		Sample		n/a	
Moisture Content	n/a		n/a		n/a		n/a	
Matrix	Stack		Stack		Stack		QC	
Sampling Date	20-Mar-24		21-Mar-24		20-Mar-24		n/a	
Extraction Date	3-Apr-24		3-Apr-24		3-Apr-24		3-Apr-24	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**%**	
Naphthalene	117	B	79.2	B	43.7	B	92.2	
2-Methylnaphthalene	56.4		25.6		<12	U	92.5	
1-Methylnaphthalene	35.2		15.2		<12	U	97.8	
Acenaphthylene	16.0		<12	U	<12	U	101.8	
Acenaphthene	17.8		<12	U	<12	U	136.6	M
Fluorene	39.1		<12	U	<12	U	114.3	
Phenanthrene	656		118		<12	U	105.6	
Anthracene	13.1	M	<12	U	<12	U	103.7	
Fluoranthene	134		41.9		<12	U	108.8	
Pyrene	86.9		33.6		<12	U	116.3	
Benzo(a)Anthracene	<12	U	<12	U	<12	U	118.3	
Chrysene	49.3		19.5		<12	U	102.2	M
Benzo(b)Fluoranthene	34.0	M	18.7	M	<12	U	107	
Benzo(k)Fluoranthene	20.7	M	<12	U	<12	U	113.5	
Benzo(e)Pyrene	<12	U	<12	U	<12	U	115.3	
Benzo(a)Pyrene	<12	U	<12	U	<12	U	96.7	
Perylene	<12	U	<12	U	<12	U	106.4	
Indeno(1,2,3-cd)Pyrene	<12	U	<12	U	<12	U	102.5	
Dibenzo(a,h)Anthracene	<12	U	<12	U	<12	U	84.9	M
Benzo(g,h,i)Perylene	<12	U	<12	U	<12	U	112	
Additional Analytes								
Tetralin	79.9	B	61.6	B	15.6	B	NS	
2-Chloronaphthalene	<12	U	<12	U	<12	U	NS	
Biphenyl	59.8		33.8		<12	U	NS	
o-Terphenyl	15.5	M	<12	U	<12	U	NS	
1-Methylphenanthrene	<12	U	<12	U	<12	U	NS	
9-Methylphenanthrene	55.6		<12	U	<12	U	NS	
2-methylanthracene	18.7		<12	U	<12	U	NS	
9,10-dimethylanthracene	<12	U	<12	U	<12	U	NS	
m-terphenyl	<12	U	<12	U	<12	U	NS	
p-terphenyl	<12	U	<12	U	<12	U	NS	
Benzo(a)fluorene	<12	U	<12	U	<12	U	NS	
Benzo(b)fluorene	<12	U	<12	U	<12	U	NS	
7,12-Dimethylbenzo(a)anthracene	<12	U	<12	U	<12	U	NS	
3-Methylcholanthrene	<60	U	<60	U	<60	U	NS	
Picene	<60	U	<60	U	<60	U	NS	
Dibenzo(a,e)pyrene	<60	U	<60	U	<60	U	NS	
Coronene	<60	U	<60	U	<60	U	NS	
Field Sampling Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	97.6		96.3		101.5		NS	
Fluorene D10	93.6		96.4		123.8		NS	
Terphenyl D14(Surr.)	99.6		106		107.2	M	NS	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Naphthalene D8	86.2		62.9		75.5		91.7	
2-Methylnaphthalene-D10	89.2		69.9		84.1		87.5	
Acenaphthylene D8	88		65.7		76		74.3	
Phenanthrene D10	90.3		85		98.2		88.3	
Anthracene-D10	64.2		53.5		68.5	M	57.8	
Fluoranthene D10	100		93		84.3		83.1	
Benz(a)Anthracene-D12	65.9		68.5		30.4		42.9	M
Chrysene D12	72.8		77.7		50.4		68.1	
Benzo(b)Fluoranthene-D12	77.8		79.8		57.8		58.6	
Benzo(k)Fluoranthene-D12	71.9		72.7		51.4		63.4	
Benzo(a)Pyrene D12	60		66.9		49.5		60.3	
Perylene D12	45.2		57.6		46.5		64.6	
Indeno(1,2,3,cd)Pyrene-D12	46.8		66.9		42.1	M	51.9	
Dibenz(a,h)Anthracene-D14	39.8	M	52.2	M	42.8	M	46.5	M
Benzo(g,h,i)Perylene D12	62.1		66		56		72.5	

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.
NS	Indicates that this compound was not spiked.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**		Sampling Date	n/a	
ALS Sample ID	WG3788861-1		Extraction Date	3-Apr-24	
Analysis Method	PAH by CARB 429				
Analysis Type	Blank				
Sample Matrix	QC				Approved:
Sample Size	1	Sample			*Nick Schrobilgen*
Percent Moisture	n/a				--e-signature--
Split Ratio	6		Workgroup	WG3788861	15-Apr-2024

Run Information	**Run 1**
Filename	24041211.D
Run Date	4/12/2024 21:30
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.87	74.5	
2-Methylnaphthalene	3.38	<12	U
1-Methylnaphthalene	3.50	<12	U
Acenaphthylene	4.43	<12	U
Acenaphthene	4.74	<12	U
Fluorene	5.56	<12	U
Phenanthrene	7.64	<12	U
Anthracene	7.76	<12	U
Fluoranthene	10.94	<12	U
Pyrene	11.57	<12	U
Benzo(a)Anthracene	15.47	<12	U
Chrysene	15.56	<12	U
Benzo(b)Fluoranthene	18.77	<12	U
Benzo(k)Fluoranthene	18.84	<12	U
Benzo(e)Pyrene	19.49	<12	U
Benzo(a)Pyrene	19.58	<12	U
Perylene	19.86	<12	U
Indeno(1,2,3-cd)Pyrene	23.00	<12	U
Dibenzo(a,h)Anthracene	23.20	<12	U
Benzo(g,h,i)Perylene	23.84	<12	U
Additional Analytes			
Tetralin	2.74	20.3	
2-Chloronaphthalene	3.89	<12	U
Biphenyl	3.87	<12	U
o-Terphenyl	8.89	<12	U
1-Methylphenanthrene	9.14	<12	U
9-Methylphenanthrene	9.26	<12	U
2-methylanthracene	9.32	<12	U
9,10-dimethylanthracene	11.81	<12	U
m-terphenyl	12.00	<12	U
p-terphenyl	12.47	<12	U
Benzo(a)fluorene	12.75	<12	U
Benzo(b)fluorene	12.95	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	20.81	<60	U
Picene	22.83	<60	U
Dibenzo(a,e)pyrene	27.90	<60	U
Coronene	28.65	<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	2.85	53.9	50-150
2-Methylnaphthalene-D10	600	3.36	42.0	50-150
Acenaphthylene D8	600	4.41	36.9	50-150
Phenanthrene D10	600	7.59	38.5	50-150
Anthracene-D10	600	7.71	32.2	50-150
Fluoranthene D10	600	10.89	38.2	50-150
Benz(a)Anthracene-D12	600	15.39	22.7	50-150
Chrysene D12	600	15.50	23.5	50-150
Benzo(b)Fluoranthene-D12	600	18.71	37.0	50-150
Benzo(k)Fluoranthene-D12	600	18.80	25.7	50-150
Benzo(a)Pyrene D12	600	19.59	32.6	50-150
Perylene D12	600	19.82	31.4	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.91	25.5	50-150
Dibenz(a,h)Anthracene-D14	600	23.17	19.7 M	50-150
Benzo(g,h,i)Perylene D12	600	23.71	25.2	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
NS	Indicates that this compound was not spiked.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(1 THRU 5) TEST#1 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-1	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040910.D
Run Date	4/9/2024 18:16
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.89	102	B
2-Methylnaphthalene	3.42	38.3	
1-Methylnaphthalene	3.52	26.8	
Acenaphthylene	4.45	<12	U
Acenaphthene	4.72	<12	U
Fluorene	5.58	39.1	
Phenanthrene	7.67	444	
Anthracene	7.78	<12	U
Fluoranthene	10.98	71.8	
Pyrene	11.61	98.4	
Benzo(a)Anthracene	15.49	<12	U
Chrysene	15.60	<12	U
Benzo(b)Fluoranthene	18.79	<12	U
Benzo(k)Fluoranthene	18.88	<12	U
Benzo(e)Pyrene	19.55	<12	U
Benzo(a)Pyrene	19.68	<12	U
Perylene	20.00	<12	U
Indeno(1,2,3-cd)Pyrene	22.99	<12	U
Dibenzo(a,h)Anthracene	23.26	<12	U
Benzo(g,h,i)Perylene	23.86	<12	U
Additional Analytes			
Tetralin	2.77	41.5	B
2-Chloronaphthalene	3.93	<12	U
Biphenyl	3.90	41.2	
o-Terphenyl	8.92	<12	U
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	27.7	
2-methylanthracene	9.35	<12	U
9,10-dimethylanthracene	11.84	<12	U
m-terphenyl	12.03	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.73	<12	U
Benzo(b)fluorene	12.99	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	20.84	<60	U
Picene	23.49	<60	U
Dibenzo(a,e)pyrene	27.94	<60	U
Coronene	28.69	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.49	102.7
Fluorene D10	600	5.53	105.7
Terphenyl D14(Surr.)	600	12.45	109.4

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.88	80.8	50-150
2-Methylnaphthalene-D10	600	3.39	83.8	50-150
Acenaphthylene D8	600	4.44	84.3	50-150
Phenanthrene D10	600	7.62	96.7	50-150
Anthracene-D10	600	7.74	62.1	50-150
Fluoranthene D10	600	10.93	90.1	50-150
Benz(a)Anthracene-D12	600	15.43	40.1	50-150
Chrysene D12	600	15.55	59.6	50-150
Benzo(b)Fluoranthene-D12	600	18.75	52.7	50-150
Benzo(k)Fluoranthene-D12	600	18.85	50.1	50-150
Benzo(a)Pyrene D12	600	19.63	58.3	50-150
Perylene D12	600	19.86	52.1	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.95	33.5	50-150
Dibenz(a,h)Anthracene-D14	600	23.23	27.3 M	50-150
Benzo(g,h,i)Perylene D12	600	23.78	50.2	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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(6 THRU 10) TEST#2 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-2	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040911.D
Run Date	4/9/2024 18:58
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	308	B
2-Methylnaphthalene	3.42	123	
1-Methylnaphthalene	3.52	71.3	
Acenaphthylene	4.45	15.8	
Acenaphthene	4.72	21.2	
Fluorene	5.58	60.2	
Phenanthrene	7.67	766	
Anthracene	7.78	17.3	M
Fluoranthene	10.98	153	
Pyrene	11.61	150	
Benzo(a)Anthracene	15.49	<12	U
Chrysene	15.59	177	
Benzo(b)Fluoranthene	18.82	32.3	M
Benzo(k)Fluoranthene	18.89	<12	U
Benzo(e)Pyrene	19.55	25.8	
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	23.85	<12	U
Additional Analytes			
Tetralin	2.75	32.8	B
2-Chloronaphthalene	3.92	<12	U
Biphenyl	3.90	89.6	
o-Terphenyl	8.92	12.0	
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	67.7	
2-methylanthracene	9.35	23.1	
9,10-dimethylanthracene	11.84	<12	U
m-terphenyl	12.03	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.73	16.4	M
Benzo(b)fluorene	13.06	<12	U
7,12-Dimethylbenzo(a)anthracene	18.82	60.0	
3-Methylcholanthrene	20.82	<60	U
Picene	23.17	<60	U
Dibenzo(a,e)pyrene	27.88	<60	U
Coronene	28.71	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**	
1-Methylnaphthalene-D10	600	3.49	100.6	
Fluorene D10	600	5.53	100.2	
Terphenyl D14(Surr.)	600	12.46	99.3	M

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.88	78.4	50-150
2-Methylnaphthalene-D10	600	3.39	82.6	50-150
Acenaphthylene D8	600	4.44	79.9	50-150
Phenanthrene D10	600	7.62	94.5	50-150
Anthracene-D10	600	7.74	71.5	50-150
Fluoranthene D10	600	10.93	96.0	50-150
Benz(a)Anthracene-D12	600	15.43	55.3	50-150
Chrysene D12	600	15.55	69.2	50-150
Benzo(b)Fluoranthene-D12	600	18.75	60.4	50-150
Benzo(k)Fluoranthene-D12	600	18.85	56.6	50-150
Benzo(a)Pyrene D12	600	19.63	61.9	50-150
Perylene D12	600	19.86	52.5	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.95	37.3	50-150
Dibenz(a,h)Anthracene-D14	600	23.33	40.5	M 50-150
Benzo(g,h,i)Perylene D12	600	23.78	53.4	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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(11 THRU 15) TEST#3 APC OUTLET #1**	Sampling Date	21-Mar-24
ALS Sample ID	L2755049-3	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040912.D
Run Date	4/9/2024 19:40
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	172	B
2-Methylnaphthalene	3.42	96.5	
1-Methylnaphthalene	3.52	54.8	
Acenaphthylene	4.45	<12	U
Acenaphthene	4.72	12.1	
Fluorene	5.58	55.1	
Phenanthrene	7.67	644	
Anthracene	7.78	<12	U
Fluoranthene	10.98	88.3	
Pyrene	11.61	75.8	
Benzo(a)Anthracene	15.49	<12	U
Chrysene	15.60	<12	U
Benzo(b)Fluoranthene	18.81	<12	U
Benzo(k)Fluoranthene	18.81	<12	U
Benzo(e)Pyrene	19.55	20.4	M
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	23.85	15.7	M
Additional Analytes			
Tetralin	2.75	42.0	B
2-Chloronaphthalene	3.92	<12	U
Biphenyl	3.90	458	
o-Terphenyl	8.92	17.5	
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	42.0	
2-methylanthracene	9.35	15.1	
9,10-dimethylanthracene	11.84	<12	U
m-terphenyl	12.03	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.73	<12	U
Benzo(b)fluorene	12.98	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	20.83	<60	U
Picene	23.18	<60	U
Dibenzo(a,e)pyrene	27.91	<60	U
Coronene	28.72	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.49	100.9
Fluorene D10	600	5.53	104.6
Terphenyl D14(Surr.)	600	12.45	116.8

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.88	73.2	50-150
2-Methylnaphthalene-D10	600	3.39	76.7	50-150
Acenaphthylene D8	600	4.44	75.3	50-150
Phenanthrene D10	600	7.62	88.9	50-150
Anthracene-D10	600	7.74	59.4	50-150
Fluoranthene D10	600	10.93	88.1	50-150
Benz(a)Anthracene-D12	600	15.43	46.4	50-150
Chrysene D12	600	15.55	61.5	50-150
Benzo(b)Fluoranthene-D12	600	18.75	49.8	50-150
Benzo(k)Fluoranthene-D12	600	18.85	45.1	50-150
Benzo(a)Pyrene D12	600	19.63	57.1	50-150
Perylene D12	600	19.86	42.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.95	31.5	50-150
Dibenz(a,h)Anthracene-D14	600	23.27	30.9 M	50-150
Benzo(g,h,i)Perylene D12	600	23.78	46.2	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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(16 THRU 20) BLANK APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-4	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040908.D
Run Date	4/9/2024 16:52
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	63.2	B
2-Methylnaphthalene	3.42	14.6	
1-Methylnaphthalene	3.52	<12	U
Acenaphthylene	4.46	<12	U
Acenaphthene	4.73	<12	U
Fluorene	5.59	<12	U
Phenanthrene	7.68	26.5	
Anthracene	7.79	<12	U
Fluoranthene	10.99	<12	U
Pyrene	11.61	<12	U
Benzo(a)Anthracene	15.50	<12	U
Chrysene	15.62	<12	U
Benzo(b)Fluoranthene	18.87	<12	U
Benzo(k)Fluoranthene	18.88	<12	U
Benzo(e)Pyrene	19.47	<12	U
Benzo(a)Pyrene	19.65	<12	U
Perylene	19.93	<12	U
Indeno(1,2,3-cd)Pyrene	23.07	<12	U
Dibenzo(a,h)Anthracene	23.26	<12	U
Benzo(g,h,i)Perylene	23.89	<12	U
Additional Analytes			
Tetralin	2.76	19.1	B
2-Chloronaphthalene	3.88	<12	U
Biphenyl	3.91	<12	U
o-Terphenyl	8.93	<12	U
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	<12	U
2-methylanthracene	9.36	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.06	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.75	<12	U
Benzo(b)fluorene	13.01	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	27.96	<60	U
Coronene	28.72	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**	
1-Methylnaphthalene-D10	600	3.49	102	
Fluorene D10	600	5.54	110.5	
Terphenyl D14(Surr.)	600	12.52	91.6	M

Extraction Standards			**% Rec**		**Limits**
Naphthalene D8	600	2.88	50.7		50-150
2-Methylnaphthalene-D10	600	3.39	50.5		50-150
Acenaphthylene D8	600	4.44	38.3		50-150
Phenanthrene D10	600	7.63	52.1		50-150
Anthracene-D10	600	7.76	39.4	M	50-150
Fluoranthene D10	600	10.94	51.6		50-150
Benz(a)Anthracene-D12	600	15.45	19.5		50-150
Chrysene D12	600	15.58	36.0	M	50-150
Benzo(b)Fluoranthene-D12	600	18.76	35.3		50-150
Benzo(k)Fluoranthene-D12	600	18.88	35.9	M	50-150
Benzo(a)Pyrene D12	600	19.64	59.2	M	50-150
Perylene D12	600	19.87	30.7		50-150
Indeno(1,2,3,cd)Pyrene-D12	600	23.07	31.4	M	50-150
Dibenz(a,h)Anthracene-D14	600	23.81	27.9	M	50-150
Benzo(g,h,i)Perylene D12	600	23.80	33.6		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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(21 THRU 25) TEST#1 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-5	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040913.D
Run Date	4/9/2024 20:22
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	71.0	B
2-Methylnaphthalene	3.42	22.1	
1-Methylnaphthalene	3.52	12.4	
Acenaphthylene	4.45	<12	U
Acenaphthene	4.73	<12	U
Fluorene	5.59	<12	U
Phenanthrene	7.67	72.0	
Anthracene	7.78	<12	U
Fluoranthene	10.98	19.4	
Pyrene	11.61	26.3	
Benzo(a)Anthracene	15.49	<12	U
Chrysene	15.60	<12	U
Benzo(b)Fluoranthene	18.81	<12	U
Benzo(k)Fluoranthene	18.87	<12	U
Benzo(e)Pyrene	19.55	<12	U
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	23.85	34.7 M	
Additional Analytes			
Tetralin	2.75	17.9	B
2-Chloronaphthalene	3.92	<12	U
Biphenyl	3.90	14.9 M	
o-Terphenyl	8.92	<12	U
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	<12	U
2-methylanthracene	9.35	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.04	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.71	<12	U
Benzo(b)fluorene	13.00	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	23.19	<60	U
Dibenzo(a,e)pyrene	27.90	<60	U
Coronene	28.70	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.49	93.1
Fluorene D10	600	5.54	105.1
Terphenyl D14(Surr.)	600	12.46	99.6

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.88	66.2	50-150
2-Methylnaphthalene-D10	600	3.39	74.5	50-150
Acenaphthylene D8	600	4.44	63.0	50-150
Phenanthrene D10	600	7.62	85.4	50-150
Anthracene-D10	600	7.74	49.8	50-150
Fluoranthene D10	600	10.94	78.6	50-150
Benz(a)Anthracene-D12	600	15.43	36.7	50-150
Chrysene D12	600	15.55	56.9	50-150
Benzo(b)Fluoranthene-D12	600	18.75	46.1	50-150
Benzo(k)Fluoranthene-D12	600	18.85	41.2	50-150
Benzo(a)Pyrene D12	600	19.63	57.0	50-150
Perylene D12	600	19.86	39.8	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.95	33.2	50-150
Dibenz(a,h)Anthracene-D14	600	23.24	30.6 M	50-150
Benzo(g,h,i)Perylene D12	600	23.78	46.5	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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(26 THRU 30) TEST#2 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-6	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040914.D
Run Date	4/9/2024 21:03
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.88	117	B
2-Methylnaphthalene	3.41	56.4	
1-Methylnaphthalene	3.51	35.2	
Acenaphthylene	4.45	16.0	
Acenaphthene	4.70	17.8	
Fluorene	5.58	39.1	
Phenanthrene	7.67	656	
Anthracene	7.78	13.1	M
Fluoranthene	10.98	134	
Pyrene	11.61	86.9	
Benzo(a)Anthracene	15.49	<12	U
Chrysene	15.60	49.3	
Benzo(b)Fluoranthene	18.81	34.0	M
Benzo(k)Fluoranthene	18.89	20.7	M
Benzo(e)Pyrene	19.54	<12	U
Benzo(a)Pyrene	NotFnd	<12	U
Perylene	NotFnd	<12	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<12	U
Dibenzo(a,h)Anthracene	NotFnd	<12	U
Benzo(g,h,i)Perylene	23.83	<12	U
Additional Analytes			
Tetralin	2.77	79.9	B
2-Chloronaphthalene	3.92	<12	U
Biphenyl	3.90	59.8	
o-Terphenyl	8.92	15.5	M
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	55.6	
2-methylanthracene	9.35	18.7	
9,10-dimethylanthracene	11.85	<12	U
m-terphenyl	12.03	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.73	<12	U
Benzo(b)fluorene	NotFnd	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	20.77	<60	U
Picene	23.17	<60	U
Dibenzo(a,e)pyrene	27.89	<60	U
Coronene	28.64	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.48	97.6
Fluorene D10	600	5.53	93.6
Terphenyl D14(Surr.)	600	12.44	106

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.87	86.2	50-150
2-Methylnaphthalene-D10	600	3.39	89.2	50-150
Acenaphthylene D8	600	4.44	88.0	50-150
Phenanthrene D10	600	7.62	90.3	50-150
Anthracene-D10	600	7.74	64.2	50-150
Fluoranthene D10	600	10.93	100.0	50-150
Benz(a)Anthracene-D12	600	15.43	65.9	50-150
Chrysene D12	600	15.54	72.8	50-150
Benzo(b)Fluoranthene-D12	600	18.74	77.8	50-150
Benzo(k)Fluoranthene-D12	600	18.84	71.9	50-150
Benzo(a)Pyrene D12	600	19.63	60.0	50-150
Perylene D12	600	19.86	45.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.95	46.8	50-150
Dibenz(a,h)Anthracene-D14	600	23.19	39.8 M	50-150
Benzo(g,h,i)Perylene D12	600	23.77	62.1	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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(31 THRU 35) TEST#3 APC OUTLET #2**	Sampling Date	21-Mar-24
ALS Sample ID	L2755049-7	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040915.D
Run Date	4/9/2024 21:45
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.89	79.2	B
2-Methylnaphthalene	3.42	25.6	
1-Methylnaphthalene	3.52	15.2	
Acenaphthylene	4.46	<12	U
Acenaphthene	4.73	<12	U
Fluorene	5.59	<12	U
Phenanthrene	7.67	118	
Anthracene	7.78	<12	U
Fluoranthene	10.98	41.9	
Pyrene	11.61	33.6	
Benzo(a)Anthracene	15.49	<12	U
Chrysene	15.60	19.5	
Benzo(b)Fluoranthene	18.81	18.7	M
Benzo(k)Fluoranthene	18.88	<12	U
Benzo(e)Pyrene	19.54	<12	U
Benzo(a)Pyrene	19.77	<12	U
Perylene	19.84	<12	U
Indeno(1,2,3-cd)Pyrene	22.97	<12	U
Dibenzo(a,h)Anthracene	23.27	<12	U
Benzo(g,h,i)Perylene	23.82	<12	U
Additional Analytes			
Tetralin	2.77	61.6	B
2-Chloronaphthalene	3.93	<12	U
Biphenyl	3.90	33.8	
o-Terphenyl	8.92	<12	U
1-Methylphenanthrene	NotFnd	<12	U
9-Methylphenanthrene	9.29	<12	U
2-methylanthracene	9.35	<12	U
9,10-dimethylanthracene	11.84	<12	U
m-terphenyl	12.03	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.73	<12	U
Benzo(b)fluorene	12.98	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	NotFnd	<60	U
Picene	23.13	<60	U
Dibenzo(a,e)pyrene	27.92	<60	U
Coronene	28.70	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.49	96.3
Fluorene D10	600	5.53	96.4
Terphenyl D14(Surr.)	600	12.45	107.2

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.88	62.9	50-150
2-Methylnaphthalene-D10	600	3.39	69.9	50-150
Acenaphthylene D8	600	4.44	65.7	50-150
Phenanthrene D10	600	7.62	85.0	50-150
Anthracene-D10	600	7.74	53.5	50-150
Fluoranthene D10	600	10.93	93.0	50-150
Benz(a)Anthracene-D12	600	15.43	68.5	50-150
Chrysene D12	600	15.54	77.7	50-150
Benzo(b)Fluoranthene-D12	600	18.74	79.8	50-150
Benzo(k)Fluoranthene-D12	600	18.84	72.7	50-150
Benzo(a)Pyrene D12	600	19.63	66.9	50-150
Perylene D12	600	19.86	57.6	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.96	66.9	50-150
Dibenz(a,h)Anthracene-D14	600	23.23	52.2 M	50-150
Benzo(g,h,i)Perylene D12	600	23.77	66.0	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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-SVOC-(36 THRU 40) BLANK APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755049-8	Extraction Date	3-Apr-24
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	6	Workgroup	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040909.D
Run Date	4/9/2024 17:34
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.89	43.7	B
2-Methylnaphthalene	3.42	<12	U
1-Methylnaphthalene	3.52	<12	U
Acenaphthylene	4.46	<12	U
Acenaphthene	4.73	<12	U
Fluorene	5.59	<12	U
Phenanthrene	7.68	<12	U
Anthracene	7.79	<12	U
Fluoranthene	10.98	<12	U
Pyrene	11.61	<12	U
Benzo(a)Anthracene	15.52	<12	U
Chrysene	15.62	<12	U
Benzo(b)Fluoranthene	18.81	<12	U
Benzo(k)Fluoranthene	18.90	<12	U
Benzo(e)Pyrene	19.55	<12	U
Benzo(a)Pyrene	19.69	<12	U
Perylene	19.84	<12	U
Indeno(1,2,3-cd)Pyrene	23.01	<12	U
Dibenzo(a,h)Anthracene	23.28	<12	U
Benzo(g,h,i)Perylene	23.86	<12	U
Additional Analytes			
Tetralin	2.75	15.6	B
2-Chloronaphthalene	NotFnd	<12	U
Biphenyl	3.91	<12	U
o-Terphenyl	8.92	<12	U
1-Methylphenanthrene	9.17	<12	U
9-Methylphenanthrene	9.29	<12	U
2-methylanthracene	9.36	<12	U
9,10-dimethylanthracene	NotFnd	<12	U
m-terphenyl	12.00	<12	U
p-terphenyl	12.51	<12	U
Benzo(a)fluorene	12.80	<12	U
Benzo(b)fluorene	13.01	<12	U
7,12-Dimethylbenzo(a)anthracene	NotFnd	<12	U
3-Methylcholanthrene	20.92	<60	U
Picene	NotFnd	<60	U
Dibenzo(a,e)pyrene	27.90	<60	U
Coronene	28.73	<60	U

Field Sampling Standards	**ng spiked**		**% Rec**
1-Methylnaphthalene-D10	600	3.49	101.5
Fluorene D10	600	5.54	123.8
Terphenyl D14(Surr.)	600	12.52	NS M

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	600	2.88	75.5	50-150
2-Methylnaphthalene-D10	600	3.39	84.1	50-150
Acenaphthylene D8	600	4.44	76.0	50-150
Phenanthrene D10	600	7.62	98.2	50-150
Anthracene-D10	600	7.75	68.5 M	50-150
Fluoranthene D10	600	10.94	84.3	50-150
Benz(a)Anthracene-D12	600	15.45	30.4	50-150
Chrysene D12	600	15.57	50.4	50-150
Benzo(b)Fluoranthene-D12	600	18.75	57.8	50-150
Benzo(k)Fluoranthene-D12	600	18.86	51.4	50-150
Benzo(a)Pyrene D12	600	19.64	49.5	50-150
Perylene D12	600	19.87	46.5	50-150
Indeno(1,2,3,cd)Pyrene-D12	600	23.02	42.1 M	50-150
Dibenz(a,h)Anthracene-D14	600	23.61	42.8 M	50-150
Benzo(g,h,i)Perylene D12	600	23.80	56.0	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.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3788861-2	Extraction Date	3-Apr-24
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	WG3788861

Approved:
Nick Schrobilgen
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	24040904.D
Run Date	4/9/2024 14:04
Final Volume	1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US0587231H

Target Analytes	**ug spiked**	**Ret. Time**	**%**	**Flags**	**Limits**
Naphthalene	600	2.88	92.2		50-150
2-Methylnaphthalene	600	3.42	92.5		50-150
1-Methylnaphthalene	600	3.52	97.8		50-150
Acenaphthylene	600	4.45	101.8		50-150
Acenaphthene	600	4.72	136.6	M	50-150
Fluorene	600	5.59	114.3		50-150
Phenanthrene	600	7.67	105.6		50-150
Anthracene	600	7.79	103.7		50-150
Fluoranthene	600	10.98	108.8		50-150
Pyrene	600	11.61	116.3		50-150
Benzo(a)Anthracene	600	15.51	118.3		50-150
Chrysene	600	15.63	102.2	M	50-150
Benzo(b)Fluoranthene	600	18.81	107		50-150
Benzo(k)Fluoranthene	600	18.91	113.5		50-150
Benzo(e)Pyrene	600	19.55	115.3		50-150
Benzo(a)Pyrene	600	19.69	96.7		50-150
Perylene	600	19.93	106.4		50-150
Indeno(1,2,3-cd)Pyrene	600	23.06	102.5		50-150
Dibenzo(a,h)Anthracene	600	23.38	84.9	M	50-150
Benzo(g,h,i)Perylene	600	23.87	112		50-150
Additional Analytes					
Tetralin	0		NS		
2-Chloronaphthalene	0		NS		
Biphenyl	0		NS		
o-Terphenyl	0		NS		
1-Methylphenanthrene	0		NS		
9-Methylphenanthrene	0		NS		
2-methylanthracene	0		NS		
9,10-dimethylanthracene	0		NS		
m-terphenyl	0		NS		
p-terphenyl	0		NS		
Benzo(a)fluorene	0		NS		
Benzo(b)fluorene	0		NS		
7,12-Dimethylbenzo(a)anthracene	0		NS		
3-Methylcholanthrene	0		NS		
Picene	0		NS		
Dibenzo(a,e)pyrene	0		NS		
Coronene	0		NS		
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	91.7		30-150
2-Methylnaphthalene-D10	600	3.39	87.5		30-150
Acenaphthylene D8	600	4.44	74.3		30-150
Phenanthrene D10	600	7.62	88.3		50-150
Anthracene-D10	600	7.74	57.8		50-150
Fluoranthene D10	600	10.94	83.1		50-150
Benz(a)Anthracene-D12	600	15.44	42.9	M	50-150
Chrysene D12	600	15.55	68.1		50-150
Benzo(b)Fluoranthene-D12	600	18.75	58.6		50-150
Benzo(k)Fluoranthene-D12	600	18.85	63.4		50-150
Benzo(a)Pyrene D12	600	19.64	60.3		30-150
Perylene D12	600	19.87	64.6		50-150
Indeno(1,2,3,cd)Pyrene-D12	600	22.97	51.9		50-150
Dibenz(a,h)Anthracene-D14	600	23.40	46.5	M	50-150
Benzo(g,h,i)Perylene D12	600	23.78	72.5		50-150

M	Indicates that a peak has been manually integrated.
NS	Indicates that this compound was not spiked.

APPENDIX 16

Acid Gas Recovery Data Sheets
(8 pages)

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 18/24
Test No.: 1
Test Location: UNIT 1

QZ 10801

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	619.0
Initial Wt:	720.0
Final Wt:	853.8
1 Gain:	133.8
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	640.0
Initial Wt:	740.0
Final Wt:	768.8
2 Gain:	28.8
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	607.5
Final Wt:	610.5
3 Gain:	3.0
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.0
With Imp. 1,2,3 Soln:	648.0
After Rinse:	748.0
Total TS3:	464.0

Train Loaded By:
Train Recovered By: DT

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	951.3
Final Wt:	963.0
4 Gain:	11.7

Box ID:

CWTR = 1+2+3: 165.6

WCBDA= 4: 11.7

SAMPLE ID: 24-22327-M26A- 1

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 18/24
Test No.: 2
Test Location: UNIT 1

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	694.8
Initial Wt:	744.5
Final Wt:	886.0
1 Gain:	141.5
Colour:	CLEAR

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	654.5
Initial Wt:	756.0
Final Wt:	785.2
2 Gain:	29.2
Colour:	

Impinger #3 EMPTY	
Empty Wt:	595.7
Final Wt:	600.7
3 Gain:	5.0
Colour:	CLEAR

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.0
With Imp. 1,2,3 Soln:	657.0
After Rinse:	714.0
Total TS3:	430.0

Train Loaded By:
Train Recovered By: DT

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	976.0
Final Wt:	988.5
4 Gain:	12.5

Box ID:

CWTR = 1+2+3:	175.7
WCBDA= 4:	12.5

SAMPLE ID: 24-22327-M26A- 2

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 18/24
Test No.: 3
Test Location: Unit 1

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	619.0
Initial Wt:	719.5
Final Wt:	864.0
1 Gain:	144.5
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	640.0
Initial Wt:	743.0
Final Wt:	776.0
2 Gain:	33.0
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	607.5
Final Wt:	614.0
3 Gain:	6.5
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.5
With Imp. 1,2,3 Soln:	668.0
After Rinse:	768.0
Total TS3:	483.5

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	963.0
Final Wt:	976.8
4 Gain:	13.8

Box ID:

CWTR = 1+2+3: 184.0

WCBDA= 4: 13.8

SAMPLE ID: 24-22327-M26A- 3

Train Loaded By: AT
Train Recovered By:

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 18/24
Test No.: BLANK 1
Test Location:

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger 4

Impinger #1 0.1 N H_2SO4	
Empty Wt:	
Initial Wt:	
Final Wt:	
1 Gain:	
Colour:	

Impinger #4 Silica Gel	
Initial Wt:	
Final Wt:	
4 Gain:	

Impinger #2 0.1 N H_2SO4	
Empty Wt:	
Initial Wt:	
Final Wt:	
2 Gain:	
Colour:	

Box ID:

Impinger #3 EMPTY	
Empty Wt:	
Final Wt:	
3 Gain:	
Colour:	

CWTR = 1+2+3:

WCBDA= 4:

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.4
With Imp. 1,2,3 Soln:	486.7
After Rinse:	~~590~~ 590.8
Total TS3:	306.4

SAMPLE ID: 24-22327-M26A- BLANK 1

Train Loaded By: AT
Train Recovered By:

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 19/24
Test No.: 1
Test Location: UNIT 2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger 4

	Impinger #1 0.1 N H_2SO_4	
	Empty Wt:	645.0
	Initial Wt:	745.5
	Final Wt:	906.6
1	Gain:	161.1
	Colour:	Clear

	Impinger #4 Silica Gel	
	Initial Wt:	988.5
	Final Wt:	998.5
4	Gain:	10.5

	Impinger #2 0.1 N H_2SO_4	
	Empty Wt:	657.0
	Initial Wt:	755.0
	Final Wt:	787.7
2	Gain:	32.7
	Colour:	Clear

Box ID:

	Impinger #3 EMPTY	
	Empty Wt:	596.0
	Final Wt:	600.0
3	Gain:	4.0
	Colour:	Clear

CWTR = 1+2+3: 197.8

WCBDA= 4: 10.0

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.0
With Imp. 1,2,3 Soln:	679.0
After Rinse:	776.0
Total TS3:	492.0

SAMPLE ID: 24-22327-M26A- 4

Train Loaded By:
Train Recovered By: DT

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 19/24
Test No.: 2
Test Location: UNIT 2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	619.0
Initial Wt:	719.5
Final Wt:	853.5
1 Gain:	134.0
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	640.0
Initial Wt:	740.5
Final Wt:	765.5
2 Gain:	25.0
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	606.7
Final Wt:	610.0
3 Gain:	3.3
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	285.5
With Imp. 1,2,3 Soln:	644.5
After Rinse:	748.0
Total TS3:	462.5

Train Loaded By:
Train Recovered By: DT

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	976.8
Final Wt:	987.5
4 Gain:	10.7

Box ID:

CWTR = 1+2+3: 162.3

WCBDA= 4: 10.7

SAMPLE ID: 24-22327-M26A- 5

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client :	Covanta DYEC
Project No.:	22327
Date:	MAR 19/24
Test No.:	3
Test Location:	UNIT 2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H_2SO_4	
Empty Wt:	644.8
Initial Wt:	746.5
Final Wt:	882.0
1 Gain:	134.5
Colour:	clear

Impinger #2 0.1 N H_2SO_4	
Empty Wt:	653.5
Initial Wt:	753.5
Final Wt:	782.0
2 Gain:	28.5
Colour:	clear

Impinger #3 EMPTY	
Empty Wt:	596.0
Final Wt:	599.5
3 Gain:	3.5
Colour:	clear

CONTAINER TS3 WEIGHTS	
Empty Wt:	284.0
With Imp. 1,2,3 Soln:	647.8
After Rinse:	750.5
Total TS3:	466.5

Impinger 4

Impinger #4 Silica Gel	
Initial Wt:	928.3
Final Wt:	941.3
4 Gain:	13.0

Box ID:

CWTR = 1+2+3:	167.5
WCBDA= 4:	13.0

SAMPLE ID: 24-22327-M26A- 6

Train Loaded By:

Train Recovered By: DT

ORTECH Consulting Alliance Inc.
Method 26A Recovery Sheet

Client : Covanta DYEC
Project No.: 22327
Date: MAR 9/24
Test No.:
Test Location: BLANK 2

Filter is used but not recovered as sample

Impingers 1, 2, 3

Impinger 4

	Impinger #1 0.1 N H_2SO_4
	Empty Wt:
	Initial Wt:
	Final Wt:
1	Gain:
	Colour:

	Impinger #4 Silica Gel
	Initial Wt:
	Final Wt:
4	Gain:

	Impinger #2 0.1 N H_2SO_4
	Empty Wt:
	Initial Wt:
	Final Wt:
2	Gain:
	Colour:

Box ID:

	Impinger #3 EMPTY
	Empty Wt:
	Final Wt:
3	Gain:
	Colour:

CWTR = 1+2+3:

WCBDA= 4:

CONTAINER TS3 WEIGHTS	
Empty Wt:	282.0
With Imp. 1,2,3 Soln:	482.0
After Rinse:	582.0
Total TS3:	300.0

SAMPLE ID: 24-22327-M26A- BLANK 2

Train Loaded By:
Train Recovered By: DT

APPENDIX 17

VOST Analytical Report
(21 pages)

Your P.O. #: 22327-J2965
Your Project #: 22327
Site Location: COVANTA

Attention: CHRIS BELORE

ORTECH Environmental
804 Southdown Road
Mississauga, ON
CANADA L5J 2Y4

Report Date: 2024/04/03
Report #: R8091609
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C485503
Received: 2024/03/21, 14:40

Sample Matrix: Stack Sampling Train
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
VOST EPA5041A, 8260D for 0030, 0031	9	N/A	2024/03/27	BRL SOP-00302	EPA5041A, 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 22327-J2965
Your Project #: 22327
Site Location: COVANTA

Attention: CHRIS BELORE

ORTECH Environmental
804 Southdown Road
Mississauga, ON
CANADA L5J 2Y4

Report Date: 2024/04/03
Report #: R8091609
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C485503
Received: 2024/03/21, 14:40

Encryption Key

Julian Tong
Project Manager Assistant
03 Apr 2024 16:24:03

Please direct all questions regarding this Certificate of Analysis to:
Julian Tong, Project Manager Assistant
Email: Julian.Tong@bureauveritas.com
Phone# (905) 817-5700

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		YRV186	YRV187	YRV188			
Sampling Date		2024/03/20	2024/03/20	2024/03/20			
	UNITS	23-22327-#1-5A/B FIELD BLK	23-22327-#1- 1A/B-T1	23-22327-#1- 2A/B -T2	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	<0.050	<0.050	0.050	0.020	9299664
Vinyl Chloride	ug	<0.050	<0.050	<0.050	0.050	0.013	9299664
Bromomethane	ug	<0.050	<0.050	<0.050	0.050	0.015	9299664
Trichlorofluoromethane (FREON 11)	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Acetone (2-Propanone)	ug	<0.050	0.087	0.075	0.050	0.025	9299664
1,1-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Methylene Chloride(Dichloromethane)	ug	<0.050	0.100	0.119	0.050	0.020	9299664
trans-1,2-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Chloroform	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
1,2-Dichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.0070	9299664
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	<0.050	<0.050	0.050	0.036	9299664
1,1,1-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
Carbon Tetrachloride	ug	<0.050	<0.050	<0.050	0.050	0.016	9299664
Benzene	ug	<0.050	<0.050	<0.050	0.050	0.0010	9299664
1,1,2-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.016	9299664
1,2-Dichloropropane	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Trichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Bromodichloromethane	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Dibromochloromethane	ug	<0.050	<0.050	<0.050	0.050	0.0090	9299664
Toluene	ug	0.769	1.37	0.070	0.050	0.014	9299664
Ethylene Dibromide	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Tetrachloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.018	9299664
Chlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Ethylbenzene	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
m / p-Xylene	ug	<0.10	<0.10	<0.10	0.10	0.015	9299664
Styrene	ug	<0.050	<0.050	<0.050	0.050	0.012	9299664
o-Xylene	ug	<0.050	<0.050	<0.050	0.050	0.015	9299664
Bromoform	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
Surrogate Recovery (%)							
Bromofluorobenzene	%	98	101	101	N/A	N/A	9299664
D10-Ethylbenzene (FS)	%	112	112	102	N/A	N/A	9299664
D4-1,2-Dichloroethane	%	103	102	102	N/A	N/A	9299664
D8-Toluene	%	100	99	98	N/A	N/A	9299664

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

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Bureau Veritas Job #: C485503
Report Date: 2024/04/03

ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		YRV189	YRV193	YRV194			
Sampling Date		2024/03/20	2024/03/20	2024/03/20			
	UNITS	23-22327-#1- 3A/B-T3	23-22327-#2- 11A/B-T1	23-22327-#2- 12A/B-T2	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	<0.050	<0.050	0.050	0.020	9299664
Vinyl Chloride	ug	<0.050	<0.050	<0.050	0.050	0.013	9299664
Bromomethane	ug	<0.050	<0.050	<0.050	0.050	0.015	9299664
Trichlorofluoromethane (FREON 11)	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Acetone (2-Propanone)	ug	0.078	0.108	0.087	0.050	0.025	9299664
1,1-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Methylene Chloride(Dichloromethane)	ug	0.097	0.051	<0.050	0.050	0.020	9299664
trans-1,2-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Chloroform	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
1,2-Dichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.0070	9299664
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	<0.050	<0.050	0.050	0.036	9299664
1,1,1-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
Carbon Tetrachloride	ug	<0.050	<0.050	<0.050	0.050	0.016	9299664
Benzene	ug	<0.050	<0.050	<0.050	0.050	0.0010	9299664
1,1,2-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.016	9299664
1,2-Dichloropropane	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Trichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Bromodichloromethane	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Dibromochloromethane	ug	<0.050	<0.050	<0.050	0.050	0.0090	9299664
Toluene	ug	0.484	7.39	5.70	0.050	0.014	9299664
Ethylene Dibromide	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Tetrachloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.018	9299664
Chlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Ethylbenzene	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
m / p-Xylene	ug	<0.10	0.11	<0.10	0.10	0.015	9299664
Styrene	ug	<0.050	<0.050	<0.050	0.050	0.012	9299664
o-Xylene	ug	<0.050	<0.050	<0.050	0.050	0.015	9299664
Bromoform	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
Surrogate Recovery (%)							
Bromofluorobenzene	%	99	101	103	N/A	N/A	9299664
D10-Ethylbenzene (FS)	%	105	100	112	N/A	N/A	9299664
D4-1,2-Dichloroethane	%	103	98	102	N/A	N/A	9299664
D8-Toluene	%	99	95	95	N/A	N/A	9299664

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

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ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

VOLATILE ORGANICS BY GC/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		YRV195	YRY656	YRY657			
Sampling Date		2024/03/20	2024/03/20				
	UNITS	23-22327-#2- 13A/B-T3	23-22327-#2-16A/B FIELD BLK	23-22327-#2-15A/B TRIP BLANK	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	<0.050	<0.050	0.050	0.020	9299664
Vinyl Chloride	ug	<0.050	<0.050	<0.050	0.050	0.013	9299664
Bromomethane	ug	<0.050	<0.050	<0.050	0.050	0.015	9299664
Trichlorofluoromethane (FREON 11)	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Acetone (2-Propanone)	ug	<0.050	<0.050	<0.050	0.050	0.025	9299664
1,1-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Methylene Chloride(Dichloromethane)	ug	<0.050	<0.050	<0.050	0.050	0.020	9299664
trans-1,2-Dichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Chloroform	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
1,2-Dichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.0070	9299664
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	<0.050	<0.050	0.050	0.036	9299664
1,1,1-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
Carbon Tetrachloride	ug	<0.050	<0.050	<0.050	0.050	0.016	9299664
Benzene	ug	<0.050	<0.050	<0.050	0.050	0.0010	9299664
1,1,2-Trichloroethane	ug	<0.050	<0.050	<0.050	0.050	0.016	9299664
1,2-Dichloropropane	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Trichloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Bromodichloromethane	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Dibromochloromethane	ug	<0.050	<0.050	<0.050	0.050	0.0090	9299664
Toluene	ug	4.19	<0.050	<0.050	0.050	0.014	9299664
Ethylene Dibromide	ug	<0.050	<0.050	<0.050	0.050	0.010	9299664
Tetrachloroethylene	ug	<0.050	<0.050	<0.050	0.050	0.018	9299664
Chlorobenzene	ug	<0.050	<0.050	<0.050	0.050	0.011	9299664
Ethylbenzene	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
m / p-Xylene	ug	<0.10	<0.10	<0.10	0.10	0.015	9299664
Styrene	ug	<0.050	<0.050	<0.050	0.050	0.012	9299664
o-Xylene	ug	<0.050	<0.050	<0.050	0.050	0.015	9299664
Bromoform	ug	<0.050	<0.050	<0.050	0.050	0.014	9299664
Surrogate Recovery (%)							
Bromofluorobenzene	%	98	96	89	N/A	N/A	9299664
D10-Ethylbenzene (FS)	%	106	118	99	N/A	N/A	9299664
D4-1,2-Dichloroethane	%	103	104	104	N/A	N/A	9299664
D8-Toluene	%	97	99	100	N/A	N/A	9299664

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

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Bureau Veritas Job #: C485503
Report Date: 2024/04/03

ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

TEST SUMMARY

Bureau Veritas ID: YRV186
Sample ID: 23-22327-#1-5A/B FIELD BLK
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRV187
Sample ID: 23-22327-#1- 1A/B- T1
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRV188
Sample ID: 23-22327-#1- 2A/B -T2
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRV189
Sample ID: 23-22327-#1- 3A/B- T3
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRV193
Sample ID: 23-22327-#2- 11A/B- T1
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRV194
Sample ID: 23-22327-#2- 12A/B- T2
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRV195
Sample ID: 23-22327-#2- 13A/B- T3
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

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Bureau Veritas Job #: C485503
Report Date: 2024/04/03

ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

TEST SUMMARY

Bureau Veritas ID: YRY656
Sample ID: 23-22327-#2-16A/B FIELD BLK
Matrix: Stack Sampling Train

Collected: 2024/03/20
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

Bureau Veritas ID: YRY657
Sample ID: 23-22327-#2-15A/B TRIP BLANK
Matrix: Stack Sampling Train

Collected:
Shipped:
Received: 2024/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9299664	N/A	2024/03/27	Yujie Yan

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GENERAL COMMENTS

In the continuing calibration standard 2-butanone exceeded the acceptance limit of 40%.

Sample YRV187 [23-22327-#1- 1A/B- T1] : Toluene is over the calibration range. Data should be considered an estimate only.

Sample YRV193 [23-22327-#2- 11A/B- T1] : Toluene is over the calibration range. Data should be considered an estimate only.

Sample YRV194 [23-22327-#2- 12A/B- T2] : Toluene is over the calibration range. Data should be considered an estimate only.

Sample YRV195 [23-22327-#2- 13A/B- T3] : Toluene is over the calibration range. Data should be considered an estimate only.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
9299664	YYA	Spiked Blank	Bromofluorobenzene	2024/03/27		100	%	43 - 131
			D10-Ethylbenzene (FS)	2024/03/27		107	%	47 - 157
			D4-1,2-Dichloroethane	2024/03/27		99	%	64 - 133
			D8-Toluene	2024/03/27		99	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2024/03/27		96	%	50 - 150
			Vinyl Chloride	2024/03/27		110	%	50 - 150
			Bromomethane	2024/03/27		120	%	50 - 150
			Trichlorofluoromethane (FREON 11)	2024/03/27		101	%	50 - 150
			Acetone (2-Propanone)	2024/03/27		112	%	50 - 150
			1,1-Dichloroethylene	2024/03/27		117	%	50 - 150
			Methylene Chloride(Dichloromethane)	2024/03/27		108	%	50 - 150
			trans-1,2-Dichloroethylene	2024/03/27		109	%	50 - 150
			Chloroform	2024/03/27		110	%	50 - 150
			1,2-Dichloroethane	2024/03/27		108	%	50 - 150
			Methyl Ethyl Ketone (2-Butanone)	2024/03/27		104	%	50 - 150
			1,1,1-Trichloroethane	2024/03/27		107	%	50 - 150
			Carbon Tetrachloride	2024/03/27		111	%	50 - 150
			Benzene	2024/03/27		109	%	50 - 150
			1,1,2-Trichloroethane	2024/03/27		105	%	50 - 150
			1,2-Dichloropropane	2024/03/27		108	%	50 - 150
			Trichloroethylene	2024/03/27		107	%	50 - 150
			Bromodichloromethane	2024/03/27		108	%	50 - 150
			Dibromochloromethane	2024/03/27		113	%	50 - 150
			Toluene	2024/03/27		106	%	50 - 150
			Ethylene Dibromide	2024/03/27		107	%	50 - 150
			Tetrachloroethylene	2024/03/27		107	%	50 - 150
			Chlorobenzene	2024/03/27		105	%	50 - 150
			Ethylbenzene	2024/03/27		107	%	50 - 150
			m / p-Xylene	2024/03/27		107	%	50 - 150
			Styrene	2024/03/27		108	%	50 - 150
			o-Xylene	2024/03/27		106	%	50 - 150
			Bromoform	2024/03/27		109	%	50 - 150
9299664	YYA	Method Blank	Bromofluorobenzene	2024/03/27		98	%	43 - 131
			D10-Ethylbenzene (FS)	2024/03/27		103	%	47 - 157
			D4-1,2-Dichloroethane	2024/03/27		103	%	64 - 133
			D8-Toluene	2024/03/27		100	%	68 - 121
			Dichlorodifluoromethane (FREON 12)	2024/03/27	<0.050		ug	
			Vinyl Chloride	2024/03/27	<0.050		ug	
			Bromomethane	2024/03/27	<0.050		ug	
			Trichlorofluoromethane (FREON 11)	2024/03/27	<0.050		ug	
			Acetone (2-Propanone)	2024/03/27	<0.050		ug	
			1,1-Dichloroethylene	2024/03/27	<0.050		ug	
			Methylene Chloride(Dichloromethane)	2024/03/27	<0.050		ug	
			trans-1,2-Dichloroethylene	2024/03/27	<0.050		ug	
			Chloroform	2024/03/27	<0.050		ug	
			1,2-Dichloroethane	2024/03/27	<0.050		ug	
			Methyl Ethyl Ketone (2-Butanone)	2024/03/27	<0.050		ug	
			1,1,1-Trichloroethane	2024/03/27	<0.050		ug	
			Carbon Tetrachloride	2024/03/27	<0.050		ug	
			Benzene	2024/03/27	<0.050		ug	
			1,1,2-Trichloroethane	2024/03/27	<0.050		ug	

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2-Dichloropropane	2024/03/27	<0.050		ug	
			Trichloroethylene	2024/03/27	<0.050		ug	
			Bromodichloromethane	2024/03/27	<0.050		ug	
			Dibromochloromethane	2024/03/27	<0.050		ug	
			Toluene	2024/03/27	<0.050		ug	
			Ethylene Dibromide	2024/03/27	<0.050		ug	
			Tetrachloroethylene	2024/03/27	<0.050		ug	
			Chlorobenzene	2024/03/27	<0.050		ug	
			Ethylbenzene	2024/03/27	<0.050		ug	
			m / p-Xylene	2024/03/27	<0.10		ug	
			Styrene	2024/03/27	<0.050		ug	
			o-Xylene	2024/03/27	<0.050		ug	
			Bromoform	2024/03/27	<0.050		ug	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Bureau Veritas Job #: C485503
Report Date: 2024/04/03

ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anke Macfarlane, Laboratory Manager, VOC

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: Method Blank

Field ID#: Method Blank

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: YRV186

Field ID#: 23-22327-#1-5A/B FIELD BLANK

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#:	YRV187
Field ID#:	23-22327-#1-1A/B T1

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: YRV188

Field ID#: 23-22327-#1-2A/B T2

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#:	YRV189
Field ID#:	23-22327-#1-3A/B T3

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#:	YRV193
Field ID#:	23-22327-#2-11A/B T1

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#:	YRV194
Field ID#:	23-22327-#2-12A/B T2

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#:	YRV195
Field ID#:	23-22327-#2-13A/B T3

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: YRY656

Field ID#: 23-22327-#2-16A/B FIELD BLANK

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

Volatile Organics Analysis Data Sheets
Tentatively Identified Compounds

SAMPLE#: YRY657

Field ID#: 23-22327-#2-15A/B TRIP BLANK

Number of TICs found: NA

Concentration Units
ug

	CAS #	Compound Name	RT	Est. Conc.	Match %
1.		1,3-Butadiene < 0.05ug			
2.		Cumene < 0.05ug			
3.		1,3,5-Trimethylbenzene < 0.05 ug			
4.		Trichlorotrifluoroethane < 0.05ug			

APPENDIX 18

Aldehydes Recovery Data Sheet
(1 page)

ORTECH Consulting Alliance Inc. - Recovery & Sample Log
NCASI Method ISS/FP-A105.01

Client: Covanata DYEC
Job/Report Number: 22327
Received By: Chris Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO #: 22327-J2964

L2755050-COFC

Test Number	Test Location	ORTECH Sample ID 24-22327-	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	March 20, 2024	ALD-1	112.9	163.0	178.3	191.6	197.6
2	APC Outlet #1	ALD-2		ALD-2	113.1	163.3	179.7	190.6	195.9
3	APC Outlet #1	ALD-3		ALD-3	112.5	162.8	179.3	193.1	197.7
Blank 1	APC Outlet #1	Blank 1		ALD-4	112.9	163.6	163.6	172.8	181.4
1	APC Outlet #2	ALD-5		ALD-5	113.1	163.0	165.0	176.6	187.1
2	APC Outlet #2	ALD-6		ALD-6	111.6	161.7	164.8	176.1	186.0
3	APC Outlet #2	ALD-7		ALD-7	113.2	163.4	166.3	177.4	192.4
Blank 2	APC Outlet #2	Blank 2		ALD-8	112.2	162.2	162.2	174.8	187.2
	Field BHA&Spike		na	na	na	na	na	na	na
	BHA Blank		na	na	na	na	na	na	na

Analyze each sample for Acetaldehyde, Formaldehyde, Acrolein.

Relinquished by: Brayden Andrew **Date:** 3/22/24

Relinquished to: Aaron Burton **Date:** 3/22/24 10:00 5.2°C

APPENDIX 19

Aldehydes Analytical Report
(15 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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2755050		Mississauga, ON L5J 2Y4
Date of Report	23-Apr-24		Canada
Date of Sample Receipt	22-Mar-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **Aldehydes as benzyloxime derivatives by SIM GC/MS**

The laboratory method and field blanks all showed levels of formaldehyde similar to the levels in the samples. Therefore formaldehyde levels in the field samples are suspect to be false positives and represent maximum possible levels.

Acetaldehyde and acrolein in the laboratory method blank was much higher than in any of the samples. Clearly this method blank shows significant contamination and for acetaldehyde and acrolein not representive of the field samples.
The second field blank showed low levels of acetaldehyde at levels similar to the field samples. Therefore acetaldyhde levels in the field samples are suspected to be false postives and represent maximum possible values.

Low acrolein recoveries on the field spike indicates significant losses of this target on transportation of lab to field and return.

Certified by: _____
Ron McLeod, PhD
Laboratory Manager and Technical Director

ALS Environmental

Sample Analysis Summary Report

Sample Name	Method Blank	24-22327-ALD-1 TEST#1 APC OUTLET #1	24-22327-ALD-2 TEST#2 APC OUTLET #1	24-22327-ALD-3 TEST#3 APC OUTLET #1	24-22327-ALD-BLANK1 APC OUTLET #1	24-22327-ALD-5 TEST#1 APC OUTLET #2
ALS Sample ID	WG3788859-1	L2755050-1	L2755050-2	L2755050-3	L2755050-4	L2755050-5
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	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24	20-Mar-24
Extraction Date	2-Apr-24	2-Apr-24	2-Apr-24	2-Apr-24	2-Apr-24	2-Apr-24
Target Analytes	**ug/Train**	**ug/Train**	**ug/Train**	**ug/Train**	**ug/Train**	**ug/Train**
Formaldehyde	5.44 B	12 B	1.88 B	7.72 B	8.92 B	6.54 B
Acetaldehyde	12.63	0.37 B	0.44 B	0.33 B	<0.1 U	0.44 B
Acrolein	0.21	<0.1 U	<0.1 U	<0.1	<0.1 U	<0.1 U

U Indicates that this compound was not detected above the LOD.

B Indicates that this compound was detected in the method blank at greater than 10% of the sample value.

ALS Environmental

Sample Analysis Summary Report

Sample Name	24-22327-ALD-6 TEST#2 APC OUTLET #2		24-22327-ALD-7 TEST#3 APC OUTLET #2		24-22327-ALD-BLANK2 APC OUTLET #2		FIELD BHA+SPIKE	BHA BLANK		Laboratory Control Sample (10ug)
ALS Sample ID	L2755050-6		L2755050-7		L2755050-8		L2755050-9	L2755050-10		WG3788859-2
Sample Size	1		1		1		1	1		1
Sample units	Train		Train		Train		Train	Train		n/a
Moisture Content	n/a		n/a		n/a		n/a	n/a		n/a
Matrix	Stack		Stack		Stack		Stack	Stack		QC
Sampling Date	20-Mar-24		20-Mar-24		20-Mar-24		n/a	n/a		n/a
Extraction Date	2-Apr-24		2-Apr-24		2-Apr-24		2-Apr-24	2-Apr-24		2-Apr-24
Target Analytes	**ug/Train**		**ug/Train**		**ug/Train**		**% Rec**	**ug/Train**		**% Rec**
Formaldehyde	6.81	B	7.23	B	10.2	B	130	5.28	B	51
Acetaldehyde	0.34	B	0.34	B	0.38	B	124	<0.1	U	146
Acrolein	<0.1	U	<0.1	U	<0.1	U	5	<0.1	U	81

U Indicates that this compound was not detected above the LOD.

B Indicates that this compound was detected in the method blank at greater than 10% of the sample value.

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3788859-1	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	Blank		
Sample Matrix	QC		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 01:22:27
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.86	5.44	M	
Acetaldehyde (B)	13.76	6.06	M	
Acetaldehyde (A)	14.11	6.57		
Acrolein (A)	18.29	<0.1	U	
Acrolein (B)	19.38	0.21		

Total Aldehydes	**ug/Train**
Formaldehyde	5.44
Acetaldehyde	12.6
Acrolein	0.21

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	**24-22327-ALD-1 TEST#1 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-1	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 05:32:20
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.84	12	M B	
Acetaldehyde (B)	13.58	<0.1	U	
Acetaldehyde (A)	14.44	0.37	B	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	12
Acetaldehyde	0.37
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-2 TEST#2 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-2	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 06:13:59
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.72	1.88	M B	
Acetaldehyde (B)	13.58	<0.1	U	
Acetaldehyde (A)	14.44	0.44	B	
Acrolein (A)	18.27	<0.1	U	
Acrolein (B)	19.37	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	1.88
Acetaldehyde	0.44
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-3 TEST#3 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-3	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 06:55:39
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.80	7.72	M B	
Acetaldehyde (B)	13.58	<0.1	U	
Acetaldehyde (A)	14.44	0.33	B	
Acrolein (A)	18.27	<0.1	U	
Acrolein (B)	19.37	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	7.72
Acetaldehyde	0.33
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-BLANK1 APC OUTLET #1**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-4	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	Sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 04:09:00
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.82	8.92	M	B
Acetaldehyde (B)	13.55	<0.1	U	
Acetaldehyde (A)	14.55	<0.1	U	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	8.92
Acetaldehyde	<0.1
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-5 TEST#1 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-5	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 07:37:19
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.82	6.54	M	B
Acetaldehyde (B)	13.53	<0.1	U	
Acetaldehyde (A)	14.44	0.44		B
Acrolein (A)	18.27	<0.1	U	
Acrolein (B)	19.36	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	6.54
Acetaldehyde	0.44
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-6 TEST#2 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-6	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 08:18:57
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.82	6.81	M B	
Acetaldehyde (B)	13.59	<0.1	U	
Acetaldehyde (A)	14.44	0.34	B	
Acrolein (A)	18.28	<0.1	U	
Acrolein (B)	19.37	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	6.81
Acetaldehyde	0.34
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-7 TEST#3 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-7	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 09:00:37
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.82	7.23	M	B
Acetaldehyde (B)	13.58	<0.1	U	
Acetaldehyde (A)	14.44	0.34		B
Acrolein (A)	18.28	<0.1	U	
Acrolein (B)	19.37	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	7.23
Acetaldehyde	0.34
Acrolein	<0.1

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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**24-22327-ALD-BLANK2 APC OUTLET #2**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-8	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type			
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 04:50:40
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.82	10.2	M B	
Acetaldehyde (B)	13.56	<0.1	U	
Acetaldehyde (A)	14.44	0.38	B	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	NotFnd	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	10.2
Acetaldehyde	0.38
Acrolein	<0.1

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.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**FIELD BHA+SPIKE**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-9	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 02:04:06
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**ug spiked**	**Ret. Time**	**% Rec**	**Flags**	**Limits**
Formaldehyde	10	8.83	130	M B	
Acetaldehyde (B)	10	13.80	60	M B	
Acetaldehyde (A)	10	14.15	64	B	
Acrolein (A)	10	18.30	1	B	
Acrolein (B)	10	19.39	4	B	
Total Aldehydes					
Formaldehyde			130		50-150
Acetaldehyde			124		50-150
Acrolein			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.

ALS Life Sciences

Sample Analysis Report

Sample Name	**BHA BLANK**	Sampling Date	20-Mar-24
ALS Sample ID	L2755050-10	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	sample		
Sample Matrix	Stack		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	12-Apr-24 03:27:22
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**Ret. Time**	**Concentration ug/Train**	**Flags**	**Limits**
Formaldehyde	8.86	5.28	M B	
Acetaldehyde (B)	NotFnd	<0.1	U	
Acetaldehyde (A)	13.62	<0.1	U	
Acrolein (A)	NotFnd	<0.1	U	
Acrolein (B)	19.82	<0.1	U	

Total Aldehydes	**ug/Train**
Formaldehyde	5.28
Acetaldehyde	<0.1
Acrolein	<0.1

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.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3788859-2	Extraction Date	2-Apr-24
Analysis Method	SIM GC/MS/MS		
Analysis Type	LCS		
Sample Matrix	QC		
Sample Size	1 Train		
Percent Moisture	n/a		
Split Ratio	5		

Approved:
Andrew Reid
--e-signature--
15-Apr-2024

Run Information	**Run 1**
Filename	
Run Date	11-Apr-24 23:17:35
Final Volume	1 mL
Dilution Factor	1
Analysis Units	ug/Train
Instrument	TSQ-1
Column	Rtx-200 1610862

Target Analytes	**ug spiked**	**Ret. Time**	**% Rec**	**Flags**	**Limits**
Formaldehyde	10	8.82	51	M	
Acetaldehyde (B)	10	13.74	74	M	
Acetaldehyde (A)	10	14.09	72		
Acrolein (A)	10	18.26	48		
Acrolein (B)	10	19.36	33		
Total Aldehydes					
Formaldehyde			51		50-150
Acetaldehyde			146		50-150
Acrolein			81		50-150

M Indicates that a peak has been manually integrated.

APPENDIX 20

SVOC, Aldehydes and VOST Proof Data
(20 pages)

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#:	L2754554		Mississauga, ON L5J 2Y4
Date of Report	18-Mar-24		Canada
Date of Sample Receipt	9-Feb-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 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

Glassware is approved for PCB analysis.
RM 2024-Mar-18

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	GLASSWARE PROOF
ALS Sample ID	L2754554-40
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	Media prep
Sampling Date	n/a
Extraction Date	16-Feb-24

Target Analytes	pg
PCB-081	<6.5
PCB-077	15.0
PCB-123	<4.8
PCB-118	287
PCB-114	<5.2
PCB-105	88.0
PCB-126	<5.2
PCB-167	<3.2
PCB-156/157	<4.6
PCB-169	<4.0
PCB-189	<3.5

Extraction Standards	% Rec
13C12-PCB-081	102
13C12-PCB-077	105
13C12-PCB-123	110
13C12-PCB-118	109
13C12-PCB-114	96
13C12-PCB-105	99
13C12-PCB-126	103
13C12-PCB-167	116
13C12-PCB-156/157	103
13C12-PCB-169	108
13C12-PCB-189	74

Toxic Equivalency - (WHO 2005)	pg
Lower Bound PCB TEQ	0.0128
Mid Point PCB TEQ	0.334
Upper Bound PCB TEQ	0.655

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank
ALS Sample ID	WG3788443-1
Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	16-Feb-24

Target Analytes	pg
PCB-081	<1.9
PCB-077	<1.9
PCB-123	<1.8
PCB-118	<1.7
PCB-114	<1.8
PCB-105	<1.7
PCB-126	<1.8
PCB-167	<1.2
PCB-156/157	<1.6
PCB-169	<1.4
PCB-189	<1.3
Extraction Standards	**% Rec**
13C12-PCB-081	107
13C12-PCB-077	108
13C12-PCB-123	112
13C12-PCB-118	113
13C12-PCB-114	109
13C12-PCB-105	116
13C12-PCB-126	117
13C12-PCB-167	99
13C12-PCB-156/157	95
13C12-PCB-169	100
13C12-PCB-189	83
Toxic Equivalency - (WHO 2005)	**pg**
Lower Bound PCB TEQ	0.00
Mid Point PCB TEQ	0.112
Upper Bound PCB TEQ	0.223

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Road
ALS WO#:	L2754554		Mississauga, ON L5J 2Y4
Date of Report	28-Feb-24		Canada
Date of Sample Receipt	9-Feb-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **PCDD/F by EPA M23**

Glassware is approved for DX analysis.

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	GLASSWARE PROOF
ALS Sample ID	WG3788443-1	L2754554-40
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	QC	Media prep
Sampling Date	n/a	n/a
Extraction Date	21-Feb-24	21-Feb-24
Target Analytes	**pg**	**pg**
2,3,7,8-TCDD	<0.084	<0.34
1,2,3,7,8-PeCDD	<0.19	<0.61
1,2,3,4,7,8-HxCDD	<0.37	<0.81
1,2,3,6,7,8-HxCDD	<0.35	<0.76
1,2,3,7,8,9-HxCDD	<0.29	<0.81
1,2,3,4,6,7,8-HpCDD	<0.36	<1.0
OCDD	<0.76	<2.6
2,3,7,8-TCDF	<0.11	<0.25
1,2,3,7,8-PeCDF	0.187	<0.78
2,3,4,7,8-PeCDF	<0.10	<0.69
1,2,3,4,7,8-HxCDF	<0.21	<0.34
1,2,3,6,7,8-HxCDF	<0.22	<0.38
2,3,4,6,7,8-HxCDF	<0.22	<0.38
1,2,3,7,8,9-HxCDF	<0.26	<0.38
1,2,3,4,6,7,8-HpCDF	<0.25	<0.49
1,2,3,4,7,8,9-HpCDF	<0.16	<0.31
OCDF	<0.49	<0.86
Extraction Standards		
13C12-2,3,7,8-TCDD	88	85
13C12-1,2,3,7,8-PeCDD	98	85
13C12-1,2,3,6,7,8-HxCDD	88	73
13C12-1,2,3,4,6,7,8-HpCDD	93	84
13C12-OCDD	82	64
13C12-2,3,7,8-TCDF	90	82
13C12-1,2,3,7,8-PeCDF	97	92
13C12-1,2,3,6,7,8-HxCDF	84	80
13C12-1,2,3,4,6,7,8-HpCDF	72	76
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	0.00561	0.00
Mid Point PCDD/F TEQ (WHO 2005)	0.263	0.805
Upper Bound PCDD/F TEQ (WHO 2005)	0.521	1.61

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 Rd.
ALS WO#:	L2754554		Mississauga, ON L5J 2Y4
Date of Report	18-Mar-24		Canada
Date of Sample Receipt	9-Feb-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **PAH by CARB method 429 (LR option)- Isotope dilution**

Glassware is approved for PAH analysis.
RM 2024-Mar-18

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		GLASSWARE PROOF	
ALS Sample ID	WG3788443-1		L2754554-40	
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	21-Feb-24		21-Feb-24	
Target Analytes	**ng/sample**		**ng/sample**	
Naphthalene	<12	U	18.7	
2-Methylnaphthalene	<12	U	<12	U
1-Methylnaphthalene	<12	U	<12	U
Acenaphthylene	<12	U	<12	U
Acenaphthene	<12	U	<12	U
Fluorene	<12	U	<12	U
Phenanthrene	<12	U	18.7	M
Anthracene	<12	U	<12	U
Fluoranthene	<12	U	<12	U
Pyrene	<12	U	<12	U
Benzo(a)Anthracene	<12	U	<12	U
Chrysene/Triphenlyene	<12	U	<12	U
Benzo(b)Fluoranthene	<12	U	<12	U
Benzo(k)Fluoranthene	<12	U	<12	U
Benzo(e)Pyrene	<12	U	<12	U
Benzo(a)Pyrene	<12	U	<12	U
Perylene	<12	U	<12	U
Indeno(1,2,3-cd)Pyrene	<12	U	<12	U
Dibenzo(a,h/a,c)Anthracene	<12	U	<12	U
Benzo(g,h,i)Perylene	<12	U	<12	U
Additional Analytes				
Tetralin	35.9	M	40.6	
2-Chloronaphthalene	<12	U	<12	U
Biphenyl	<12	U	<12	U
o-Terphenyl	<12	U	<12	U
1-Methylphenanthrene	<12	U	<12	U
9-Methylphenanthrene	<12	U	<12	U
2-methylanthracene	<12	U	<12	U
9,10-dimethylanthracene	<12	U	<12	U
m-terphenyl	<12	U	<12	U
p-terphenyl	<12	U	<12	U
Benzo(a)fluorene	<12	U	<12	U
Benzo(b)fluorene	<12	U	<12	U
7,12-Dimethylbenzo(a)anthracene	<12	U	<12	U
3-Methylcholanthrene	<60	U	<60	U
Picene	<60	U	<60	U
Dibenzo(a,e)pyrene	<60	U	<60	U
Coronene	<60	U	<60	U
Extraction Standards	**% Rec**		**% Rec**	
Naphthalene D8	98.4		82.3	
2-Methylnaphthalene-D10	96.1		84.8	
Acenaphthylene D8	82.5		85.8	
Phenanthrene D10	123.6		99.4	
Anthracene-D10	103.7		101.1	
Fluoranthene D10	105.4		101.2	
Benz(a)Anthracene-D12	64.4		107.6	
Chrysene D12	83.5		86.2	
Benzo(b)Fluoranthene-D12	93.7		125.5	
Benzo(k)Fluoranthene-D12	81.9		106.5	
Benzo(a)Pyrene D12	69.9		91.7	
Perylene D12	62.4		99	
Indeno(1,2,3,cd)Pyrene-D12	80.6		121.1	
Dibenz(a,h)Anthracene-D14	82		111.1	
Benzo(g,h,i)Perylene D12	95.9		122.2	

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2754554		Mississauga, ON L5J 2Y4
Date of Report	18-Mar-24		Canada
Date of Sample Receipt	9-Feb-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **Chlorophenols by modifed EPA 8270E**

Certified by:

Ron McLeod, Ph.D.
Technical Director

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		GLASSWARE PROOF	
ALS Sample ID	WG3788443-1		L2754554-40	
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	21-Feb-24		21-Feb-24	
Target Analytes	**ng/sample**		**ng/sample**	
2-Chlorophenol	<60	U	<60	U
3/4-Chlorophenol	<60	U	<60	U
2,4/2,5-Dichlorophenol	<60	U	<60	U
2,3-Dichlorophenol	<60	U	<60	U
2,6-Dichlorophenol	<60	U	<60	U
3,5-Dichlorophenol	<60	U	<60	U
3,4-Dichlorophenol	<60	U	<60	U
2,3,5-Trichlorophenol	<60	U	<60	U
2,4,6-Trichlorophenol	<60	U	<60	U
2,4,5-Trichlorophenol	<60	U	<60	U
2,3,4-Trichlorophenol	<60	U	<60	U
2,3,6-Trichlorophenol	<60	U	<60	U
3,4,5-Trichlorophenol	<60	U	<60	U
2,3,5,6-Tetrachlorophenol	<60	U	<60	U
2,3,4,5/2,3,4,6-Tetrachlorophenol	<60	U	<60	U
Pentachlorophenol	<60	U	<60	U
Extraction Standards	**% Rec**		**% Rec**	
13C6-4-Chlorophenol (ES)	85.0		83.3	
13C6-2,4-Dichlorophenol (ES)	85.4		77.8	
13C6-2,4,5-Trichlorophenol (ES)	85.0		83.0	
13C6-2,3,4,5-Tetrachlorophenol (ES)	64.4		67.1	
13C6-Pentachlorophenol (ES)	27.7		28.0	M

U Indicates that this compound was not detected above the LOD.

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
ALS Project ID:	ORT100	**Client Address:**	804 Southdown Rd.
ALS WO#:	L2754554		Mississauga, ON L5J 2Y4
Date of Report	18-Mar-24		Canada
Date of Sample Receipt	9-Feb-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **CB by HRGC/SRM QQQ - Isotope dilution**

Glassware is approved for CB analysis.

Certified by:

Sabrina Jin
Technical Specialist

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		GLASSWARE PROOF	
ALS Sample ID	WG3788443-1		L2754554-40	
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	21-Feb-24		21-Feb-24	
Target Analytes	**ng/sample**		**ng/sample**	
Chlorobenzene	<12	U	<12	U
1,3-Dichlorobenzene	<12	U	<12	U
1,4-Dichlorobenzene	<12	U	<12	U
1,2-Dichlorobenzene	<12	U	<12	U
1,3,5-Trichlorobenzene	<12	U	<12	U
1,2,4-Trichlorobenzene	<12	U	<12	U
1,2,3-Trichlorobenzene	<12	U	<12	U
1,2,3,5/1,2,4,5-Tetrachlorobenzene	<12	U	<12	U
1,2,3,4-Tetrachlorobenzene	<12	U	<12	U
Pentachlorobenzene	<12	U	<12	U
Hexachlorobenzene	<12	U	<12	U
Extraction Standards	**%Rec**		**%Rec**	
13C6-Chlorobenzene	61		56	
13C6-1,4-Dichlorobenzene	84		78	
13C6-1,2,3-Trichlorobenzene	85		83	
13C6-1,2,3,4-Tetrachlorobenzene	84		84	
13C6-Pentachlorobenzene	90		93	
13C6-Hexachlorobenzene	90		96	

U Indicates that this compound was not detected above the LOD.

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#:	L2754554		Mississauga, ON L5J 2Y4
Date of Report	19-Mar-24		Canada
Date of Sample Receipt	9-Feb-24	**Client Contact:**	Chris Belore
		Client Project ID:	22327 Covanta

COMMENTS: **Aldehydes as benzyloxime derivatives by SIM GC/MS**

Target analytes were not detcted in the proof. Reagent approved for the collection of samples for analysis of the reported targets

Certified by:

Steve Kennedy
Technical Supervisor

ALS Environmental

Sample Analysis Summary Report

Sample Name	Method Blank		BHA PROOF	
ALS Sample ID	WG3788791-1		L2754554-59	
Sample Size	1		1	
Sample units	n/a		Train	
Moisture Content	n/a		n/a	
Matrix	QC		Media Prep	
Sampling Date	n/a		n/a	
Extraction Date	18-Mar-24		18-Mar-24	
Target Analytes	**ug/sample**		**ug/sample**	
Formaldehyde	<0.01	U	<0.01	U
Acetaldehyde	<0.01	U	<0.01	U
Acrolein	<0.01	U	<0.01	U

U Indicates that this compound was not detected above the LOD.

Your P.O. #: 22327-J2965
Your Project #: 22327
Site#: MEDIA PREP
Site Location: COVANTA

Attention: Chris Belore
ORTECH Environmental
804 Southdown Road
Mississauga, ON
CANADA L5J 2Y4

Report Date: 2024/03/13
Report #: R8064080
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C439106
Received: 2024/02/08, 14:36

Sample Matrix: Air Sampling Media
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
VOST EPA5041A, 8260D for 0030, 0031	1	N/A	2024/03/12	BRL SOP-00302	EPA5041A, 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 22327-J2965
Your Project #: 22327
Site#: MEDIA PREP
Site Location: COVANTA

Attention: Chris Belore

ORTECH Environmental
804 Southdown Road
Mississauga, ON
CANADA L5J 2Y4

Report Date: 2024/03/13
Report #: R8064080
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C439106
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Encryption Key

Julian Tong
Project Manager Assistant
13 Mar 2024 11:56:06

Please direct all questions regarding this Certificate of Analysis to:
Julian Tong, Project Manager Assistant
Email: Julian.Tong@bureauveritas.com
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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

VOLATILE ORGANICS BY GC/MS (AIR SAMPLING MEDIA)

Bureau Veritas ID		YIF061			
Sampling Date		2024/02/08 15:10			
	UNITS	VOST PROOF 1-16	RDL	MDL	QC Batch
Dichlorodifluoromethane (FREON 12)	ug	<0.050	0.050	0.020	9268820
Chloromethane	ug	<0.050	0.050	0.015	9268820
Vinyl Chloride	ug	<0.050	0.050	0.013	9268820
Bromomethane	ug	<0.050	0.050	0.015	9268820
Chloroethane	ug	<0.050	0.050	0.0090	9268820
Trichlorofluoromethane (FREON 11)	ug	<0.050	0.050	0.010	9268820
Acetone (2-Propanone)	ug	<0.050	0.050	0.025	9268820
1,1-Dichloroethylene	ug	<0.050	0.050	0.011	9268820
Iodomethane	ug	<0.050	0.050	0.015	9268820
Carbon Disulfide	ug	<0.050	0.050	0.026	9268820
Methylene Chloride(Dichloromethane)	ug	<0.050	0.050	0.020	9268820
1,1-Dichloroethane	ug	<0.050	0.050	0.012	9268820
trans-1,2-Dichloroethylene	ug	<0.050	0.050	0.010	9268820
cis-1,2-Dichloroethylene	ug	<0.050	0.050	0.010	9268820
Chloroform	ug	<0.050	0.050	0.011	9268820
1,2-Dichloroethane	ug	<0.050	0.050	0.0070	9268820
Methyl Ethyl Ketone (2-Butanone)	ug	<0.050	0.050	0.036	9268820
1,1,1-Trichloroethane	ug	<0.050	0.050	0.014	9268820
Carbon Tetrachloride	ug	<0.050	0.050	0.016	9268820
Benzene	ug	<0.050	0.050	0.0010	9268820
1,1,2-Trichloroethane	ug	<0.050	0.050	0.016	9268820
1,2-Dichloropropane	ug	<0.050	0.050	0.011	9268820
Trichloroethylene	ug	<0.050	0.050	0.011	9268820
Dibromomethane	ug	<0.050	0.050	0.010	9268820
Bromodichloromethane	ug	<0.050	0.050	0.011	9268820
cis-1,3-Dichloropropene	ug	<0.050	0.050	0.010	9268820
trans-1,3-Dichloropropene	ug	<0.050	0.050	0.0070	9268820
Dibromochloromethane	ug	<0.050	0.050	0.0090	9268820
Methyl Isobutyl Ketone	ug	<0.050	0.050	0.019	9268820
Methyl Butyl Ketone (2-Hexanone)	ug	<0.050	0.050	0.031	9268820
Toluene	ug	<0.050	0.050	0.014	9268820
Ethylene Dibromide	ug	<0.050	0.050	0.010	9268820
Tetrachloroethylene	ug	<0.050	0.050	0.018	9268820
Chlorobenzene	ug	<0.050	0.050	0.011	9268820

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (AIR SAMPLING MEDIA)

Bureau Veritas ID		YIF061			
Sampling Date		2024/02/08 15:10			
	UNITS	VOST PROOF 1-16	RDL	MDL	QC Batch
1,1,1,2-Tetrachloroethane	ug	<0.050	0.050	0.010	9268820
Ethylbenzene	ug	<0.050	0.050	0.014	9268820
m / p-Xylene	ug	<0.10	0.10	0.015	9268820
Styrene	ug	<0.050	0.050	0.012	9268820
o-Xylene	ug	<0.050	0.050	0.015	9268820
Bromoform	ug	<0.050	0.050	0.014	9268820
1,1,2,2-Tetrachloroethane	ug	<0.050	0.050	0.014	9268820
1,2,3-Trichloropropane	ug	<0.050	0.050	0.015	9268820
1,3-Dichlorobenzene	ug	<0.050	0.050	0.020	9268820
1,4-Dichlorobenzene	ug	<0.050	0.050	0.020	9268820
1,2-Dichlorobenzene	ug	<0.050	0.050	0.020	9268820
Surrogate Recovery (%)					
Bromofluorobenzene	%	88	N/A	N/A	9268820
D10-Ethylbenzene (FS)	%	98	N/A	N/A	9268820
D4-1,2-Dichloroethane	%	100	N/A	N/A	9268820
D8-Toluene	%	99	N/A	N/A	9268820

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

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Bureau Veritas Job #: C439106
Report Date: 2024/03/13

ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

TEST SUMMARY

Bureau Veritas ID: YIF061
Sample ID: VOST PROOF 1-16
Matrix: Air Sampling Media

Collected: 2024/02/08
Shipped:
Received: 2024/02/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
VOST EPA5041A, 8260D for 0030, 0031	GC/MS	9268820	N/A	2024/03/12	Yujie Yan

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GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C439106
Report Date: 2024/03/13

ORTECH Environmental
Client Project #: 22327
Site Location: COVANTA
Your P.O. #: 22327-J2965

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anke Macfarlane, Laboratory Manager, VOC

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APPENDIX 21

ORTECH Equipment Calibration Data
(28 pages)

ORTECH Consulting Inc.
Pitot Tube Calibration

Date	January 25, 2024
Probe/Pitot ID	15E
MII Number	COE 20113
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

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	7.88	0.150	0.210	0.845	0.0007
(0.25")	9.86	0.235	0.330	0.843	0.0006
	11.50	0.320	0.450	0.843	0.0012
	13.79	0.460	0.640	0.847	0.0033
	16.52	0.660	0.930	0.842	0.0021
			Mean	0.844	0.0016
Without Nozzle	8.01	0.155	0.220	0.839	0.0041
	9.75	0.230	0.320	0.847	0.0043
	11.14	0.300	0.420	0.845	0.0016
	13.94	0.470	0.660	0.843	0.0004
	16.14	0.630	0.890	0.841	0.0022
			Mean	0.843	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	January 25, 2024
Probe/Pitot ID	SP4
MII Number	B04011
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

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	8.01	0.155	0.220	0.839	0.0036
(0.25")	9.75	0.230	0.320	0.847	0.0048
	11.50	0.320	0.450	0.843	0.0003
	13.79	0.460	0.650	0.841	0.0017
	16.27	0.640	0.900	0.843	0.0003
			Mean	0.843	0.0021
Without Nozzle	7.88	0.150	0.210	0.845	0.0023
	9.86	0.235	0.330	0.843	0.0011
	11.50	0.320	0.450	0.843	0.0005
	13.64	0.450	0.640	0.838	0.0043
	16.27	0.640	0.900	0.843	0.0005
			Mean	0.842	0.0017

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	January 26, 2024
Probe/Pitot ID	PM 10 2.5
MII Number	COE 20132
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

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	7.88	0.150	0.210	0.845	0.0015
	9.54	0.220	0.310	0.842	0.0013
	11.14	0.300	0.420	0.845	0.0015
	13.49	0.440	0.620	0.842	0.0013
	16.27	0.640	0.900	0.843	0.0004
			Mean	0.843	0.0012

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 Mll Number	COE 20094
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	29.62	in Hg
Theoretical Critical Vacuum	14.0	in Hg
System Leak Check	.002 @ 27	
Calibration Date	March 12, 2024	
Calibration Technician	D Turton	
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	0.29	48.680	51.780	69.0	69.0	UR-40	0.2352	69.8	69.8	23.5
10.0	0.58	51.780	56.120	69.0	69.0	UR-48	0.3308	69.8	69.8	22.8
10.0	1.15	56.120	62.057	69.0	69.0	UR-55	0.4520	69.8	69.8	21.0
10.0	2.00	62.057	69.796	69.0	69.5	UR-63	0.5874	69.8	69.8	19.5
10.0	3.75	38.060	48.680	69.0	69.0	UR-73	0.8107	69.8	69.8	16.5

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	
3.065	0.307	3.027	0.303	0.987	0.000	0.303	1.781	-0.085
4.295	0.429	4.257	0.426	0.991	0.004	0.426	1.800	-0.065
5.883	0.588	5.817	0.582	0.989	0.001	0.582	1.912	0.046
7.681	0.768	7.559	0.756	0.984	-0.003	0.756	1.969	0.103
10.591	1.059	10.433	1.043	0.985	-0.002	1.043	1.938	0.073
			DGMCF	0.987			1.865	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	March 11, 2024
Calibrated By	D Turton
Reviewed and Accepted By	DJW

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32	NA	0.0
70	70		0.0
100	100		0.0
200	201		-0.5
250	252		-0.8
300	302		-0.7
400	401		-0.3
500	500		0.0
600	602		-0.3
700	701		-0.1
800	801		-0.1
900	902		-0.2
1000	1002		-0.2
1100	1102		-0.2
1200	1202		-0.2
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
Manometer Calibration Data

Date	March 11, 2024	Calibrated By	D Turton
Manometer Number	Team 1	Signature	
Manometer MII Number	COE 20094	Reviewed/Accepted By	
Calibrated Against	Dual 3		
MII Number	COE 20008		
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 %
	0.850	N/A	0.850	0.0
0-1.0	0.540		0.540	0.0
	0.175		0.180	2.8
	8.25		8.21	-0.5
1.0-10.0	4.30		4.27	-0.7
	1.75		1.72	-1.7

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer} - \text{Instrument Reading})}{\text{Ref. Manometer}} \times 100$$

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

Dry Gas Meter Calibration Using Calibrated Critical Orifice

Meter Console Information	
Meter Number	Team # 3
Meter MII Number	COE 20093
Orifice Set ID	COE20999
Barometer ID	COE 20028

Calibration Conditions		
Barometric Pressure	29.56	in Hg
Theoretical Critical Vacuum	14.0	in Hg
System Leak Check	.002 @ 26.5	
Calibration Date	March 12, 2024	
Calibration Technician	D Turton	
Reviewed and Accepted By	D Turton	

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
9.8	0.22	31.735	34.788	70.0	71.0	UR-40	0.2352	70.7	70.7	23.5
10.0	0.61	39.260	43.614	70.0	70.0	UR-48	0.3308	70.7	70.7	22.0
10.0	1.20	43.614	49.578	70.0	71.0	UR-55	0.4520	70.7	70.7	20.8
10.0	2.10	49.578	57.330	71.0	71.5	UR-63	0.5874	70.7	70.7	19.2
10.0	3.90	57.330	67.982	71.5	72.5	UR-73	0.8107	70.7	70.7	16.2

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	
3.004	0.306	2.958	0.302	0.985	-0.002	0.302	1.359	-0.479
4.292	0.429	4.245	0.424	0.989	0.003	0.424	1.904	0.067
5.882	0.588	5.800	0.580	0.986	0.000	0.580	2.007	0.169
7.652	0.765	7.537	0.754	0.985	-0.001	0.754	2.079	0.242
10.546	1.055	10.403	1.040	0.986	0.000	1.040	2.027	0.190
			DGMCF	0.986			1.837	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 DP116
MII	A12007
Date	March 12, 2024
Calibrated By	D Turton
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32	N/A	0.0
70	70		0.0
100	100		0.0
200	201		-0.5
250	251		-0.4
300	301		-0.3
400	399		0.3
500	498		0.4
600	600		0.0
700	701		-0.1
800	801		-0.1
900	901		-0.1
1000	1001		-0.1
1100	1102		-0.2
1200	1202		-0.2
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 Environmental
Manometer Calibration Data

Date	3/12/2024	Calibrated By	D Turton
Manometer Number	Team 3	Signature	
Manometer MII Numbe	COE 20093	Reviewed/Accepted By	
Calibrated Against	Omega HHP		
MII Number	B02679		
Calibration Procedure	03 - J010		

Back Leg

Manometer Scale "H_2O	Manometer Reading "H_2O		Reference Manometer Reading "H_2O	Percent Difference %
	Before Adjustment	After Adjustment		
	0.820	N/A	0.820	0.0
0-1.0	0.480		0.480	0.0
	0.180		0.180	0.0
	8.60		8.49	-1.3
1.0-10.0	3.90		3.84	-1.6
	2.05	√	2.01	-2.0

Percent Difference = (Ref. Manometer - Instrument Reading) x 100
Ref. Manometer

Acceptance Criteria:
The manometer being calibrated must be within ± 5.0% of the Standard value at each reading. Otherwise, the manometer must be repaired and/or adjusted as necessary and recalibrated prior to use. Manometers must be capable of measuring velocity pressure to within 0.005 "H_2O on the 0 to 1 inch scale, and 0.05 "H_2O on the 1 to 10 inch scales.
(Environment Canada Reference Method 1/RM/8, Section 2)

ORTECH

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	29.65	in Hg
Theoretical Critical Vacuum	14.0	in Hg
System Leak Check	0.002 @ 29	
Calibration Date	March 11, 2024	
Calibration Technician	D Turton	
Reviewed and Accepted By	D Soils	

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	0.29	99.030	101.990	58.0	64.5	UR-40	0.2352	69.8	69.8	26.3
10.5	0.58	1.990	6.393	64.5	66.5	UR-48	0.3308	69.8	69.8	26.0
10.0	1.10	6.510	12.240	67.0	67.5	UR-55	0.4520	69.8	69.8	24.5
10.0	1.90	12.240	19.766	68.0	69.0	UR-63	0.5874	69.8	69.8	22.5
10.0	3.55	19.976	30.260	69.0	70.5	UR-73	0.8107	69.8	69.8	19.7

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	
2.973	0.297	3.030	0.303	1.019	0.001	0.303	1.777	-0.039
4.390	0.418	4.474	0.426	1.019	0.001	0.426	1.797	-0.020
5.702	0.570	5.822	0.582	1.021	0.003	0.582	1.825	0.009
7.486	0.749	7.567	0.757	1.011	-0.007	0.757	1.867	0.050
10.247	1.025	10.443	1.044	1.019	0.001	1.044	1.831	0.015
			DGMCF	1.018			1.816	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	March 11, 2024
Calibrated By	D Turton
Reviewed and Accepted By	D.Uls

Fluke Calibrator Output (COE 20024) (°F)	Tredicator Display Value		Percent Difference
	Before Adjustment (°F)	After Adjustment (°F)	(%)
32	32	N/A	0.0
70	69		1.4
100	99		1.0
200	200		0.0
250	250		0.0
300	300		0.0
400	398		0.5
500	497		0.6
600	599		0.2
700	700		0.0
800	799		0.1
900	899		0.1
1000	1000		0.0
1100	1100		0.0
1200	1200		0.0
1250	1249		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	March 11, 2024	Calibrated By	D Turton
Manometer Number	Team 1	Signature	
Manometer MII Number	COE 20094	Reviewed/Accepted By	
Calibrated Against	Dual 3		
MII Number	COE 20008		
Calibration Procedure	03 - J010		

Front Leg

Manometer Scale "H_2O	Manometer Reading "H_2O		Reference Manometer Reading "H_2O	Percent Difference %
	Before Adjustment	After Adjustment		
	0.880		0.880	0.0
0-1.0	0.710		0.710	0.0
	0.275		0.280	1.8
	9.00		9.00	0.0
1.0-10.0	4.95		4.98	0.6
	1.87		1.87	0.0

$$\text{Percent Difference} = \frac{(\text{Ref. Manometer} - \text{Instrument Reading}) \times 100}{\text{Ref. Manometer}}$$

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 Data

Calibration Procedure	**03-J004**
Meter Number	**Vost 3**
Date	**Feb. 29, 2024**
Barometric Pressure	**30.03**
System Leak Check	**NDL @ " Hg 16**

MII NUMBERS	
DGM	**A12010**
Gasometer	**A01463**
Barometer	**COE 20028**

Calibrated By	**Tyler Curtis**
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

DGMCF= $\frac{\text{Vstd } ft^3}{\text{Vdgm } ft^3}$ $\frac{\text{Tdgm } °F+460}{\text{Tstd } °F+460}$ $\frac{\text{Pbar (in. Hg)}}{\text{(Pbar in. Hg+DGMPressure/13.6)}}$

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**
83.60	61.00	22.60	1.063	20.0	187.23	217.95	1.085	24.0	2.0	18.0	0.988	15	2.0
60.90	39.60	21.30	1.002	20.0	217.95	246.71	1.016	26.0	2.0	24.0	1.002	15	1.9
83.60	61.80	21.80	1.025	20.0	246.71	276.49	1.052	27.0	2.0	25.0	0.993	15	2.0
		0.00	0.000				0.000				#DIV/0!		#DIV/0!
		0.00	0.000				0.000				#DIV/0!		#DIV/0!
		0.00	0.000				0.000				#DIV/0!		#DIV/0!
83.70	75.80	7.90	0.372	20.0	305.56	316.55	0.388	26.0	0.5	24.0	0.976	20	0.5
75.80	67.70	8.10	0.381	20.0	316.550	327.750	0.396	27.0	0.5	25.0	0.985	20.5	0.5
67.60	59.50	8.10	0.381	20.0	327.750	338.870	0.393	28.0	0.5	27.0	0.995	20	0.6

Acceptance Criteria:

Individual values of DGM calibration factor must be within ± 1.5% of the average value.
If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05,
otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

DGMCF AVERAGE

2Lpm	0.995
1Lpm	#DIV/0!
0.5Lpm	0.985

ORTECH

Trendicator Calibration

Calibration Procedure	**03-J005**
Trendicator Type	**Nutech**
MII	**A12010**
Date	**Feb. 29, 2024**
Calibrated By	**Tyler Curtis**
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	100		0.0
150	150		0.0
200	200		0.0
300	300		0.0
400	400		0.0
500	500		0.0
600	600		0.0

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading}) \times 100}{\text{micromite}}$$

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)

ORTECH Environmental

Dry Gas Meter Calibration Data

Calibration Procedure	**03-J004**
Meter Number	**M05498**
Date	**October 30, 2023**
Barometric Pressure	**29.56**
System Leak Check	**NDL @ 20 " Hg**

MII NUMBERS	
DGM	**M05498**
Gasometer	**A01463**
Barometer	**COE 20028**

Calibrated By	**J. Grollman**
Signature	
Reviewed and Accepted By	

ft^3= cm* 1.332 litres per cm/28.3168 litres per ft^3

DGMCF= $\frac{\text{Vstd } ft^3}{\text{Vdgm } ft^3}$ $\frac{\text{Tdgm } ^\circ F+460}{\text{Tstd } ^\circ F+460}$ $\frac{\text{Pbar ("Hg)}}{\text{(Pbar "Hg+DGMPressure/13.6)}}$

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**
46.80	16.20	30.60	1.439	22.0	938.63	979.71	1.451	23.0	3.8	22.0	0.986	21	2.0
46.80	20.70	26.10	1.228	22.0	979.71	1015.25	1.255	24.5	3.8	23.0	0.977	18	2.0
47.60	20.10	27.50	1.294	22.0	1015.25	1052.93	1.331	26.0	3.8	25.0	0.976	19	2.0
72.90	67.55	5.35	0.252	23.0	16.60	23.75	0.252	25.0	1.0	25.0	1.001	15	0.5
67.55	62.20	5.35	0.252	23.0	23.75	30.90	0.252	26.0	1.0	26.0	1.004	15	0.5
62.20	56.75	5.45	0.256	23.0	30.90	38.27	0.260	27.0	1.0	27.0	0.996	15.5	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

2Lpm	0.980
0.5 Lpm	1.000

ORTECH Environmental
Trendicator Calibration

Calibration Procedure	**03-J005**
Trendicator Type	**Nutech**
MII	**M05498**
Date	**October 30, 2023**
Calibrated By	**J. Grollman**
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	Tredicator Display Value		Percent Difference
	Before Adjustment (°C)	After Adjustment (°C)	(%)
0	2	0	0.0
20		20	0.0
50		50	0.0
100		101	-1.0
150		151	-0.7
200		199	0.5
300		298	0.7
400		396	1.0
500		496	0.8
600		596	0.7

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading}) \times 100}{\text{micromite}}$$

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:	22327	Date:	March 19, 2024
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	0.995					
High	91.5	A2	91	B2		C				
Mid	53.31	A4	53.5	B4			53.0	D4	0.9	E4
Low	31.2	A3	31	B3			31.0	D3	-0.1	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	0	0
Mid	31	30.9	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	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:	22327	Date:	March 19, 2024
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	0.995				
High	91.5	A2	91	B2	C				
Mid	53.31	A4	53.5	B4		53.0	D4	0.9	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	30.9	31.0	-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	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:	22327	Date:	March 19, 2024
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	0.995	C				
High	91.5	A2	91	B2						
Mid	53.31	A4	53.5	B4			53.0	D4	0.9	E4
Low	31.2	A3	31	B3			31.0	D3	-0.1	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	0	0
Mid	31	30.0	1.0

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	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:	22327	Date:	March 19, 2024
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	B1	0.995				
High	91.5	A2	91	B2	C				
Mid	53.31	A4	52.9	B4		53.0	D4	-0.2	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	31	30.5	0.5

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:	22327	Date:	March 19, 2024
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	B1	0.995 C				
High	91.5	A2	91	B2					
Mid	53.31	A4	52.9	B4		53.0	D4	-0.2	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	30.5	30.5	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	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:	22327	Date:	March 19, 2024
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	B1	0.995 C				
High	91.5	A2	91	B2					
Mid	53.31	A4	52.9	B4		53.0	D4	-0.2	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	30.5	30.0	0.5

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:	22327	Date:	March 19, 2024
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	0.995 C				
High	91.5	A2	91	B2					
Mid	53.31	A4	53.25	B4		53.0	D4	0.4	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	31	31.0	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:	22327	Date:	March 19, 2024
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	0.995				
High	91.5	A2	91	B2	C				
Mid	53.31	A4	53.25	B4		53.0	D4	0.4	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	31	30.0	1.0

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:	22327	Date:	March 19, 2024
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	0.995 C				
High	91.5	A2	91	B2					
Mid	53.31	A4	53.25	B4		53.0	D4	0.4	E4
Low	31.2	A3	31	B3		31.0	D3	-0.1	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	0	0
Mid	30	30.0	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:	22327	Date:	March 19, 2024
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	1.001	C				
High	91.5	A2	91.6	B2						
Mid	53.31	A4	53.5	B4			53.4	D4	0.2	E4
Low	31.2	A3	30.5	B3			31.2	D3	-2.4	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	30.5	30.5	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:	22327	Date:	March 19, 2024
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	1.001	C				
High	91.5	A2	91.6	B2						
Mid	53.31	A4	53.5	B4			53.4	D4	0.2	E4
Low	31.2	A3	30.5	B3			31.2	D3	-2.4	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	30.5	31.0	-0.5

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:	22327	Date:	March 19, 2024
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	1.001 C		
High	91.5	A2	91.6	B2			
Mid	53.31	A4	53.5	B4		53.4 D4	0.2 E4
Low	31.2	A3	30.5	B3		31.2 D3	-2.4 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	31	30.0	1.0

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**

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 - Partculate & Metals
Date:	March 18, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.721	m^3
AVGERGE ISOKINETICITY	101.3	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	139.0	°C
AVERAGE GAS MOISTURE BY VOLUME	16.1	%
AVERAGE GAS VELOCITY	18.56	m/s
BAROMETRIC PRESSURE (Station)	99.695	Kpa
STATIC PRESSURE	-2.918	Kpa
ABSOLUTE GAS PRESSURE	96.777	Kpa
OXYGEN CONCENTRATION	8.8	%
CARBON DIOXIDE CONCENTRATION	10.38	%
CARBON MONOXIDE CONCENTRATION	5.8	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.42	m^3/s
DRY REF GAS FLOWRATE	15.89	Rm^3/s
DRY ADJ GAS FLOWRATE	19.42	Rm^3/s
WET REF GAS FLOWRATE	18.95	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	3.9	mg
	-FILTER	3.3	mg
	-TOTAL	7.2	mg
DRY REF GAS VOLUME SAMPLED		3.721	m^3
PARTICULATE CONC. - ACTUAL		1.121	mg/m^3
PARTICULATE CONC. - DRY REF		1.935	mg/m^3
PARTICULATE CONC. - DRY ADJ		1.583	mg/m^3
PARTICULATE CONC. - WET REF		1.623	mg/m^3
PARTICULATE EMISSION RATE		0.030746	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 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 18, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	3.3		
DGMCF	0.986	**Probe (mg)**	3.9		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	503.5		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	22.5		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.51 ft³	
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%	8.8
CO2%	10.38
COppm	5.8

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	16.30	0.87	280	50	65	65	2.2	5.0		19.61	
	2.5	18.28	0.91	280	45	65	65	2.2	5.0		20.05	**103.5**
	5	20.23	0.87	279	44	65	65	2.2	5.0		19.59	**99.7**
2	7.5	22.17	0.88	279	44	65	65	2.2	5.0		19.71	**101.4**
	10	24.16	0.88	279	43	65	66	2.2	5.0		19.71	**103.4**
	12.5	26.14	0.88	279	43	65	66	2.1	4.5		19.71	**102.8**
3	15	28.00	0.84	279	43	65	67	2.1	4.5		19.25	**96.5**
	17.5	29.89	0.84	279	44	65	67	2.1	5.0		19.25	**100.3**
	20	31.84	0.86	280	44	65	68	2.1	5.0		19.49	**103.5**
4	22.5	33.65	0.82	280	44	65	69	2.1	4.5		19.04	**94.9**
	25	35.61	0.86	281	45	66	69	2.1	5.0		19.51	**105.1**
	27.5	37.64	0.81	281	45	66	70	2.1	5.0		18.93	**106.3**
5	30	39.54	0.75	281	46	66	70	2	4.9		18.22	**102.4**
	32.5	41.25	0.74	281	46	67	70	1.9	4.0		18.10	**95.8**
	35	43.16	0.74	282	47	67	71	1.95	5.0		18.11	**107.5**
6	37.5	44.98	0.66	281	47	67	71	1.9	4.5		17.09	**102.5**
	40	46.67	0.67	281	47	67	72	1.7	4.0		17.22	**100.7**
	42.5	48.35	0.65	281	48	68	72	1.7	4.0		16.96	**99.2**
7	45	50.04	0.74	281	48	68	72	1.7	4.0		18.10	**101.2**
	47.5	51.85	0.75	281	48	68	73	1.9	4.5		18.22	**101.6**
	50	53.65	0.75	282	48	69	73	1.9	4.5		18.23	**100.3**
8	52.5	55.46	0.78	281	47	69	73	1.9	4.5		18.58	**100.8**
	55	57.34	0.79	282	47	69	74	2	5.0		18.71	**102.6**
	57.5	59.18	0.79	282	47	70	74	2	5.0		18.71	**99.8**
9	60	61.04	0.8	282	47	70	74	2	5.0		18.83	**100.8**
	62.5	62.95	0.79	283	47	70	74	2	5.0		18.72	**102.8**
	65	64.85	0.79	283	47	70	74	2	5.0		18.72	**103.0**
10	67.5	66.74	0.8	283	47	71	75	2	5.0		18.84	**102.5**
	70	68.67	0.81	283	48	71	75	2	5.0		18.96	**103.8**
	72.5	70.47	0.81	283	48	71	75	1.95	4.5		18.96	**96.2**
11	75	72.36	0.73	283	48	71	75	2.1	5.0		18.00	**101.0**
	77.5	74.13	0.74	283	48	71	75	1.9	4.5		18.12	**99.7**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 18, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	3.3		
DGMCF	0.986	**Probe (mg)**	3.9		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	503.5		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	22.5		
Nozzle	0.2498 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%	8.8
CO2%	10.38
COppm	5.8

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 %
	80	75.89	0.73	282	48	72	75	1.9	4.9		17.98	**98.4**
12	82.5	77.75	0.75	283	48	72	76	1.9	5.0		18.24	**104.5**
	85	79.65	0.75	281	48	72	76	2	5.0		18.22	**105.3**
	87.5	81.47	0.75	281	48	72	76	1.9	4.9		18.22	**100.8**
	90	83.29								0.51		**100.7**
1	0	83.80	1	284	52	72	72	2.5	5.0		21.08	
	2.5	85.84	1.05	285	47	72	73	2.5	5.0		21.61	**98.5**
	5	87.95	0.98	285	46	72	75	2.6	5.5		20.88	**99.4**
2	7.5	90.02	0.97	285	45	72	74	2.5	5.5		20.77	**100.8**
	10	92.08	0.96	285	45	72	74	2.5	5.5		20.67	**100.9**
	12.5	94.17	0.95	284	44	72	74	2.5	5.5		20.54	**102.9**
3	15	96.22	0.95	285	44	72	75	2.4	5.0		20.56	**101.4**
	17.5	98.25	0.91	285	43	72	75	2.4	5.0		20.12	**100.3**
	20	100.24	0.88	285	43	72	75	2.3	5.0		19.79	**100.5**
4	22.5	102.21	0.78	285	43	72	76	2.2	5.0		18.63	**101.1**
	25	104.08	0.79	284	43	73	76	2	5.0		18.73	**101.9**
	27.5	105.94	0.79	284	43	73	76	2	5.0		18.73	**100.5**
5	30	107.80	0.67	284	43	73	76	2	5.0		17.25	**100.5**
	32.5	109.55	0.69	283	43	73	76	1.8	4.5		17.50	**102.6**
	35	111.31	0.67	282	42	73	76	1.8	4.5		17.23	**101.6**
6	37.5	113.04	0.58	282	42	73	77	1.8	4.5		16.03	**101.3**
	40	114.66	0.57	282	42	73	77	1.5	4.0		15.89	**101.8**
	42.5	116.27	0.6	282	42	73	77	1.5	4.0		16.30	**102.0**
7	45	117.93	0.68	282	42	73	77	1.6	4.5		17.36	**102.5**
	47.5	119.68	0.69	282	43	73	77	1.8	4.9		17.49	**101.5**
	50	121.44	0.72	282	43	74	77	1.8	4.9		17.86	**101.4**
8	52.5	123.25	0.77	282	43	74	78	1.9	5.0		18.47	**102.0**
	55	125.10	0.77	283	43	74	78	2	5.0		18.48	**100.8**
	57.5	126.95	0.78	284	43	74	78	2	5.0		18.62	**100.8**
9	60	128.80	0.74	284	43	74	78	2	5.0		18.13	**100.3**
	62.5	130.69	0.76	283	43	75	78	1.9	5.0		18.36	**105.2**
	65	132.58	0.78	283	43	75	78	2	5.0		18.60	**103.6**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 18, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	3.3		
DGMCF	0.986	**Probe (mg)**	3.9		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	503.5		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	22.5		
Nozzle	0.2498 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%	8.8
CO2%	10.38
COppm	5.8

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 %
10	67.5	134.44	0.71	283	43	75	78	2	5.0		17.75	**100.6**
	70	136.23	0.74	283	43	75	79	1.9	5.0		18.12	**101.5**
	72.5	138.04	0.75	283	43	75	78	2	5.0		18.24	**100.4**
11	75	139.86	0.67	281	44	75	78	2	5.0		17.22	**100.4**
	77.5	141.63	0.68	282	44	75	79	1.8	4.9		17.36	**103.2**
	80	143.36	0.69	281	44	75	79	1.8	4.9		17.47	**100.1**
12	82.5	145.12	0.69	281	43	75	79	1.8	4.9		17.47	**101.0**
	85	146.87	0.68	280	44	75	79	1.8	4.9		17.33	**100.4**
	87.5	148.60	0.7	280	44	75	79	1.8	4.9		17.59	**99.9**
	90	150.33										**98.5**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	2 - Partculate & Metals
Date:	March 18, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.712	m^3
AVGERGE ISOKINETICITY	99.7	%
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	139.6	°C
AVERAGE GAS MOISTURE BY VOLUME	15.4	%
AVERAGE GAS VELOCITY	18.68	m/s
BAROMETRIC PRESSURE (Station)	99.695	Kpa
STATIC PRESSURE	-2.918	Kpa
ABSOLUTE GAS PRESSURE	96.777	Kpa
OXYGEN CONCENTRATION	8.87	%
CARBON DIOXIDE CONCENTRATION	10.28	%
CARBON MONOXIDE CONCENTRATION	4.4	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.61	m^3/s
DRY REF GAS FLOWRATE	16.10	Rm^3/s
DRY ADJ GAS FLOWRATE	19.57	Rm^3/s
WET REF GAS FLOWRATE	19.05	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	1.1	mg
	-FILTER	2.7	mg
	-TOTAL	3.8	mg
DRY REF GAS VOLUME SAMPLED		3.712	m^3
PARTICULATE CONC. - ACTUAL		0.597	mg/m^3
PARTICULATE CONC. - DRY REF		1.024	mg/m^3
PARTICULATE CONC. - DRY ADJ		0.842	mg/m^3
PARTICULATE CONC. - WET REF		0.866	mg/m^3
PARTICULATE EMISSION RATE		0.016485	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 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 18, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	2.7		
DGMCF	0.986	**Probe (mg)**	1.1		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	476		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	22.3		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.63 ft^3	
Length	0.000 ft	**Reading Interval**		2.5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.87
CO2%	10.28
COppm	4.4

Measured H2O
15.4 %

				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	51.00	0.91	281	60	72	72	2.3	5.0		20.04	
	2.5	52.98	0.96	283	56	72	71	2.3	5.0		20.61	**99.3**
	5	55.00	0.98	283	54	72	71	2.4	5.5		20.83	**98.8**
2	7.5	56.98	0.98	283	52	72	72	2.4	5.5		20.83	**95.9**
	10	59.00	0.99	283	51	71	72	2.4	5.5		20.93	**97.8**
	12.5	61.02	0.97	284	50	71	73	2.4	5.5		20.73	**97.4**
3	15	63.08	0.95	284	50	72	73	2.4	6.0		20.52	**100.3**
	17.5	65.15	0.95	284	50	72	74	2.3	5.9		20.52	**101.7**
	20	67.11	0.94	284	50	72	75	2.3	5.5		20.41	**96.2**
4	22.5	69.09	0.87	284	51	72	75	2.3	5.5		19.63	**97.6**
	25	71.06	0.85	284	51	72	76	2.2	5.5		19.41	**101.0**
	27.5	73.00	0.85	284	51	73	76	2.15	5.5		19.41	**100.5**
5	30	74.93	0.77	284	51	73	77	2.15	5.5		18.47	**99.8**
	32.5	76.78	0.77	284	51	73	77	2	5.0		18.47	**100.5**
	35	78.64	0.76	284	51	73	77	2	5.0		18.35	**101.0**
6	37.5	80.46	0.62	284	51	74	78	2	5.0		16.58	**99.4**
	40	82.15	0.61	284	51	74	78	1.6	4.9		16.44	**102.0**
	42.5	83.80	0.6	283	51	74	78	1.6	4.5		16.29	**100.3**
7	45	85.43	0.66	283	51	74	78	1.6	4.5		17.09	**99.9**
	47.5	87.14	0.66	283	50	74	78	1.7	4.9		17.09	**99.9**
	50	88.85	0.67	283	50	74	79	1.7	4.9		17.22	**99.9**
8	52.5	90.57	0.68	283	50	75	79	1.7	4.9		17.35	**99.7**
	55	92.34	0.68	282	50	75	79	1.8	5.0		17.34	**101.7**
	57.5	94.05	0.67	282	50	75	79	1.8	5.0		17.21	**98.2**
9	60	95.77	0.7	282	50	75	79	1.8	5.0		17.59	**99.5**
	62.5	97.54	0.7	281	50	76	79	1.85	5.0		17.58	**100.2**
	65	99.32	0.71	281	50	76	80	1.85	5.0		17.70	**100.6**
10	67.5	101.09	0.7	281	50	76	80	1.85	5.0		17.58	**99.3**
	70	102.86	0.72	281	50	76	80	1.85	5.0		17.83	**100.0**
	72.5	104.72	0.74	281	49	76	80	1.9	5.0		18.07	**103.6**
11	75	106.53	0.75	280	49	76	80	1.9	5.0		18.18	**99.4**
	77.5	108.35	0.74	281	49	76	80	2	5.0		18.07	**99.2**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 18, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	2.7		
DGMCF	0.986	**Probe (mg)**	1.1		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	476		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	22.3		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.63 ft³	
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%	8.87
CO2%	10.28
COppm	4.4

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 %
	80	110.16	0.74	282	49	76	80	2	5.0		18.08	**99.5**
12	82.5	111.99	0.76	282	49	77	80	2	5.0		18.33	**100.6**
	85	113.82	0.76	282	49	77	80	2	5.0		18.33	**99.2**
	87.5	115.66	0.77	283	49	77	80	2	5.0		18.46	**99.7**
	90	117.49								0.63		**98.6**
1	0	118.12	0.94	282	50	77	77	2.4	6.0		20.38	
	2.5	120.16	0.97	285	50	77	78	2.4	6.0		20.75	**99.8**
	5	122.21	0.96	286	49	77	79	2.4	6.0		20.65	**98.8**
2	7.5	124.27	0.94	286	49	77	79	2.4	6.0		20.44	**99.8**
	10	126.32	0.95	286	48	77	79	2.4	6.0		20.55	**100.4**
	12.5	128.37	0.93	286	48	77	80	2.4	6.0		20.33	**99.8**
3	15	130.40	0.89	286	49	77	80	2.3	6.0		19.89	**99.8**
	17.5	132.37	0.89	285	49	77	80	2.2	6.0		19.87	**99.0**
	20	134.33	0.87	285	49	77	80	2.2	5.9		19.65	**98.4**
4	22.5	136.28	0.81	285	49	77	80	2.2	5.9		18.96	**99.0**
	25	138.17	0.83	286	49	77	81	2.1	5.9		19.20	**99.5**
	27.5	140.09	0.8	286	49	77	81	2.1	5.5		18.85	**99.8**
5	30	141.96	0.75	285	49	78	81	2	5.5		18.24	**99.0**
	32.5	143.79	0.76	285	50	78	81	2	5.5		18.36	**99.9**
	35	145.64	0.74	284	50	78	81	2	5.5		18.11	**100.3**
6	37.5	147.43	0.65	284	50	78	81	2	5.5		16.97	**98.3**
	40	149.15	0.64	284	50	78	81	1.7	5.0		16.84	**100.8**
	42.5	150.86	0.64	283	50	78	81	1.7	5.0		16.83	**100.9**
7	45	152.54	0.68	283	50	78	81	1.7	5.0		17.35	**99.0**
	47.5	154.36	0.69	282	49	78	82	1.8	5.0		17.46	**104.1**
	50	156.12	0.73	282	49	78	82	1.8	5.0		17.96	**99.8**
8	52.5	157.92	0.76	283	50	78	82	1.9	5.0		18.34	**99.2**
	55	159.73	0.76	283	50	78	82	2	5.5		18.34	**97.9**
	57.5	161.58	0.78	283	49	78	82	2	5.5		18.58	**100.1**
9	60	163.43	0.81	283	50	78	82	2	5.5		18.93	**98.8**
	62.5	165.34	0.82	283	50	79	82	2.1	5.9		19.05	**100.1**
	65	167.25	0.83	283	50	79	82	2.1	5.9		19.17	**99.4**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 18, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	2.7		
DGMCF	0.986	**Probe (mg)**	1.1		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	476		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	22.3		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.63 ft^3	
Length	0.000 ft	**Reading Interval**		2.5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.87
CO2%	10.28
COppm	4.4

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 %
10	67.5	169.17	0.86	283	50	79	82	2.1	5.9		19.51	**99.3**
	70	171.14	0.85	284	50	79	82	2.2	6.0		19.41	**100.1**
	72.5	173.11	0.83	284	50	79	82	2.2	6.0		19.18	**100.8**
11	75	175.02	0.72	282	50	79	82	2.1	5.9		17.84	**98.9**
	77.5	176.84	0.76	283	51	79	82	1.9	5.5		18.34	**101.0**
	80	178.69	0.76	283	51	79	82	2	5.5		18.34	**100.0**
12	82.5	180.53	0.74	282	51	79	82	2	5.5		18.08	**99.4**
	85	182.35	0.77	282	51	79	82	2	5.5		18.45	**99.6**
	87.5	184.22	0.77	282	51	79	82	2	5.5		18.45	**100.3**
	90	186.10										**100.9**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	3 - Partculate & Metals
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	4.078	m^3
AVGERGE ISOKINETICITY	98.9	%
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	136.9	°C
AVERAGE GAS MOISTURE BY VOLUME	15.2	%
AVERAGE GAS VELOCITY	19.24	m/s
BAROMETRIC PRESSURE (Station)	99.120	Kpa
STATIC PRESSURE	-2.963	Kpa
ABSOLUTE GAS PRESSURE	96.156	Kpa
OXYGEN CONCENTRATION	8.43	%
CARBON DIOXIDE CONCENTRATION	10.71	%
CARBON MONOXIDE CONCENTRATION	6.9	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	28.43	m^3/s
DRY REF GAS FLOWRATE	16.64	Rm^3/s
DRY ADJ GAS FLOWRATE	20.96	Rm^3/s
WET REF GAS FLOWRATE	19.62	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	1.9	mg
	-FILTER	5.9	mg
	-TOTAL	7.8	mg
DRY REF GAS VOLUME SAMPLED		4.078	m^3
PARTICULATE CONC. - ACTUAL		1.119	mg/m^3
PARTICULATE CONC. - DRY REF		1.913	mg/m^3
PARTICULATE CONC. - DRY ADJ		1.519	mg/m^3
PARTICULATE CONC. - WET REF		1.623	mg/m^3
PARTICULATE EMISSION RATE		0.031823	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 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 19, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	5.9		
DGMCF	1.018	**Probe (mg)**	1.9		
Barometric Pressure	29.27 "Hg	**CWTR (g)**	512		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	24		
Nozzle	0.2586 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%	8.43
CO2%	10.71
COppm	6.9

Measured H2O
15.2 %

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	85.95	0.845	278	65	67	67	2.25	6.0		19.33	
	2.5	87.83	0.81	278	60	67	67	2.2	6.0		18.93	**94.4**
	5	89.81	0.81	278	56	67	66	2.2	6.0		18.93	**101.5**
2	7.5	91.77	0.79	277	55	67	66	2.1	6.0		18.68	**100.6**
	10	93.68	0.81	278	54	67	67	2.15	6.0		18.93	**99.2**
	12.5	95.63	0.83	277	53	67	67	2.2	6.0		19.15	**100.0**
3	15	97.62	0.83	276	52	68	68	2.2	6.0		19.13	**100.8**
	17.5	99.59	0.88	278	52	68	69	2.3	6.0		19.73	**99.5**
	20	101.62	0.88	278	51	68	69	2.3	6.0		19.73	**99.6**
4	22.5	103.64	0.86	278	51	68	70	2.2	6.0		19.50	**99.1**
	25	105.62	0.86	277	51	68	70	2.2	6.0		19.49	**98.2**
	27.5	107.59	0.8	278	51	69	71	2.1	6.0		18.81	**97.6**
5	30	109.51	0.85	278	51	69	72	2.2	6.0		19.39	**98.5**
	32.5	111.48	0.79	278	51	69	72	2.1	6.0		18.69	**98.0**
	35	113.41	0.77	277	50	69	72	2	6.0		18.44	**99.5**
6	37.5	115.29	0.73	277	50	69	72	1.95	6.0		17.96	**98.1**
	40	117.15	0.75	277	50	69	73	2	6.0		18.20	**99.7**
	42.5	119.03	0.78	277	50	70	73	2.1	6.0		18.56	**99.3**
7	45	120.95	0.68	277	50	70	73	1.9	6.0		17.33	**99.4**
	47.5	122.79	0.7	277	50	70	74	1.9	6.0		17.58	**102.0**
	50	124.63	0.73	277	49	70	74	1.95	6.0		17.96	**100.4**
8	52.5	126.48	0.74	278	49	70	74	2	6.0		18.09	**98.9**
	55	128.35	0.76	278	49	70	74	2	6.0		18.33	**99.3**
	57.5	130.25	0.92	279	49	70	74	2.4	6.5		20.18	**99.6**
9	60	132.28	0.92	279	49	70	74	2.4	6.5		20.18	**96.9**
	62.5	134.37	0.94	279	48	70	74	2.45	6.5		20.40	**99.7**
	65	136.47	0.94	280	48	70	74	2.45	6.5		20.42	**99.2**
10	67.5	138.59	0.99	280	48	70	74	2.6	7.0		20.95	**100.2**
	70	140.75	0.97	280	48	70	74	2.5	7.0		20.74	**99.5**
	72.5	142.88	0.94	280	49	71	74	2.45	7.0		20.42	**99.1**
11	75	144.98	0.95	281	49	70	74	2.45	7.0		20.54	**99.1**
	77.5	147.08	0.95	281	49	70	74	2.45	7.0		20.54	**98.8**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 19, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	5.9		
DGMCF	1.018	**Probe (mg)**	1.9		
Barometric Pressure	29.27 "Hg	**CWTR (g)**	512		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	24		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.51 ft³	
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%	8.43
CO2%	10.71
COppm	6.9

Measured H2O
15.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
	80	149.17	0.94	280	49	71	74	2.45	7.0		20.42	**98.3**
12	82.5	151.27	0.94	280	49	71	74	2.45	7.0		20.42	**99.1**
	85	153.37	0.96	280	50	71	74	2.5	7.0		20.63	**99.1**
	87.5	155.49	0.94	280	50	71	74	2.45	7.0		20.42	**99.0**
	90	157.60								0.51		**99.6**
1	0	158.11	0.94	280	54	70	74	2.45	6.5		20.42	
	2.5	160.23	0.99	279	48	70	71	2.5	6.5		20.94	**100.2**
	5	162.35	1	279	46	70	71	2.5	6.5		21.04	**97.8**
2	7.5	164.46	1.05	279	45	70	72	2.7	7.0		21.56	**96.9**
	10	166.65	0.99	279	45	70	72	2.55	7.0		20.94	**98.1**
	12.5	168.79	1	279	45	70	72	2.55	7.0		21.04	**98.7**
3	15	170.93	0.96	279	45	70	72	2.5	7.0		20.62	**98.2**
	17.5	173.04	0.96	278	45	70	72	2.5	7.0		20.60	**98.8**
	20	175.15	0.96	279	45	70	73	2.5	7.0		20.62	**98.7**
4	22.5	177.25	0.91	279	45	70	73	2.4	7.0		20.07	**98.2**
	25	179.31	0.94	279	45	70	73	2.45	7.0		20.40	**98.9**
	27.5	181.42	0.94	280	45	70	73	2.45	7.0		20.42	**99.7**
5	30	183.51	0.86	280	45	70	74	2.3	7.0		19.53	**98.9**
	32.5	185.55	0.86	280	45	70	74	2.3	7.0		19.53	**100.7**
	35	187.58	0.87	280	45	70	74	2.3	7.0		19.64	**100.2**
6	37.5	189.62	0.7	280	45	71	74	1.9	6.5		17.62	**100.2**
	40	191.46	0.69	280	44	71	74	1.9	6.5		17.49	**100.5**
	42.5	193.27	0.71	280	44	71	75	1.95	6.5		17.74	**99.6**
7	45	195.12	0.71	280	44	71	75	1.9	6.5		17.74	**100.3**
	47.5	196.95	0.8	280	44	71	75	2.1	6.0		18.84	**99.2**
	50	198.85	0.8	280	44	71	75	2.1	6.0		18.84	**97.1**
8	52.5	200.74	0.81	280	44	71	75	2.1	6.0		18.95	**96.5**
	55	202.62	0.81	280	44	71	76	2.1	6.0		18.95	**95.4**
	57.5	204.52	0.79	280	44	71	76	2.1	6.0		18.72	**96.4**
9	60	206.42	0.81	279	45	72	76	2.15	6.5		18.94	**97.6**
	62.5	208.38	0.81	279	45	71	76	2.15	6.5		18.94	**99.3**
	65	210.32	0.79	278	45	72	76	2.15	6.5		18.69	**98.3**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Partculate & Metals	**Test Location:**	APC Outlet No. 1
Date:	March 19, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	5.9		
DGMCF	1.018	**Probe (mg)**	1.9		
Barometric Pressure	29.27 "Hg	**CWTR (g)**	512		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	24		
Nozzle	0.2586 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%	8.43
CO2%	10.71
COppm	6.9

Measured H2O
15.2 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
10	67.5	212.26	0.8	278	45	72	76	2.15	6.5		18.81	**99.4**
	70	214.21	0.8	276	45	72	76	2.15	6.5		18.78	**99.3**
	72.5	216.15	0.77	276	45	72	76	2.1	6.5		18.43	**98.7**
11	75	218.05	0.66	276	45	72	76	1.8	6.0		17.06	**98.5**
	77.5	219.84	0.66	276	45	72	76	1.8	6.0		17.06	**100.1**
	80	221.60	0.66	276	45	72	77	1.8	6.0		17.06	**98.5**
12	82.5	223.35	0.68	276	45	72	77	1.9	6.0		17.32	**97.8**
	85	225.14	0.68	276	45	72	77	1.9	6.0		17.32	**98.6**
	87.5	226.90	0.69	276	45	72	77	1.9	6.0		17.45	**96.9**
	90	228.71										**99.0**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	1 - Partculate & Metals
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.616	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	138.3	°C
AVERAGE GAS MOISTURE BY VOLUME	16.8	%
AVERAGE GAS VELOCITY	18.17	m/s
BAROMETRIC PRESSURE (Station)	99.594	Kpa
STATIC PRESSURE	-2.814	Kpa
ABSOLUTE GAS PRESSURE	96.780	Kpa
OXYGEN CONCENTRATION	8.55	%
CARBON DIOXIDE CONCENTRATION	10.76	%
CARBON MONOXIDE CONCENTRATION	7.7	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.84	m^3/s
DRY REF GAS FLOWRATE	15.45	Rm^3/s
DRY ADJ GAS FLOWRATE	19.28	Rm^3/s
WET REF GAS FLOWRATE	18.58	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	4.9	mg
	-FILTER	2.9	mg
	-TOTAL	7.8	mg
DRY REF GAS VOLUME SAMPLED		3.616	m^3
PARTICULATE CONC. - ACTUAL		1.242	mg/m^3
PARTICULATE CONC. - DRY REF		2.157	mg/m^3
PARTICULATE CONC. - DRY ADJ		1.729	mg/m^3
PARTICULATE CONC. - WET REF		1.795	mg/m^3
PARTICULATE EMISSION RATE		0.033336	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 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	2.9		
DGMCF	0.986	**Probe (mg)**	4.9		
Barometric Pressure	29.41 "Hg	**CWTR (g)**	515.5		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	21.5		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.465 ft³	
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%	8.55
CO2%	10.76
COppm	7.7

Measured H2O
16.8 %

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	586.58	0.76	281	60	64	64	1.9	4.0		18.35	
	2.5	588.70	0.77	282	46	66	66	1.9	4.0		18.48	**119.7**
	5	590.15	0.75	282	45	66	66	1.92	4.0		18.24	**81.0**
2	7.5	591.95	0.79	283	45	66	67	1.92	4.0		18.73	**101.9**
	10	593.76	0.8	283	44	66	67	1.98	4.0		18.85	**99.8**
	12.5	595.60	0.78	284	44	66	68	2.01	4.0		18.63	**100.8**
3	15	597.42	0.76	284	45	66	68	1.97	4.0		18.39	**101.0**
	17.5	599.23	0.77	284	45	66	69	1.92	4.0		18.51	**101.7**
	20	601.06	0.81	284	45	67	69	1.95	4.0		18.98	**102.1**
4	22.5	602.91	0.76	284	45	67	70	2.05	4.0		18.39	**100.5**
	25	604.74	0.76	285	45	67	70	1.93	4.0		18.40	**102.6**
	27.5	606.56	0.8	252	45	67	70	1.93	4.0		18.46	**102.0**
5	30	608.44	0.75	286	45	68	71	2.02	4.0		18.29	**100.4**
	32.5	610.29	0.76	287	45	68	71	1.98	4.0		18.43	**104.0**
	35	612.10	0.82	288	46	68	72	1.93	4.0		19.15	**101.7**
6	37.5	614.00	0.78	289	46	68	72	2.05	4.5		18.69	**102.5**
	40	615.85	0.77	289	46	69	72	1.98	4.2		18.57	**102.4**
	42.5	617.75	0.73	290	46	69	72	1.95	4.2		18.09	**105.7**
7	45	619.47	0.76	290	47	69	73	1.85	4.0		18.46	**98.4**
	47.5	621.30	0.78	290	47	70	73	1.95	4.0		18.70	**102.4**
	50	623.13	0.79	290	47	70	73	1.98	4.2		18.82	**101.1**
8	52.5	624.95	0.8	290	47	70	73	2	4.2		18.94	**99.9**
	55	626.85	0.83	291	47	70	73	2.02	4.2		19.31	**103.6**
	57.5	628.73	0.85	291	48	70	74	2.09	4.5		19.54	**100.7**
9	60	630.65	0.8	292	48	71	74	2.13	4.5		18.97	**101.6**
	62.5	632.54	0.75	292	48	71	74	2.03	4.2		18.36	**103.0**
	65	634.39	0.77	291	47	71	74	1.93	4.0		18.60	**103.9**
10	67.5	636.23	0.76	291	47	71	74	1.95	4.0		18.47	**102.4**
	70	638.06	0.76	290	47	71	74	1.95	4.0		18.46	**102.3**
	72.5	639.89	0.75	290	47	71	74	1.95	4.0		18.34	**102.2**
11	75	641.72	0.72	289	47	71	74	1.92	4.0		17.96	**102.9**
	77.5	643.52	0.73	288	47	71	74	1.85	4.0		18.07	**103.2**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	2.9		
DGMCF	0.986	**Probe (mg)**	4.9		
Barometric Pressure	29.41 "Hg	**CWTR (g)**	515.5		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	21.5		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.465 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%	8.55
CO2%	10.76
COppm	7.7

Measured H2O
16.8 %

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	645.32	0.71	288	47	71	75	1.88	4.0		17.82	**102.4**
12	82.5	647.11	0.73	287	47	72	75	1.83	4.0		18.06	**103.2**
	85	648.90	0.73	287	47	72	76	1.88	4.0		18.06	**101.6**
	87.5	650.71	0.73	287	47	72	75	1.88	4.0		18.06	**102.6**
	90	652.50						1.88	4.0	0.465		**101.5**
1	0	652.96	0.88	283	54	72	72	2.1	4.0		19.77	
	2.5	654.83	0.86	286	45	72	72	2.1	4.0		19.59	**96.5**
	5	656.77	0.88	286	43	72	72	2.18	4.5		19.81	**101.7**
2	7.5	658.74	0.87	287	41	71	72	2.2	4.7		19.71	**102.1**
	10	660.70	0.86	286	41	71	72	2.18	4.6		19.59	**102.3**
	12.5	662.63	0.89	286	41	71	72	2.15	4.5		19.93	**101.3**
3	15	664.60	0.85	286	41	71	73	2.22	4.9		19.47	**101.6**
	17.5	666.52	0.86	286	41	71	73	2.1	4.5		19.59	**101.3**
	20	668.43	0.86	286	41	71	73	2.1	4.5		19.59	**100.1**
4	22.5	670.35	0.78	287	41	71	73	2.13	4.5		18.67	**100.6**
	25	672.20	0.82	287	41	71	73	1.95	4.1		19.14	**101.6**
	27.5	674.08	0.8	287	41	71	74	2.03	4.3		18.90	**101.2**
5	30	675.94	0.72	287	42	71	74	2	4.2		17.93	**101.0**
	32.5	677.73	0.73	286	42	71	74	1.82	4.0		18.05	**102.5**
	35	679.51	0.73	286	42	71	74	1.82	4.0		18.05	**101.1**
6	37.5	681.29	0.61	286	42	71	74	1.82	4.0		16.50	**101.1**
	40	682.95	0.61	286	42	71	74	1.52	4.0		16.50	**103.2**
	42.5	684.58	0.63	286	42	71	74	1.5	4.0		16.76	**101.2**
7	45	686.22	0.63	286	42	71	74	1.56	4.0		16.76	**100.2**
	47.5	687.86	0.62	286	42	72	74	1.56	4.0		16.63	**100.2**
	50	689.49	0.63	285	42	72	74	1.52	4.0		16.75	**100.3**
8	52.5	691.12	0.65	285	42	72	75	1.54	4.0		17.02	**99.4**
	55	692.80	0.67	285	42	72	75	1.62	4.0		17.28	**100.8**
	57.5	694.50	0.68	285	42	72	75	1.65	4.0		17.41	**100.5**
9	60	696.21	0.7	285	43	72	75	1.7	4.0		17.66	**100.3**
	62.5	697.94	0.7	285	43	72	75	1.75	4.0		17.66	**100.1**
	65	699.66	0.72	285	43	72	75	1.75	4.0		17.91	**99.5**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	BP

Pitot Factor	0.843	**Filter (mg)**	2.9		
DGMCF	0.986	**Probe (mg)**	4.9		
Barometric Pressure	29.41 "Hg	**CWTR (g)**	515.5		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	21.5		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.465 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%	8.55
CO2%	10.76
COppm	7.7

Measured H2O
16.8 %

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 %
10	67.5	701.40	0.71	282	43	72	75	1.8	4.0		17.75	**99.3**
	70	703.14	0.71	284	43	72	75	1.8	4.0		17.77	**99.8**
	72.5	704.87	0.69	284	43	72	75	1.8	4.0		17.52	**99.3**
11	75	706.60	0.61	228	43	72	74	1.78	4.0		15.84	**100.8**
	77.5	708.25	0.6	225	43	72	74	1.6	4.0		15.68	**98.4**
	80	709.90	0.62	225	43	72	74	1.6	4.0		15.94	**98.9**
12	82.5	711.56	0.61	224	43	72	74	1.67	4.0		15.80	**97.9**
	85	713.24	0.64	225	43	72	74	1.7	4.0		16.19	**99.8**
	87.5	714.94	0.65	226	43	72	74	1.75	4.0		16.33	**98.7**
	90	716.73						1.78	4.0			**103.2**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	2 - Partculate & Metals
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.411	m^3
AVGERGE ISOKINETICITY	99.8	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	134.5	°C
AVERAGE GAS MOISTURE BY VOLUME	16.0	%
AVERAGE GAS VELOCITY	17.13	m/s
BAROMETRIC PRESSURE (Station)	99.255	Kpa
STATIC PRESSURE	-2.814	Kpa
ABSOLUTE GAS PRESSURE	96.441	Kpa
OXYGEN CONCENTRATION	8.2	%
CARBON DIOXIDE CONCENTRATION	11.08	%
CARBON MONOXIDE CONCENTRATION	13.5	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.31	m^3/s
DRY REF GAS FLOWRATE	14.79	Rm^3/s
DRY ADJ GAS FLOWRATE	18.98	Rm^3/s
WET REF GAS FLOWRATE	17.63	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	3.9	mg
	-FILTER	2.4	mg
	-TOTAL	6.3	mg
DRY REF GAS VOLUME SAMPLED		3.411	m^3
PARTICULATE CONC. - ACTUAL		1.079	mg/m^3
PARTICULATE CONC. - DRY REF		1.847	mg/m^3
PARTICULATE CONC. - DRY ADJ		1.440	mg/m^3
PARTICULATE CONC. - WET REF		1.551	mg/m^3
PARTICULATE EMISSION RATE		0.027325	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 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	TC

Pitot Factor	0.843	**Filter (mg)**	2.4		
DGMCF	0.986	**Probe (mg)**	3.9		
Barometric Pressure	29.31 "Hg	**CWTR (g)**	461.1		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	18		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.362 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%	8.2
CO2%	11.08
COppm	13.5

Measured H2O
16.0 %

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	717.10	0.82	286	60	69	69	2.1	5.0		19.12	
	2.5	718.96	0.84	286	57	69	69	2.01	5.0		19.35	**99.5**
	5	720.84	0.83	286	56	69	69	2.01	5.0		19.23	**99.4**
2	7.5	722.70	0.81	285	55	69	69	2	5.0		18.99	**98.9**
	10	724.55	0.84	285	55	69	70	1.98	5.0		19.34	**99.5**
	12.5	726.41	0.87	285	55	69	70	2.03	5.0		19.68	**98.2**
3	15	728.30	0.83	285	55	69	70	2.1	5.1		19.22	**98.0**
	17.5	730.18	0.85	286	55	69	71	2.01	5.0		19.46	**99.9**
	20	732.07	0.84	286	55	69	71	2.04	5.0		19.35	**99.2**
4	22.5	733.95	0.75	286	56	69	72	2.01	5.0		18.28	**99.2**
	25	735.72	0.77	285	55	69	72	1.84	4.7		18.51	**98.8**
	27.5	737.50	0.76	285	54	70	73	1.88	4.9		18.39	**97.9**
5	30	739.29	0.71	285	54	70	73	1.85	4.7		17.78	**98.9**
	32.5	741.02	0.7	285	53	70	73	1.72	4.5		17.65	**98.9**
	35	742.74	0.7	285	53	70	74	1.71	4.5		17.65	**99.0**
6	37.5	744.46	0.6	285	53	70	74	1.71	4.5		16.34	**98.9**
	40	746.09	0.62	285	52	71	74	1.49	4.1		16.61	**101.3**
	42.5	747.72	0.61	286	52	71	75	1.52	4.3		16.49	**99.5**
7	45	749.35	0.64	285	52	71	75	1.5	4.3		16.88	**100.3**
	47.5	751.01	0.61	285	52	72	75	1.59	4.5		16.48	**99.6**
	50	752.61	0.62	285	52	72	76	1.52	4.2		16.61	**98.3**
8	52.5	754.23	0.65	285	52	72	76	1.57	4.4		17.01	**98.6**
	55	755.89	0.66	285	52	72	76	1.62	4.7		17.14	**98.7**
	57.5	757.57	0.68	286	52	72	76	1.65	4.8		17.41	**99.1**
9	60	759.29	0.7	285	53	72	76	1.7	4.9		17.65	**100.0**
	62.5	761.03	0.71	286	53	73	77	1.74	5.0		17.79	**99.7**
	65	762.77	0.72	286	53	73	77	1.77	5.0		17.91	**98.9**
10	67.5	764.54	0.68	285	53	73	77	1.8	5.0		17.40	**99.9**
	70	766.26	0.64	284	53	73	77	1.71	4.9		16.87	**99.8**
	72.5	767.96	0.63	284	53	74	77	1.61	4.8		16.73	**101.6**
11	75	769.61	0.54	188	53	74	77	1.58	4.7		14.46	**99.3**
	77.5	771.24	0.53	181	53	74	77	1.55	4.4		14.25	**98.9**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	TC

Pitot Factor	0.843	**Filter (mg)**	2.4		
DGMCF	0.986	**Probe (mg)**	3.9		
Barometric Pressure	29.31 "Hg	**CWTR (g)**	461.1		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	18		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.362 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%	8.2
CO2%	11.08
COppm	13.5

Measured H2O
16.0 %

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 %
	80	772.88	0.56	183	53	74	77	1.51	4.4		14.67	**99.8**
12	82.5	774.55	0.55	183	53	74	78	1.63	4.8		14.54	**99.1**
	85	776.20	0.53	182	54	74	78	1.59	4.7		14.26	**98.7**
	87.5	777.85	0.54	183	54	74	78	1.54	4.7		14.40	**100.5**
	90	779.54								0.362		**101.9**
1	0	779.90	0.7	283	61	75	76	1.8	5.0		17.63	
	2.5	781.71	0.71	283	55	75	76	1.8	5.0		17.75	**103.3**
	5	783.48	0.71	282	52	75	76	1.8	5.0		17.74	**100.3**
2	7.5	785.25	0.7	282	51	75	76	1.8	5.0		17.62	**100.2**
	10	787.03	0.69	282	51	75	77	1.8	5.0		17.49	**101.5**
	12.5	788.76	0.69	282	51	75	77	1.75	5.0		17.49	**99.3**
3	15	790.51	0.68	281	51	75	77	1.75	5.0		17.35	**100.4**
	17.5	792.24	0.69	281	50	75	77	1.7	5.0		17.48	**99.9**
	20	793.98	0.69	281	50	75	77	1.7	5.0		17.48	**99.8**
4	22.5	795.71	0.67	281	50	75	78	1.7	5.0		17.22	**99.2**
	25	797.42	0.66	281	50	75	78	1.7	5.0		17.09	**99.4**
	27.5	799.14	0.66	281	50	75	78	1.7	5.0		17.09	**100.7**
5	30	800.84	0.63	281	50	75	78	1.7	5.0		16.70	**99.6**
	32.5	802.53	0.63	281	50	75	78	1.65	4.9		16.70	**101.3**
	35	804.21	0.64	281	50	75	78	1.6	4.9		16.83	**100.7**
6	37.5	805.89	0.56	281	50	75	79	1.62	4.9		15.75	**99.9**
	40	807.48	0.55	282	51	76	79	1.43	4.1		15.61	**100.7**
	42.5	809.04	0.54	282	51	76	79	1.39	4.0		15.47	**100.2**
7	45	810.59	0.6	282	51	76	79	1.35	4.0		16.31	**100.2**
	47.5	812.22	0.6	282	51	76	79	1.52	4.5		16.31	**99.9**
	50	813.85	0.61	281	51	76	79	1.52	4.5		16.43	**100.0**
8	52.5	815.49	0.61	282	51	76	79	1.55	4.7		16.44	**99.7**
	55	817.13	0.64	282	51	76	79	1.55	4.7		16.84	**99.8**
	57.5	818.83	0.65	282	52	76	80	1.63	4.9		16.97	**101.0**
9	60	820.52	0.68	283	52	77	80	1.63	4.9		17.37	**99.5**
	62.5	822.25	0.66	284	52	77	80	1.72	5.0		17.13	**99.6**
	65	823.98	0.69	284	52	77	80	1.68	5.0		17.51	**101.2**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	TC

Pitot Factor	0.843	**Filter (mg)**	2.4		
DGMCF	0.986	**Probe (mg)**	3.9		
Barometric Pressure	29.31 "Hg	**CWTR (g)**	461.1		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	18		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.362 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%	8.2
CO2%	11.08
COppm	13.5

Measured H2O
16.0 %

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 %
10	67.5	825.73	0.68	285	52	77	80	1.74	5.1		17.40	**100.1**
	70	827.47	0.67	285	52	77	80	1.71	5.1		17.27	**100.3**
	72.5	829.19	0.68	285	52	77	80	1.69	5.0		17.40	**99.9**
11	75	830.91	0.62	273	52	77	80	1.7	5.0		16.48	**99.2**
	77.5	832.59	0.62	268	52	77	80	1.6	4.9		16.42	**100.3**
	80	834.25	0.64	267	52	77	80	1.6	4.9		16.67	**99.3**
12	82.5	836.01	0.65	268	52	77	80	1.66	5.0		16.81	**103.3**
	85	837.65	0.64	268	52	77	80	1.69	5.1		16.68	**95.6**
	87.5	839.34	0.64	268	52	77	80	1.65	4.9		16.68	**99.3**
	90	841.08										**101.9**

ORTECH Environmental

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	3 - Partculate & Metals
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	3.448	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	138.0	°C
AVERAGE GAS MOISTURE BY VOLUME	17.4	%
AVERAGE GAS VELOCITY	17.53	m/s
BAROMETRIC PRESSURE (Station)	99.120	Kpa
STATIC PRESSURE	-2.814	Kpa
ABSOLUTE GAS PRESSURE	96.306	Kpa
OXYGEN CONCENTRATION	8.14	%
CARBON DIOXIDE CONCENTRATION	11.03	%
CARBON MONOXIDE CONCENTRATION	8.1	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.90	m^3/s
DRY REF GAS FLOWRATE	14.75	Rm^3/s
DRY ADJ GAS FLOWRATE	19.01	Rm^3/s
WET REF GAS FLOWRATE	17.86	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	2.7	mg
	-FILTER	3	mg
	-TOTAL	5.7	mg
DRY REF GAS VOLUME SAMPLED		3.448	m^3
PARTICULATE CONC. - ACTUAL		0.941	mg/m^3
PARTICULATE CONC. - DRY REF		1.653	mg/m^3
PARTICULATE CONC. - DRY ADJ		1.282	mg/m^3
PARTICULATE CONC. - WET REF		1.366	mg/m^3
PARTICULATE EMISSION RATE		0.024376	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 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	TC/BP

Pitot Factor	0.843	**Filter (mg)**	3		
DGMCF	0.986	**Probe (mg)**	2.7		
Barometric Pressure	29.27 "Hg	**CWTR (g)**	511.8		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	21.8		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.436 ft³	
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%	8.14
CO2%	11.03
COppm	8.1

Measured H2O
17.4 %

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	841.50	0.81	282	68	75	75	2.05	4.2		19.02	
	2.5	843.42	0.8	286	57	75	75	2.05	4.2		18.95	**103.1**
	5	845.29	0.8	286	56	75	75	1.99	4.0		18.95	**101.4**
2	7.5	847.15	0.8	287	55	75	75	1.99	4.0		18.97	**100.9**
	10	848.99	0.8	287	55	75	75	1.99	4.0		18.97	**99.9**
	12.5	850.85	0.8	287	55	74	75	1.99	4.0		18.97	**101.0**
3	15	852.69	0.83	287	55	74	76	1.97	4.0		19.32	**100.0**
	17.5	854.58	0.81	287	55	74	76	2.05	4.2		19.08	**100.7**
	20	856.45	0.81	288	54	74	77	2	4.2		19.10	**100.9**
4	22.5	858.32	0.74	288	54	75	77	2	4.2		18.25	**100.8**
	25	860.12	0.72	288	54	75	77	1.84	3.9		18.01	**101.5**
	27.5	861.99	0.71	287	54	75	78	1.8	3.8		17.87	**106.8**
5	30	863.67	0.66	287	54	75	78	1.8	3.8		17.23	**96.5**
	32.5	865.37	0.66	286	55	75	78	1.67	3.5		17.22	**101.3**
	35	867.08	0.56	286	55	75	78	1.67	3.5		15.86	**101.7**
6	37.5	868.67	0.56	286	56	75	79	1.4	3.2		15.86	**102.7**
	40	870.23	0.57	286	56	76	79	1.4	3.2		16.00	**100.6**
	42.5	871.82	0.57	286	56	76	79	1.43	3.4		16.00	**101.5**
7	45	873.40	0.6	286	57	76	79	1.42	3.3		16.41	**100.9**
	47.5	875.01	0.58	286	55	76	79	1.52	3.4		16.14	**100.2**
	50	876.62	0.58	285	55	76	80	1.45	3.2		16.13	**102.0**
8	52.5	878.19	0.63	285	54	76	80	1.45	3.2		16.81	**99.3**
	55	879.84	0.62	286	53	76	80	1.59	3.5		16.69	**100.1**
	57.5	881.48	0.64	286	53	77	80	1.55	3.5		16.95	**100.4**
9	60	883.15	0.67	287	53	77	80	1.62	3.6		17.36	**100.5**
	62.5	884.85	0.68	287	53	77	80	1.7	3.8		17.49	**100.1**
	65	886.57	0.68	287	52	77	80	1.7	3.8		17.49	**100.5**
10	67.5	888.29	0.66	286	52	77	80	1.7	3.8		17.22	**100.5**
	70	890.00	0.66	286	52	77	80	1.65	3.7		17.22	**101.3**
	72.5	891.69	0.69	287	52	77	80	1.65	3.7		17.61	**100.2**
11	75	893.45	0.72	287	52	77	80	1.72	4.0		17.99	**102.1**
	77.5	895.22	0.61	210	52	77	80	1.79	4.1		15.68	**100.5**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	TC/BP

Pitot Factor	0.843	**Filter (mg)**	3		
DGMCF	0.986	**Probe (mg)**	2.7		
Barometric Pressure	29.27 "Hg	**CWTR (g)**	511.8		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	21.8		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.436 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%	8.14
CO2%	11.03
COppm	8.1

Measured H2O
17.4 %

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	896.96	0.58	206	52	77	80	1.7	4.0		15.25	**101.7**
12	82.5	898.66	0.6	206	52	77	80	1.61	3.9		15.51	**101.6**
	85	900.37	0.59	205	52	77	80	1.69	3.9		15.37	**100.4**
	87.5	902.04	0.58	206	52	77	80	1.65	3.9		15.25	**98.9**
	90	903.74								0.436		**101.8**
1	0	904.18	0.78	287	58	77	78	2	4.0		18.73	
	2.5	906.03	0.8	289	52	77	78	2	4.0		18.99	**101.2**
	5	907.90	0.82	289	50	77	78	2	4.0		19.23	**101.2**
2	7.5	909.79	0.82	288	48	77	79	2.1	4.0		19.22	**101.0**
	10	911.67	0.81	288	47	77	79	2.1	4.0		19.10	**100.3**
	12.5	913.57	0.81	288	47	77	79	2.1	4.0		19.10	**102.0**
3	15	915.47	0.8	288	47	77	79	2.1	4.0		18.98	**102.0**
	17.5	917.34	0.79	288	47	77	79	2.05	4.0		18.86	**101.0**
	20	919.23	0.79	288	47	77	79	2	4.0		18.86	**102.7**
4	22.5	921.10	0.75	288	47	77	80	2	4.0		18.38	**101.6**
	25	922.92	0.75	288	47	77	80	1.9	4.0		18.38	**101.4**
	27.5	924.74	0.73	288	47	77	80	1.9	4.0		18.13	**101.4**
5	30	926.55	0.69	288	47	77	80	1.9	4.0		17.63	**102.2**
	32.5	928.33	0.68	287	47	77	80	1.8	4.0		17.49	**103.4**
	35	930.09	0.68	286	47	77	80	1.8	4.0		17.47	**102.9**
6	37.5	931.83	0.63	286	47	77	80	1.75	4.0		16.82	**101.7**
	40	933.49	0.63	287	48	77	81	1.6	3.9		16.83	**100.7**
	42.5	935.15	0.63	287	48	77	81	1.6	3.9		16.83	**100.7**
7	45	936.82	0.66	287	48	78	81	1.6	3.9		17.23	**101.3**
	47.5	938.55	0.65	287	48	78	81	1.7	4.0		17.10	**102.4**
	50	940.27	0.65	286	48	78	81	1.7	4.0		17.08	**102.6**
8	52.5	941.96	0.67	286	48	78	81	1.65	4.0		17.35	**100.8**
	55	943.68	0.66	286	48	78	81	1.7	4.0		17.22	**101.0**
	57.5	945.40	0.66	286	48	78	81	1.7	4.0		17.22	**101.8**
9	60	947.11	0.69	285	48	78	81	1.7	4.0		17.59	**101.2**
	62.5	948.86	0.72	286	48	78	81	1.8	4.0		17.98	**101.2**
	65	950.67	0.69	286	48	78	82	1.9	4.0		17.60	**102.6**

ORTECH Environmental

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - Partculate & Metals	**Test Location:**	APC Outlet No. 2
Date:	March 19, 2024	**Operator:**	TC/BP

Pitot Factor	0.843	**Filter (mg)**	3		
DGMCF	0.986	**Probe (mg)**	2.7		
Barometric Pressure	29.27 "Hg	**CWTR (g)**	511.8		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	21.8		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.436 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%	8.14
CO2%	11.03
COppm	8.1

Measured H2O
17.4 %

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 %
10	67.5	952.43	0.69	282	48	78	82	1.8	4.0		17.56	**101.8**
	70	954.17	0.66	282	48	78	82	1.75	4.0		17.17	**100.4**
	72.5	955.85	0.65	280	48	78	82	1.7	4.0		17.02	**99.1**
11	75	957.56	0.65	280	48	78	82	1.7	4.0		17.02	**101.5**
	77.5	959.27	0.67	280	48	78	82	1.7	4.0		17.28	**101.5**
	80	960.98	0.65	280	48	79	82	1.7	4.0		17.02	**99.9**
12	82.5	962.67	0.65	280	49	79	82	1.7	4.0		17.02	**100.2**
	85	964.38	0.67	280	49	79	82	1.7	4.0		17.28	**101.4**
	87.5	966.10	0.67	280	49	79	82	1.7	4.0		17.28	**100.4**
	90	967.79										**98.7**

APPENDIX 23

Particle Size Distribution Test Emission Calculations
(12 pages)

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	March 19, 2024
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	1
Test Location:	APC Outlet No. 1

Project No.: 22327
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	0.987
Pitot Factor	0.843
Barometric Pressure (" Hg)	29.43
Static Pressure ("H_2O)	-11.90
Oxygen Content (%)	8.75
Carbon Dioxide Content (%)	10.41
Carbon Monoxide Content (PPM)	8
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	10.0 l/min*
Cyclone Qs_{actual}	0.59 ft^3/min	16.8 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.3 Rft^3*	1.197 Rm^3*
Average Cyclone I Cut Diameter		10.18 µm
Average Cyclone IV Cut Diameter		2.34 µm
Average Isokineticity		91.2 %
Stack Gas Physical Parameters		
B_{ws}	14.3 % v/v	
Average m	220.2 (dimensionless)	
M_d	30.02 lbs/lbs mole	
M_w	28.29 lbs/lbs mole	
Average T_s	279 °F	137 °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	60022 ACFM	28.3 m^3/s
Wet Reference Q_s	41612 SCFM*	19.6 Rm^3/s*
Dry Reference Q_s	35642 SCFM*	16.8 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	0.92 mg/Rm^3*	0.0155 g/s
Total Part. (b)	7.60 mg/Rm^3*	0.128 g/s
PM_{10} Part. (b)	7.43 mg/Rm^3*	0.125 g/s
$PM_{2.5}$ Part. (b)	7.35 mg/Rm^3*	0.124 g/s
Cond. Part.	6.68 mg/Rm^3*	0.112 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	491.0	620.5	732.4	928.5	
final volume or weight (ml or mg)	633.0	620.5	728.9	937.5	
gain in volume or weight (ml or mg)	142.0	0.0	-3.5	9.0	0.0
				TOTAL	147.5

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.2	0.1	0.6	0.2	8.0

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: March 19, 2024	**Plant:** DYEC	**Test No.:** 1	**Project No.:** 22327
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	10.8	0.00	0.92	0.35	278	66	66	0.38	3.0	66.0	10.11	2.31	87.8
	2	10.8	10.4	3.86	0.96	0.35	279	67	66	0.38	3.0	67.4	10.10	2.31	86.1
	3	21.1	10.4	7.59	0.88	0.35	279	68	66	0.38	3.0	64.6	10.41	2.43	86.3
	4	31.5	10.2	11.17	0.85	0.35	280	69	67	0.38	3.0	63.5	10.13	2.32	91.3
	5	41.8	9.4	14.85	0.74	0.35	280	70	67	0.38	3.0	59.2	10.29	2.39	95.7
	6	51.2	9.1	18.16	0.64	0.35	280	70	67	0.38	3.0	55.1	10.11	2.31	105.6
		60.3		21.45											
1	1	0.00	10.7	21.45	0.98	0.35	280	70	68	0.38	3.0	68.2	10.38	2.42	82.1
	2	10.7	10.7	25.17	1.00	0.35	278	71	68	0.38	3.0	68.8	10.21	2.35	83.1
	3	21.4	10.5	28.98	0.90	0.35	279	71	68	0.38	3.0	65.3	10.06	2.29	89.5
	4	31.9	10.0	32.80	0.78	0.35	279	71	68	0.38	3.0	60.8	10.14	2.32	95.1
	5	41.9	9.0	36.39	0.70	0.35	279	71	69	0.38	3.0	57.6	10.14	2.32	100.4
	6	50.9	8.8	39.62	0.69	0.35	280	71	69	0.38	3.0	57.2	10.13	2.32	101.4
		59.7		42.80											
Averages					**0.84**		**279**	**68**		**0.38**		**62.8**	**10.18**	**2.34**	**91.2**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	March 19, 2024
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	2
Test Location:	APC Outlet No. 1

Project No.: 22327
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	0.987
Pitot Factor	0.843
Barometric Pressure (" Hg)	29.34
Static Pressure ("H_2O)	-11.90
Oxygen Content (%)	9.12
Carbon Dioxide Content (%)	10.21
Carbon Monoxide Content (PPM)	7.9
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.36 Rft^3/min*	10.1 l/min*
Cyclone Qs_{actual}	0.62 ft^3/min	17.5 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.7 Rft^3*	1.209 Rm^3*
Average Cyclone I Cut Diameter		9.93 µm
Average Cyclone IV Cut Diameter		2.25 µm
Average Isokineticity		93.3 %
Stack Gas Physical Parameters		
B_{ws}	16.3 % v/v	
Average m	220.0 (dimensionless)	
M_d	30.00 lbs/lbs mole	
M_w	28.05 lbs/lbs mole	
Average T_s	283 °F	139 °C
Average U_s	63.8 ft/s	19.5 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	61010 ACFM	28.8 m^3/s
Wet Reference Q_s	41946 SCFM*	19.8 Rm^3/s*
Dry Reference Q_s	35122 SCFM*	16.6 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.65 mg/Rm^3*	0.0274 g/s
Total Part. (b)	7.94 mg/Rm^3*	0.132 g/s
PM_{10} Part. (b)	7.44 mg/Rm^3*	0.123 g/s
$PM_{2.5}$ Part. (b)	7.11 mg/Rm^3*	0.118 g/s
Cond. Part.	6.29 mg/Rm^3*	0.104 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)	526.0	655.5	671.3	981.0	
final volume or weight (ml or mg)	691.5	655.5	670.1	989.5	
gain in volume or weight (ml or mg)	165.5	0.0	-1.2	8.5	0.0
				TOTAL	172.8

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.6	0.4	0.2	<0.8	7.6

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: March 19, 2024	**Plant:** DYEC	**Test No.:** 2	**Project No.:** 22327
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	10.5	42.85	0.97	0.35	283	70	69	0.38	4.0	68.4	9.72	2.17	90.2
	2	10.5	10.7	46.77	0.99	0.35	283	67	67	0.38	4.0	69.1	10.09	2.32	84.7
	3	21.3	10.3	50.55	0.95	0.35	284	67	68	0.38	4.0	67.7	9.96	2.27	88.1
	4	31.5	10.1	54.24	0.89	0.35	285	67	68	0.38	4.0	65.6	9.62	2.13	95.7
	5	41.6	9.4	58.05	0.75	0.35	285	70	68	0.38	4.0	60.2	9.55	2.11	105.3
	6	51.1	8.8	61.65	0.65	0.35	283	71	68	0.38	4.0	56.0	10.07	2.31	104.8
		59.8		64.76											
1	1	0.00	10.9	64.76	0.92	0.35	281	71	69	0.38	4.0	66.5	10.03	2.29	88.4
	2	10.9	11.0	68.63	0.92	0.35	282	72	70	0.38	4.0	66.5	10.12	2.33	87.4
	3	21.8	10.4	72.50	0.85	0.35	281	73	70	0.38	4.0	63.9	9.99	2.28	92.4
	4	32.2	9.7	76.24	0.85	0.35	282	73	70	0.38	4.0	64.0	9.96	2.26	93.0
	5	41.9	9.2	79.74	0.78	0.35	284	73	70	0.38	4.0	61.3	9.99	2.28	96.8
	6	51.1	9.1	83.04	0.67	0.35	284	73	70	0.38	4.0	56.9	10.01	2.28	104.2
		60.2		86.31											
Averages					**0.85**		**283**	**70**		**0.38**		**63.8**	**9.93**	**2.25**	**93.3**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	March 19, 2024
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	3
Test Location:	APC Outlet No. 1

Project No.: 22327
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	0.987
Pitot Factor	0.843
Barometric Pressure (" Hg)	29.28
Static Pressure ("H_2O)	-11.90
Oxygen Content (%)	8.73
Carbon Dioxide Content (%)	10.34
Carbon Monoxide Content (PPM)	6.3
Assumed Moisture (%)	
Nozzle Diameter (inches)	0.1776

Cyclone Sampling Parameters		
Cyclone Qs_{ST}	0.35 Rft^3/min*	10.0 l/min*
Cyclone Qs_{actual}	0.60 ft^3/min	17.0 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.4 Rft^3*	1.200 Rm^3*
Average Cyclone I Cut Diameter		10.07 µm
Average Cyclone IV Cut Diameter		2.30 µm
Average Isokineticity		93.6 %
Stack Gas Physical Parameters		
B_{ws}	15.0 % v/v	
Average m	219.3 (dimensionless)	
M_d	30.00 lbs/lbs mole	
M_w	28.20 lbs/lbs mole	
Average T_s	278 °F	137 °C
Average U_s	62.0 ft/s	18.9 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	59244 ACFM	28.0 m^3/s
Wet Reference Q_s	40935 SCFM*	19.3 Rm^3/s*
Dry Reference Q_s	34800 SCFM*	16.4 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	2.25 mg/Rm^3*	0.0370 g/s
Total Part. (b)	8.25 mg/Rm^3*	0.136 g/s
PM_{10} Part. (b)	7.75 mg/Rm^3*	0.127 g/s
$PM_{2.5}$ Part. (b)	7.50 mg/Rm^3*	0.123 g/s
Cond. Part.	6.00 mg/Rm^3*	0.099 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	491.0	620.5	728.9	937.5	
final volume or weight (ml or mg)	640.0	620.5	727.0	946.0	
gain in volume or weight (ml or mg)	149.0	0.0	-1.9	8.5	0.0
				TOTAL	155.6

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.6	0.3	1.0	<0.8	7.2

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: March 19, 2024	**Plant:** DYEC	**Test No.:** 3	**Project No.:** 22327
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	10.7	87.27	0.94	0.35	280	73	72	0.38	4.0	67.0	10.15	2.33	86.2
	2	10.7	10.8	91.11	0.85	0.35	278	73	72	0.38	4.0	63.7	10.05	2.29	91.8
	3	21.5	10.6	95.04	0.86	0.35	278	73	72	0.38	4.0	64.0	10.09	2.31	90.7
	4	32.1	10.3	98.87	0.85	0.35	278	73	72	0.38	4.0	63.7	9.93	2.25	93.3
	5	42.4	9.4	102.66	0.72	0.35	278	73	72	0.38	4.0	58.6	10.12	2.32	98.8
	6	51.8	8.8	106.05	0.62	0.35	278	75	73	0.38	4.0	54.4	9.84	2.21	110.7
		60.6		109.34											
1	1	0.00	10.4	109.34	0.97	0.35	278	76	74	0.38	4.0	68.0	10.30	2.39	83.0
	2	10.4	10.4	113.02	0.95	0.35	277	76	74	0.38	4.0	67.3	9.93	2.25	88.2
	3	20.9	10.0	116.89	0.88	0.35	277	76	74	0.38	4.0	64.7	10.17	2.34	88.7
	4	30.9	10.0	120.49	0.75	0.35	277	76	74	0.38	4.0	59.8	10.17	2.34	96.0
	5	40.9	9.6	124.09	0.67	0.35	277	76	74	0.38	4.0	56.5	10.12	2.32	102.3
	6	50.5	8.9	127.56	0.66	0.35	278	77	75	0.38	4.0	56.1	10.02	2.28	104.6
		59.4		130.83											
Averages					**0.81**		**278**	**74**		**0.38**		**62.0**	**10.07**	**2.30**	**93.6**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	March 18, 2024
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	1
Test Location:	APC Outlet No. 2

Project No.: 22327
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	0.987
Pitot Factor	0.843
Barometric Pressure (" Hg)	29.44
Static Pressure ("H_2O)	-11.80
Oxygen Content (%)	8.57
Carbon Dioxide Content (%)	10.75
Carbon Monoxide Content (PPM)	7.6
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}	0.61 ft^3/min	17.4 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.1 Rft^3*	1.192 Rm^3*
Average Cyclone I Cut Diameter		9.94 µm
Average Cyclone IV Cut Diameter		2.25 µm
Average Isokineticity		101.9 %
Stack Gas Physical Parameters		
B_{ws}	17.2 % v/v	
Average m	218.8 (dimensionless)	
M_d	30.06 lbs/lbs mole	
M_w	27.99 lbs/lbs mole	
Average T_s	282 °F	139 °C
Average U_s	57.9 ft/s	17.6 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	55324 ACFM	26.1 m^3/s
Wet Reference Q_s	38223 SCFM*	18.0 Rm^3/s*
Dry Reference Q_s	31667 SCFM*	14.9 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.76 mg/Rm^3*	0.0263 g/s
Total Part. (b)	7.13 mg/Rm^3*	0.107 g/s
PM_{10} Part. (b)	6.71 mg/Rm^3*	0.100 g/s
$PM_{2.5}$ Part. (b)	6.21 mg/Rm^3*	0.093 g/s
Cond. Part.	5.37 mg/Rm^3*	0.080 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)	525.9	655.7	673.8	962.7	
final volume or weight (ml or mg)	700.0	655.7	672.8	971.2	
gain in volume or weight (ml or mg)	174.1	0.0	-1.0	8.5	0.0
				TOTAL	181.6

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.5	0.6	0.2	<0.8	6.4

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: March 18, 2024	**Plant:** DYEC	**Test No.:** 1	**Project No.:** 22327
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	69.96	0.73	0.35	276	65	64	0.38	4.0	59.0	9.79	2.19	101.7
	2	10.5	10.8	73.74	0.71	0.35	280	66	65	0.38	4.0	58.3	9.56	2.10	107.2
	3	21.3	10.4	77.75	0.68	0.35	280	67	66	0.38	4.0	57.1	9.90	2.24	104.2
	4	31.7	10.2	81.45	0.71	0.35	283	68	67	0.38	4.0	58.4	9.93	2.25	101.9
	5	41.9	9.7	85.06	0.71	0.35	283	70	67	0.38	4.0	58.4	10.03	2.29	100.4
	6	51.5	9.0	88.45	0.62	0.35	283	71	68	0.38	4.0	54.6	9.91	2.24	109.3
		60.5		91.67											
2	1	0.00	10.9	91.67	0.75	0.35	284	71	68	0.38	4.0	60.1	9.97	2.27	98.6
	2	10.9	10.8	95.52	0.73	0.35	283	72	69	0.38	4.0	59.2	10.15	2.34	97.3
	3	21.6	9.9	99.24	0.77	0.35	283	72	69	0.38	4.0	60.9	9.97	2.27	97.2
	4	31.6	9.6	102.76	0.72	0.35	284	72	69	0.38	4.0	58.9	10.08	2.31	99.1
	5	41.2	9.4	106.12	0.67	0.35	284	72	69	0.38	4.0	56.8	9.97	2.27	104.3
	6	50.6	8.9	109.46	0.58	0.35	284	72	69	0.38	4.0	52.8	10.02	2.29	111.4
		59.5		112.59											
Averages					**0.70**		**282**	**69**		**0.38**		**57.9**	**9.94**	**2.25**	**101.9**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	March 18, 2024
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	2
Test Location:	APC Outlet No. 2

Project No.: 22327
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	0.987
Pitot Factor	0.843
Barometric Pressure (" Hg)	29.44
Static Pressure ("H_2O)	-11.80
Oxygen Content (%)	8.30
Carbon Dioxide Content (%)	11.05
Carbon Monoxide Content (PPM)	9.1
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	17.2 l/min
Stack Gas Sampling Parameters		
V_{ms}	41.9 Rft^3*	1.188 Rm^3*
Average Cyclone I Cut Diameter		9.99 µm
Average Cyclone IV Cut Diameter		2.27 µm
Average Isokineticity		92.7 %
Stack Gas Physical Parameters		
B_{ws}	16.8 % v/v	
Average m	218.9 (dimensionless)	
M_d	30.10 lbs/lbs mole	
M_w	28.07 lbs/lbs mole	
Average T_s	282 °F	139 °C
Average U_s	63.5 ft/s	19.3 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	60668 ACFM	28.6 m^3/s
Wet Reference Q_s	41933 SCFM*	19.8 Rm^3/s*
Dry Reference Q_s	34883 SCFM*	16.5 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.85 mg/Rm^3*	0.0305 g/s
Total Part. (b)	8.67 mg/Rm^3*	0.143 g/s
PM_{10} Part. (b)	8.34 mg/Rm^3*	0.137 g/s
$PM_{2.5}$ Part. (b)	8.25 mg/Rm^3*	0.136 g/s
Cond. Part.	6.82 mg/Rm^3*	0.112 g/s

(a) does not include condensibles
(b) includes condensibles

Impinger Recovery	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5
initial volume or weight (ml or mg)	491.2	620.5	732.9	919.5	
final volume or weight (ml or mg)	659.3	620.5	732.4	928.5	
gain in volume or weight (ml or mg)	168.1	0.0	-0.5	9.0	0.0
				TOTAL	176.6

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.4	0.1	0.9	<0.8	8.1

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: March 18, 2024	**Plant:** DYEC	**Test No.:** 2	**Project No.:** 22327
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 (%)
2	1	0.00	10.2	12.77	0.95	0.35	282	71	70	0.38	4.0	67.5	9.96	2.26	87.7
	2	10.2	10.1	16.42	0.88	0.35	281	70	70	0.38	4.0	64.9	9.99	2.27	90.6
	3	20.3	9.9	20.00	0.86	0.35	282	71	70	0.38	4.0	64.2	9.86	2.22	93.4
	4	30.2	10.1	23.57	0.84	0.35	282	72	71	0.38	4.0	63.4	9.93	2.25	93.6
	5	40.3	10.1	27.19	0.70	0.35	282	72	71	0.38	4.0	57.9	9.91	2.24	102.8
	6	50.4	9.4	30.82	0.61	0.35	281	72	71	0.38	4.0	54.0	10.02	2.28	108.4
		59.8		34.16											
1	1	0.00	10.4	34.16	0.99	0.35	281	74	72	0.38	4.0	68.8	9.95	2.26	85.9
	2	10.4	10.2	37.88	0.97	0.35	282	75	72	0.38	4.0	68.2	10.04	2.29	85.8
	3	20.6	10.5	41.51	0.93	0.35	283	75	72	0.38	4.0	66.8	10.05	2.30	87.5
	4	31.1	10.2	45.23	0.86	0.35	282	76	73	0.38	4.0	64.2	10.02	2.29	91.3
	5	41.3	9.8	48.85	0.84	0.35	282	76	73	0.38	4.0	63.4	10.05	2.29	92.1
	6	51.1	9.1	52.33	0.71	0.35	283	76	73	0.38	4.0	58.4	10.13	2.33	99.1
		60.2		55.53											
Averages					**0.85**		**282**	**72**		**0.38**		**63.5**	**9.99**	**2.27**	**92.7**

EPA Draft Method - $PM_{10/2.5}$ Calculations

Date:	March 18, 2024
Client:	Covanta
Plant:	DYEC
Location:	Courtice, Ontario
Test No.:	3
Test Location:	APC Outlet No. 2

Project No.: 22327
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	0.987
Pitot Factor	0.843
Barometric Pressure (" Hg)	29.46
Static Pressure ("H_2O)	-11.80
Oxygen Content (%)	8.13
Carbon Dioxide Content (%)	11.06
Carbon Monoxide Content (PPM)	9.8
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}	0.61 ft^3/min	17.3 l/min
Stack Gas Sampling Parameters		
V_{ms}	42.2 Rft^3*	1.194 Rm^3*
Average Cyclone I Cut Diameter		9.92 µm
Average Cyclone IV Cut Diameter		2.25 µm
Average Isokineticity		98.0 %
Stack Gas Physical Parameters		
B_{ws}	17.1 % v/v	
Average m	218.1 (dimensionless)	
M_d	30.09 lbs/lbs mole	
M_w	28.03 lbs/lbs mole	
Average T_s	280 °F	138 °C
Average U_s	59.8 ft/s	18.2 m/s
Stack Area	15.9 ft^2	1.48 m^2
Actual Q_s	57167 ACFM	27.0 m^3/s
Wet Reference Q_s	39635 SCFM*	18.7 Rm^3/s*
Dry Reference Q_s	32862 SCFM*	15.5 Rm^3/s*

Summary of Particulate Emission Rates	Dry Ref. Conc.	Emission Rate
Total Part. (a)	1.68 mg/Rm^3*	0.0260 g/s
Total Part. (b)	7.12 mg/Rm^3*	0.110 g/s
PM_{10} Part. (b)	6.70 mg/Rm^3*	0.104 g/s
$PM_{2.5}$ Part. (b)	6.45 mg/Rm^3*	0.100 g/s
Cond. Part.	5.45 mg/Rm^3*	0.084 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)	526.0	655.5	672.8	971.2	
final volume or weight (ml or mg)	698.7	655.5	671.3	981.0	
gain in volume or weight (ml or mg)	172.7	0.0	-1.5	9.8	0.0
				TOTAL	**181.0**

Particulate Weight Gains	>10mm	<10mm, >2.5mm	<2.5mm	back-up filter	cond. part.
particulate weight gains (mg)	0.5	0.3	<0.4	<0.8	6.5

*Reference conditions: 77°F, 29.92 in. Hg or 25°C, 101.3 KPa

Test Data Page Calculations

Date: March 18, 2024	**Plant:** DYEC	**Test No.:** 3	**Project No.:** 22327
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 (%)
2	1	0.00	10.6	55.63	0.93	0.35	281	75	74	0.38	4.0	66.7	9.94	2.25	88.6
	2	10.6	10.2	59.44	0.91	0.35	281	74	75	0.38	4.0	66.0	9.92	2.24	89.9
	3	20.9	10.1	63.12	0.86	0.35	280	75	73	0.38	4.0	64.1	9.81	2.20	93.8
	4	31.0	10.0	66.81	0.79	0.35	280	75	73	0.38	4.0	61.5	9.90	2.24	96.6
	5	41.0	9.1	70.41	0.71	0.35	280	75	73	0.38	4.0	58.3	9.85	2.22	102.7
	6	50.1	8.5	73.72	0.64	0.35	280	75	73	0.38	4.0	55.3	9.96	2.26	106.4
		58.6		76.76											
1	1	0.00	10.8	76.76	0.76	0.35	280	75	73	0.38	4.0	60.3	10.02	2.29	96.8
	2	10.8	10.7	80.60	0.75	0.35	279	76	74	0.38	4.0	59.8	9.85	2.22	99.7
	3	21.6	10.5	84.50	0.73	0.35	280	76	74	0.38	4.0	59.1	9.93	2.25	100.1
	4	32.1	10.1	88.28	0.70	0.35	280	76	74	0.38	4.0	57.8	9.94	2.25	102.1
	5	42.2	10.0	91.91	0.68	0.35	280	77	74	0.38	4.0	57.0	10.10	2.32	101.3
	6	52.2	9.2	95.42	0.56	0.35	281	77	74	0.38	4.0	51.8	9.86	2.22	115.6
		61.4		98.76											
Averages					**0.75**		**280**	**75**		**0.38**		**59.8**	**9.92**	**2.25**	**98.0**

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:	March 18, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	1.292	m^3
AVGERGE ISOKINETICITY	98.8	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	136.1	°C
AVERAGE GAS MOISTURE BY VOLUME	15.7	%
AVERAGE GAS VELOCITY	18.26	m/s
BAROMETRIC PRESSURE (Station)	99.729	Kpa
STATIC PRESSURE	-2.918	Kpa
ABSOLUTE GAS PRESSURE	96.811	Kpa
OXYGEN CONCENTRATION	8.76	%
CARBON DIOXIDE CONCENTRATION	10.41	%
CARBON MONOXIDE CONCENTRATION	5.7	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.98	m^3/s
DRY REF GAS FLOWRATE	15.82	Rm^3/s
DRY ADJ GAS FLOWRATE	19.40	Rm^3/s
WET REF GAS FLOWRATE	18.78	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.292	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:	March 18, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.45 "Hg	**CWTR (g)**	165.6		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	11.7		
Nozzle	0.2586 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%	8.76
CO2%	10.41
COppm	5.7

Measured H2O
15.7 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
4	0	713.43	0.78	275	62	62	62	2	5.0		18.50	
	5	717.12	0.8	275	48	62	62	2.05	5.0		18.74	**97.8**
	10	720.87	0.77	275	46	62	62	2	5.0		18.39	**98.2**
	15	724.59	0.76	276	47	63	64	1.95	5.0		18.28	**99.3**
	20	728.25	0.77	277	48	63	65	2.05	5.0		18.41	**98.1**
	25	731.97	0.77	278	49	63	67	2.05	5.0		18.42	**99.0**
	30	735.70	0.77	278	49	63	68	2.05	5.0		18.42	**99.2**
	35	739.43	0.73	278	50	64	69	1.95	5.0		17.94	**99.1**
	40	743.08	0.73	278	51	64	70	1.95	5.0		17.94	**99.4**
	45	746.72	0.73	277	50	65	70	1.95	5.0		17.93	**99.0**
	50	750.34	0.73	278	49	65	71	1.95	5.0		17.94	**98.3**
	55	753.94	0.75	278	48	65	71	2.05	5.0		18.18	**97.7**
	60	757.71										**101.0**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 1
Test No.:	2 - M26A
Date:	March 18, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	1.352	m^3
AVGERGE ISOKINETICITY	99.6	%
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	137.5	°C
AVERAGE GAS MOISTURE BY VOLUME	15.9	%
AVERAGE GAS VELOCITY	19.07	m/s
BAROMETRIC PRESSURE (Station)	99.695	Kpa
STATIC PRESSURE	-2.918	Kpa
ABSOLUTE GAS PRESSURE	96.777	Kpa
OXYGEN CONCENTRATION	8.84	%
CARBON DIOXIDE CONCENTRATION	10.37	%
CARBON MONOXIDE CONCENTRATION	6.2	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	28.17	m^3/s
DRY REF GAS FLOWRATE	16.42	Rm^3/s
DRY ADJ GAS FLOWRATE	20.01	Rm^3/s
WET REF GAS FLOWRATE	19.54	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.352	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:	March 18, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	175.7		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	12.5		
Nozzle	0.2586 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%	8.84
CO2%	10.37
COppm	6.2

Measured H2O
15.9 %

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 %
4	0	758.10	0.87	280	61	65	64	2.25	6.0		19.62	
	5	762.05	0.87	280	47	65	64	2.25	6.0		19.62	**99.3**
	10	766.02	0.87	281	46	65	64	2.25	6.0		19.64	**99.8**
	15	769.98	0.82	281	46	65	65	2.15	6.0		19.06	**99.6**
	20	773.88	0.82	281	47	65	66	2.1	6.0		19.06	**100.9**
	25	777.71	0.77	280	47	65	66	2	6.0		18.46	**99.0**
	30	781.45	0.77	279	47	65	67	2	6.0		18.45	**99.7**
	35	785.18	0.77	278	48	66	68	2	6.0		18.43	**99.2**
	40	788.92	0.77	278	48	66	69	2	6.0		18.43	**99.2**
	45	792.65	0.84	278	49	66	69	2.2	6.0		19.25	**98.9**
	50	796.55	0.86	279	49	67	70	2.25	6.5		19.50	**99.0**
	55	800.52	0.84	280	50	67	70	2.2	6.5		19.28	**99.5**
	60	804.52										**101.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 1
Test No.:	3 - M26A
Date:	March 18, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	1.355	m^3
AVGERGE ISOKINETICITY	100.1	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	138.0	°C
AVERAGE GAS MOISTURE BY VOLUME	16.6	%
AVERAGE GAS VELOCITY	19.20	m/s
BAROMETRIC PRESSURE (Station)	99.661	Kpa
STATIC PRESSURE	-2.918	Kpa
ABSOLUTE GAS PRESSURE	96.743	Kpa
OXYGEN CONCENTRATION	8.8	%
CARBON DIOXIDE CONCENTRATION	10.27	%
CARBON MONOXIDE CONCENTRATION	5.3	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	28.37	m^3/s
DRY REF GAS FLOWRATE	16.39	Rm^3/s
DRY ADJ GAS FLOWRATE	20.03	Rm^3/s
WET REF GAS FLOWRATE	19.65	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.355	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:	March 18, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.43 "Hg	**CWTR (g)**	184		
Static Pressure	-11.720 "H_2O	**WCBDA (g)**	13.8		
Nozzle	0.2586 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%	8.8
CO2%	10.27
COppm	5.3

Measured H2O
16.6 %

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					
4	0	805.22	0.77	280	67	67	67	2	5.0		18.49	
	5	808.93	0.77	280	49	67	67	2	5.0		18.49	**99.2**
	10	812.67	0.77	280	47	67	68	2	5.0		18.49	**100.0**
	15	816.41	0.84	280	48	67	70	2.2	5.5		19.32	**99.9**
	20	820.34	0.87	280	49	67	71	2.25	5.5		19.66	**100.3**
	25	824.35	0.82	281	51	68	72	2.15	5.5		19.10	**100.5**
	30	828.25	0.82	280	53	68	73	2.15	5.5		19.08	**100.5**
	35	832.13	0.82	280	55	68	74	2.15	5.5		19.08	**99.9**
	40	836.00	0.87	281	55	69	74	2.3	6.0		19.67	**99.5**
	45	840.01	0.87	281	56	69	74	2.3	6.0		19.67	**100.1**
	50	844.03	0.87	281	58	69	75	2.3	6.0		19.67	**100.4**
	55	848.09	0.87	281	59	69	75	2.3	6.0		19.67	**101.3**
	60	852.08										**99.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 2
Test No.:	1 - M26A
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	1.277	m^3
AVGERGE ISOKINETICITY	101.4	%
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	138.9	°C
AVERAGE GAS MOISTURE BY VOLUME	18.1	%
AVERAGE GAS VELOCITY	18.22	m/s
BAROMETRIC PRESSURE (Station)	99.695	Kpa
STATIC PRESSURE	-2.814	Kpa
ABSOLUTE GAS PRESSURE	96.882	Kpa
OXYGEN CONCENTRATION	8.63	%
CARBON DIOXIDE CONCENTRATION	10.72	%
CARBON MONOXIDE CONCENTRATION	6.6	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.92	m^3/s
DRY REF GAS FLOWRATE	15.24	Rm^3/s
DRY ADJ GAS FLOWRATE	18.89	Rm^3/s
WET REF GAS FLOWRATE	18.62	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.277	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:	March 19, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.44 "Hg	**CWTR (g)**	197.8		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	10		
Nozzle	0.2586 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%	8.63
CO2%	10.72
COppm	6.6

Measured H2O
18.1 %

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 %
4	0	52.56	0.65	277	63	63	63	1.65	5.0		16.99	
	5	55.97	0.65	278	47	63	62	1.65	5.0		17.00	**101.3**
	10	59.30	0.67	279	46	63	63	1.8	5.0		17.27	**99.1**
	15	62.77	0.67	280	46	63	64	1.75	5.0		17.28	**101.7**
	20	66.26	0.7	280	47	64	66	1.8	5.5		17.66	**102.2**
	25	69.81	0.73	281	47	64	67	1.9	5.5		18.05	**101.5**
	30	73.45	0.73	282	48	64	68	1.9	5.5		18.06	**101.9**
	35	77.03	0.81	284	49	65	69	2.1	6.0		19.05	**100.2**
	40	80.82	0.81	285	50	65	70	2.1	6.0		19.06	**100.7**
	45	84.67	0.82	286	51	65	70	2.1	6.0		19.19	**102.2**
	50	88.52	0.82	286	51	65	70	2.1	6.0		19.19	**101.7**
	55	92.38	0.87	287	52	66	71	2.2	6.0		19.78	**101.9**
	60	96.37										**102.2**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 2
Test No.:	2 - M26A
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	1.290	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	138.7	°C
AVERAGE GAS MOISTURE BY VOLUME	15.4	%
AVERAGE GAS VELOCITY	18.17	m/s
BAROMETRIC PRESSURE (Station)	99.628	Kpa
STATIC PRESSURE	-2.814	Kpa
ABSOLUTE GAS PRESSURE	96.814	Kpa
OXYGEN CONCENTRATION	8.64	%
CARBON DIOXIDE CONCENTRATION	10.67	%
CARBON MONOXIDE CONCENTRATION	7.5	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.85	m^3/s
DRY REF GAS FLOWRATE	15.71	Rm^3/s
DRY ADJ GAS FLOWRATE	19.45	Rm^3/s
WET REF GAS FLOWRATE	18.58	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.290	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:	March 19, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.42 "Hg	**CWTR (g)**	162.3		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	10.7		
Nozzle	0.2586 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%	8.64
CO2%	10.67
COppm	7.5

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 %
4	0	96.82	0.72	278	60	63	63	1.9	5.0		17.79	
	5	100.48	0.75	282	47	63	63	2	5.0		18.21	**100.7**
	10	104.11	0.75	282	46	63	64	2	5.0		18.21	**98.1**
	15	107.74	0.75	282	47	63	67	2	5.0		18.21	**98.0**
	20	111.51	0.75	282	47	63	67	2	5.0		18.21	**101.5**
	25	115.11	0.77	283	47	63	68	2.05	5.0		18.46	**96.9**
	30	118.87	0.77	282	48	64	68	2.05	5.5		18.45	**99.9**
	35	122.65	0.77	282	48	64	69	2	5.5		18.45	**100.3**
	40	126.37	0.77	282	48	64	69	2	5.5		18.45	**98.6**
	45	130.08	0.72	282	49	64	69	1.9	5.5		17.84	**98.3**
	50	133.73	0.73	281	49	64	70	2	5.5		17.95	**100.0**
	55	137.46	0.72	281	52	64	70	1.9	5.5		17.83	**101.3**
	60	141.09										**99.3**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test Location:	APC Outlet No. 2
Test No.:	3 - M26A
Date:	March 19, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	1.281	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	139.2	°C
AVERAGE GAS MOISTURE BY VOLUME	16.1	%
AVERAGE GAS VELOCITY	18.15	m/s
BAROMETRIC PRESSURE (Station)	99.424	Kpa
STATIC PRESSURE	-2.814	Kpa
ABSOLUTE GAS PRESSURE	96.611	Kpa
OXYGEN CONCENTRATION	8.1	%
CARBON DIOXIDE CONCENTRATION	11.17	%
CARBON MONOXIDE CONCENTRATION	9.7	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.82	m^3/s
DRY REF GAS FLOWRATE	15.51	Rm^3/s
DRY ADJ GAS FLOWRATE	20.06	Rm^3/s
WET REF GAS FLOWRATE	18.49	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		1.281	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:	March 19, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.36 "Hg	**CWTR (g)**	167.5		
Static Pressure	-11.300 "H_2O	**WCBDA (g)**	13		
Nozzle	0.2586 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%	8.1
CO2%	11.17
COppm	9.7

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 %
4	0	41.45	0.72	278	60	63	63	1.9	5.0		17.82	
	5	45.15	0.77	282	51	63	65	2	5.0		18.48	**102.4**
	10	48.84	0.77	282	49	63	66	2	5.0		18.48	**98.8**
	15	52.53	0.77	283	48	62	66	2	5.0		18.49	**98.8**
	20	56.24	0.77	284	49	63	68	2	5.0		18.50	**99.5**
	25	59.95	0.72	284	50	63	68	1.9	5.0		17.89	**99.2**
	30	63.58	0.74	283	51	63	69	1.95	5.0		18.13	**100.4**
	35	67.25	0.76	283	51	64	70	2	5.0		18.37	**100.0**
	40	70.96	0.75	283	52	64	71	2	5.0		18.25	**99.5**
	45	74.65	0.75	283	53	65	71	2	5.0		18.25	**99.6**
	50	78.36	0.68	283	55	65	72	1.8	5.0		17.38	**100.0**
	55	81.93	0.71	282	57	66	72	1.9	5.0		17.75	**100.9**
	60	85.57										**100.6**

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:	March 20, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	5.053	m^3
AVGERGE ISOKINETICITY	99.3	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	137.9	°C
AVERAGE GAS MOISTURE BY VOLUME	16.7	%
AVERAGE GAS VELOCITY	18.15	m/s
BAROMETRIC PRESSURE (Station)	99.187	Kpa
STATIC PRESSURE	-2.963	Kpa
ABSOLUTE GAS PRESSURE	96.224	Kpa
OXYGEN CONCENTRATION	8.11	%
CARBON DIOXIDE CONCENTRATION	11.00	%
CARBON MONOXIDE CONCENTRATION	9.2	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.82	m^3/s
DRY REF GAS FLOWRATE	15.39	Rm^3/s
DRY ADJ GAS FLOWRATE	19.89	Rm^3/s
WET REF GAS FLOWRATE	18.48	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		5.053	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:	March 20, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.29 "Hg	**CWTR (g)**	721.9		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	20.6		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.37 ft^3	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.11
CO2%	11.00
COppm	9.2

Measured H2O
16.7 %

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	29.72	0.81	285	95	82	82	2.2	7.0		19.06	
	5	33.66	0.84	280	57	83	82	2.25	7.5		19.35	**100.2**
2	10	37.68	0.85	280	48	83	82	2.25	7.5		19.46	**100.0**
	15	41.70	0.86	280	48	83	83	2.25	8.0		19.57	**99.4**
3	20	45.74	0.81	280	49	83	83	2.2	8.0		19.00	**99.2**
	25	49.70	0.84	280	49	83	84	2.2	8.0		19.35	**100.2**
4	30	53.69	0.76	280	50	83	85	2.05	8.0		18.40	**99.1**
	35	57.48	0.73	281	51	84	86	2	7.5		18.05	**98.8**
5	40	61.23	0.7	280	53	84	86	1.95	8.0		17.66	**99.6**
	45	64.94	0.7	280	55	84	87	1.9	8.0		17.66	**100.6**
6	50	68.60	0.65	280	54	84	87	1.8	7.5		17.02	**99.1**
	55	72.21	0.65	280	54	84	87	1.8	7.5		17.02	**101.4**
7	60	75.73	0.71	280	66	85	88	1.9	7.5		17.79	**98.9**
	65	79.41	0.71	280	64	85	88	1.9	7.5		17.79	**98.8**
8	70	83.02	0.74	281	58	85	88	2.1	8.0		18.17	**96.9**
	75	86.83	0.74	281	53	85	88	2.1	8.0		18.17	**100.3**
9	80	90.66	0.75	281	54	85	88	2.1	8.0		18.29	**100.8**
	85	94.47	0.76	281	54	85	88	2.1	8.0		18.41	**99.6**
10	90	98.31	0.76	278	54	85	87	2.1	8.0		18.38	**99.7**
	95	102.14	0.76	277	54	85	87	2.1	8.0		18.36	**99.3**
11	100	105.95	0.68	277	55	85	87	1.9	8.0		17.37	**98.8**
	105	109.64	0.74	277	56	85	87	2	8.0		18.12	**101.1**
12	110	113.39	0.71	277	56	85	87	1.9	8.0		17.75	**98.5**
	115	117.08	0.76	277	57	85	87	2	8.0		18.36	**98.9**
	120	120.85								0.37		**97.7**
1	0	121.22	0.81	280	52	84	84	2.15	8.5		19.00	
	5	125.12	0.81	281	56	83	84	2.15	8.5		19.01	**98.5**
2	10	129.05	0.85	280	44	83	84	2.2	9.0		19.46	**99.4**
	15	133.08	0.83	281	48	83	84	2.2	9.0		19.24	**99.5**
3	20	137.07	0.85	281	49	83	85	2.2	9.0		19.47	**99.7**
	25	141.07	0.84	282	56	83	85	2.2	9.2		19.37	**98.7**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	March 20, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.29 "Hg	**CWTR (g)**	721.9		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	20.6		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.37 ft^3	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.11
CO2%	11.00
COppm	9.2

Measured H2O
16.7 %

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					
4	30	145.05	0.78	282	56	83	85	2	9.0		18.67	**98.9**
	35	148.90	0.76	282	56	83	85	2	9.0		18.43	**99.2**
5	40	152.66	0.71	282	56	83	85	1.95	9.0		17.81	**98.1**
	45	156.38	0.74	282	58	83	86	1.95	9.0		18.18	**100.4**
6	50	160.08	0.62	283	58	83	86	1.8	8.5		16.65	**97.8**
	55	163.65	0.61	283	59	83	86	1.65	8.5		16.52	**103.1**
7	60	167.09	0.67	283	59	83	86	1.8	8.5		17.31	**100.1**
	65	170.66	0.67	283	60	83	86	1.8	8.5		17.31	**99.2**
8	70	174.25	0.73	283	60	83	86	1.9	9.0		18.07	**99.7**
	75	177.96	0.75	283	60	83	86	1.95	9.0		18.32	**98.7**
9	80	181.62	0.75	283	60	83	86	2.05	9.0		18.32	**96.1**
	85	185.39	0.71	283	60	83	86	2	9.0		17.82	**99.0**
10	90	189.15	0.76	279	58	83	85	2.05	9.0		18.39	**101.5**
	95	192.96	0.76	277	58	82	85	2.05	9.0		18.36	**99.2**
11	100	196.79	0.63	277	58	82	85	1.7	8.0		16.72	**99.7**
	105	200.25	0.63	277	60	82	84	1.7	8.0		16.72	**98.9**
12	110	203.72	0.63	276	60	82	85	1.7	8.0		16.71	**99.2**
	115	207.17	0.64	276	60	81	84	1.7	8.0		16.84	**98.5**
	120	210.63										**98.2**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	2 - SVOC
Date:	March 20, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	5.106	m^3
AVGERGE ISOKINETICITY	99.9	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	137.0	°C
AVERAGE GAS MOISTURE BY VOLUME	17.3	%
AVERAGE GAS VELOCITY	18.27	m/s
BAROMETRIC PRESSURE (Station)	99.526	Kpa
STATIC PRESSURE	-2.963	Kpa
ABSOLUTE GAS PRESSURE	96.563	Kpa
OXYGEN CONCENTRATION	8.15	%
CARBON DIOXIDE CONCENTRATION	10.87	%
CARBON MONOXIDE CONCENTRATION	7.6	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	27.00	m^3/s
DRY REF GAS FLOWRATE	15.47	Rm^3/s
DRY ADJ GAS FLOWRATE	19.92	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		5.106	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:	March 20, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.39 "Hg	**CWTR (g)**	768.3		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	16		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.47 ft^3	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.15
CO2%	10.87
COppm	7.6

Measured H2O
17.3 %

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	11.14	0.83	278	79	80	80	2.15	7.0		19.20	
	5	15.08	0.83	282	60	80	79	2.1	7.0		19.25	**99.6**
2	10	18.93	0.85	282	58	80	79	2.2	7.0		19.48	**97.7**
	15	22.85	0.87	283	58	80	80	2.25	8.0		19.73	**98.3**
3	20	26.87	0.83	283	57	80	81	2.2	7.5		19.27	**99.7**
	25	30.86	0.83	282	57	80	82	2.2	7.5		19.25	**101.2**
4	30	34.86	0.78	282	57	80	82	2.05	7.5		18.67	**101.3**
	35	38.70	0.78	281	57	80	83	2.05	7.5		18.65	**100.2**
5	40	42.52	0.8	282	57	81	84	2.1	7.5		18.90	**99.6**
	45	46.40	0.8	282	57	81	84	2.1	7.5		18.90	**99.7**
6	50	50.28	0.68	282	57	81	84	1.8	7.0		17.43	**99.7**
	55	53.88	0.67	282	57	81	85	1.8	7.0		17.30	**100.3**
7	60	57.46	0.69	282	56	81	85	1.85	7.0		17.56	**100.4**
	65	61.08	0.69	281	54	82	85	1.85	7.0		17.54	**100.1**
8	70	64.70	0.7	280	53	82	85	1.9	7.0		17.66	**99.9**
	75	68.36	0.71	280	52	81	85	1.9	7.0		17.78	**100.2**
9	80	72.01	0.78	281	52	82	85	2.05	7.5		18.65	**99.3**
	85	75.81	0.78	281	52	82	85	2.1	7.5		18.65	**98.7**
10	90	79.67	0.78	277	52	82	85	2.1	7.5		18.60	**100.2**
	95	83.56	0.76	276	52	82	85	2	7.5		18.35	**100.7**
11	100	87.37	0.72	276	52	82	85	1.9	7.5		17.86	**99.9**
	105	91.05	0.72	277	53	82	85	1.95	7.0		17.87	**99.1**
12	110	94.76	0.7	276	52	82	85	1.9	7.0		17.61	**100.0**
	115	98.44	0.74	276	52	82	85	2	7.0		18.11	**100.5**
	120	102.15								0.47		**98.6**
1	0	102.62	0.89	278	70	80	81	2.3	8.0		19.88	
	5	106.66	0.9	279	52	80	81	2.35	8.0		20.01	**98.6**
2	10	110.75	0.9	279	53	80	81	2.35	8.0		20.01	**99.4**
	15	114.98	0.95	280	54	80	81	2.4	8.5		20.57	**102.8**
3	20	119.19	0.87	280	54	80	82	2.25	8.0		19.69	**99.6**
	25	123.22	0.83	280	55	80	82	2.15	8.0		19.23	**99.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	March 20, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.39 "Hg	**CWTR (g)**	768.3		
Static Pressure	-11.900 "H_2O	**WCBDA (g)**	16		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.47 ft^3	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.15
CO2%	10.87
COppm	7.6

Measured H2O
17.3 %

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 %
4	30	127.15	0.83	279	56	79	82	2.15	8.0		19.22	**99.3**
	35	131.08	0.76	278	56	79	82	2	7.5		18.37	**99.4**
5	40	134.84	0.72	278	58	79	82	1.9	7.5		17.88	**99.2**
	45	138.48	0.75	279	59	79	82	1.95	7.5		18.27	**98.7**
6	50	142.17	0.61	280	60	79	82	1.7	7.5		16.48	**98.1**
	55	145.67	0.61	280	57	79	82	1.7	7.5		16.48	**103.2**
7	60	149.12	0.65	279	54	79	82	1.75	7.0		17.00	**101.7**
	65	152.64	0.64	277	51	79	83	1.7	7.0		16.85	**100.5**
8	70	156.10	0.64	277	50	78	83	1.7	7.0		16.85	**99.3**
	75	159.60	0.66	276	49	78	83	1.75	7.0		17.10	**100.5**
9	80	163.08	0.72	276	49	78	83	1.9	7.5		17.86	**98.4**
	85	166.77	0.72	274	49	79	83	1.9	7.5		17.84	**99.9**
10	90	170.43	0.74	274	50	79	83	2	7.5		18.08	**98.9**
	95	174.21	0.74	274	50	79	83	2	8.0		18.08	**100.7**
11	100	178.01	0.67	274	50	79	83	2	8.0		17.21	**101.3**
	105	181.65	0.67	274	51	79	83	1.9	8.0		17.21	**102.0**
12	110	185.23	0.68	274	51	79	83	1.9	8.0		17.33	**100.2**
	115	188.81	0.67	274	52	79	83	1.9	8.0		17.21	**99.5**
	120	192.40										**100.5**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 1
Test No.:	3 - SVOC
Date:	March 21, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.844	
DGM CORRECTION FACTOR	1.018	
NOZZLE DIAMETER	6.57	mm
DRY REF GAS VOLUME SAMPLED	5.142	m^3
AVGERGE ISOKINETICITY	100.3	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	138.2	°C
AVERAGE GAS MOISTURE BY VOLUME	17.0	%
AVERAGE GAS VELOCITY	17.97	m/s
BAROMETRIC PRESSURE (Station)	101.287	Kpa
STATIC PRESSURE	-2.888	Kpa
ABSOLUTE GAS PRESSURE	98.398	Kpa
OXYGEN CONCENTRATION	8.19	%
CARBON DIOXIDE CONCENTRATION	10.91	%
CARBON MONOXIDE CONCENTRATION	7.0	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.55	m^3/s
DRY REF GAS FLOWRATE	15.51	Rm^3/s
DRY ADJ GAS FLOWRATE	19.91	Rm^3/s
WET REF GAS FLOWRATE	18.69	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		5.142	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:	March 21, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.91 "Hg	**CWTR (g)**	754.5		
Static Pressure	-11.600 "H_2O	**WCBDA (g)**	19.4		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.37 ft^3	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.19
CO2%	10.91
COppm	7.0

Measured H2O
17.0 %

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	94.45	0.86	278	73	77	76	2.2	8.0		19.35	
	5	98.32	0.85	280	53	77	77	2.15	8.0		19.26	**97.3**
2	10	102.19	0.85	280	50	77	77	2.25	8.0		19.26	**97.9**
	15	106.16	0.87	280	50	78	78	2.25	8.5		19.49	**100.5**
3	20	110.13	0.82	281	49	78	79	2.2	9.0		18.93	**99.1**
	25	114.03	0.8	281	49	78	79	2.15	9.0		18.70	**100.2**
4	30	117.99	0.75	281	50	78	80	1.9	8.0		18.11	**103.0**
	35	121.65	0.75	281	51	78	81	1.95	8.0		18.11	**98.2**
5	40	125.29	0.73	281	51	79	81	1.95	8.0		17.86	**97.6**
	45	128.94	0.73	282	52	79	82	1.95	8.0		17.87	**99.1**
6	50	132.60	0.62	282	51	79	82	1.7	8.0		16.47	**99.3**
	55	136.03	0.64	282	51	79	82	1.7	8.0		16.74	**101.0**
7	60	139.47	0.71	282	51	79	83	1.9	8.0		17.63	**99.7**
	65	143.10	0.69	282	51	79	83	1.9	8.0		17.38	**99.8**
8	70	146.71	0.72	281	51	79	83	1.88	8.4		17.74	**100.7**
	75	150.37	0.73	282	50	79	83	1.95	8.4		17.87	**99.9**
9	80	154.09	0.77	282	51	79	83	2	8.4		18.36	**100.9**
	85	157.85	0.78	282	51	79	83	2.06	8.5		18.48	**99.3**
10	90	161.66	0.81	282	51	80	83	2.1	8.9		18.83	**100.0**
	95	165.59	0.82	280	52	80	83	2.2	9.0		18.92	**101.1**
11	100	169.57	0.72	280	52	79	82	2.22	9.1		17.73	**101.7**
	105	173.33	0.72	280	53	79	82	2	8.5		17.73	**102.7**
12	110	177.03	0.71	280	54	79	82	1.98	8.5		17.60	**101.0**
	115	180.71	0.7	280	54	79	83	1.94	8.2		17.48	**101.2**
	120	184.37								0.37		**101.1**
1	0	184.74	0.86	280	59	79	80	2.27	9.3		19.37	
	5	188.69	0.85	282	56	79	81	2.27	9.3		19.29	**99.0**
2	10	192.67	0.81	281	54	79	81	2.27	9.3		18.82	**100.3**
	15	196.60	0.82	280	55	79	81	2.19	9.0		18.92	**101.4**
3	20	200.53	0.85	280	56	79	81	2.2	9.0		19.26	**100.7**
	25	204.52	0.85	281	57	79	82	2.25	9.2		19.27	**100.4**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	APC Outlet No. 1
Date:	March 21, 2024	**Operator:**	TT

Pitot Factor	0.844	**Filter (mg)**	0		
DGMCF	1.018	**Probe (mg)**	0		
Barometric Pressure	29.91 "Hg	**CWTR (g)**	754.5		
Static Pressure	-11.600 "H_2O	**WCBDA (g)**	19.4		
Nozzle	0.2586 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.37 ft^3	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.19
CO2%	10.91
COppm	7.0

Measured H2O
17.0 %

				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 %**
4	30	208.53	0.78	281	57	79	82	2.25	9.2		18.46	**100.9**
	35	212.41	0.76	281	57	79	82	2.12	9.1		18.23	**101.9**
5	40	216.18	0.68	282	57	79	82	1.85	8.9		17.25	**100.3**
	45	219.74	0.69	281	57	79	82	1.85	8.5		17.37	**100.1**
6	50	223.32	0.68	282	57	80	83	1.85	8.5		17.25	**99.9**
	55	226.89	0.68	282	57	80	83	1.85	8.5		17.25	**100.2**
7	60	230.46	0.67	281	57	80	84	1.85	8.5		17.11	**100.2**
	65	234.02	0.65	281	56	80	83	1.8	8.5		16.86	**100.5**
8	70	237.55	0.66	281	56	80	83	1.8	8.5		16.98	**101.3**
	75	241.10	0.69	280	57	80	83	1.85	8.5		17.35	**101.1**
9	80	244.69	0.7	280	57	80	83	1.9	8.5		17.48	**99.9**
	85	248.33	0.72	280	58	80	83	1.9	8.5		17.73	**100.6**
10	90	252.00	0.71	280	59	80	83	2	9.0		17.60	**100.0**
	95	255.69	0.67	280	60	80	83	2	9.0		17.10	**101.3**
11	100	259.28	0.67	280	60	80	83	1.85	8.7		17.10	**101.4**
	105	262.87	0.68	280	60	80	83	1.85	8.7		17.23	**101.4**
12	110	266.46	0.63	280	60	80	83	1.9	8.9		16.58	**100.6**
	115	269.95	0.65	280	60	80	83	1.75	8.5		16.84	**101.6**
	120	273.41										**99.2**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	1 - SVOC
Date:	March 20, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	4.506	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	140.5	°C
AVERAGE GAS MOISTURE BY VOLUME	16.9	%
AVERAGE GAS VELOCITY	17.32	m/s
BAROMETRIC PRESSURE (Station)	99.187	Kpa
STATIC PRESSURE	-2.916	Kpa
ABSOLUTE GAS PRESSURE	96.272	Kpa
OXYGEN CONCENTRATION	8.2	%
CARBON DIOXIDE CONCENTRATION	11.08	%
CARBON MONOXIDE CONCENTRATION	11.9	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.59	m^3/s
DRY REF GAS FLOWRATE	14.56	Rm^3/s
DRY ADJ GAS FLOWRATE	18.68	Rm^3/s
WET REF GAS FLOWRATE	17.53	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.506	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:	March 20, 2024	**Operator:**	bp

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.986	**Probe (mg)**	0		
Barometric Pressure	29.29 "Hg	**CWTR (g)**	659.5		
Static Pressure	-11.710 "H_2O	**WCBDA (g)**	13		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.4 ft³	
Length	0.000 ft	**Reading Interval**		5 minutes	
Width	0.000 ft	**Number of Ports**		2	
		Number of points / Port		12	

Combustion Gases	
O2%	8.2
CO2%	11.08
COppm	11.9

Measured H2O
16.9 %

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	68.18	0.79	282	80	84	84	2.1	5.0		18.76	
	5	71.85	0.82	283	50	84	85	2.1	5.0		19.13	**97.9**
2	10	75.63	0.8	283	47	84	85	2.2	5.9		18.90	**98.9**
	15	79.42	0.79	283	47	84	86	2.2	5.9		18.78	**100.4**
3	20	83.20	0.75	283	47	85	86	2.1	5.9		18.30	**100.7**
	25	86.74	0.75	283	47	85	87	2	5.0		18.30	**96.7**
4	30	90.36	0.72	283	48	85	88	2	5.5		17.93	**98.8**
	35	94.03	0.73	284	47	86	89	1.95	5.5		18.06	**102.1**
5	40	97.69	0.65	284	48	86	79	1.95	5.5		17.04	**101.0**
	45	101.10	0.65	284	48	87	90	1.7	5.0		17.04	**100.6**
6	50	104.39	0.58	285	50	87	90	1.8	5.0		16.11	**96.0**
	55	107.68	0.6	285	49	88	91	1.6	5.0		16.39	**101.7**
7	60	111.02	0.6	285	49	88	92	1.6	5.0		16.39	**101.3**
	65	114.36	0.59	285	49	89	92	1.6	5.0		16.25	**101.2**
8	70	117.77	0.62	285	50	89	92	1.6	5.0		16.66	**104.1**
	75	121.13	0.63	284	50	89	92	1.7	5.0		16.78	**100.0**
9	80	124.51	0.65	285	50	89	93	1.7	5.0		17.05	**99.8**
	85	127.96	0.65	285	50	90	93	1.8	5.5		17.05	**100.2**
10	90	131.45	0.64	285	50	90	93	1.8	5.5		16.92	**101.3**
	95	134.92	0.62	283	50	90	93	1.8	5.5		16.63	**101.5**
11	100	138.29	0.51	283	51	90	93	1.7	5.0		15.09	**100.1**
	105	141.38	0.51	280	51	90	93	1.4	4.9		15.06	**101.1**
12	110	144.46	0.52	280	51	90	93	1.4	4.9		15.20	**100.5**
	115	147.54	0.54	280	51	90	93	1.4	4.9		15.49	**99.5**
	120	150.70								0.4		**100.2**
1	0	151.10	0.76	286	60	90	90	2	5.5		18.45	
	5	154.80	0.76	285	51	90	90	2	5.5		18.44	**99.7**
2	10	158.50	0.75	285	48	87	90	2	5.5		18.32	**99.7**
	15	162.20	0.76	285	47	89	90	2	5.5		18.44	**100.6**
3	20	165.91	0.77	285	46	89	91	2	5.5		18.56	**100.0**
	25	169.61	0.77	286	46	89	91	2	5.5		18.57	**99.0**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	1 - SVOC	**Test Location:**	APC Outlet No. 2
Date:	March 20, 2024	**Operator:**	bp

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.986	**Probe (mg)**	0		
Barometric Pressure	29.29 "Hg	**CWTR (g)**	659.5		
Static Pressure	-11.710 "H_2O	**WCBDA (g)**	13		
Nozzle	0.2498 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%	8.2
CO2%	11.08
COppm	11.9

Measured H2O
16.9 %

				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 %**
4	30	173.33	0.73	286	46	89	91	2.1	6.0		18.09	**99.6**
	35	177.02	0.73	286	46	89	92	2	5.9		18.09	**101.5**
5	40	180.71	0.67	286	46	89	92	2	5.9		17.33	**101.4**
	45	184.20	0.67	286	47	89	92	1.8	5.0		17.33	**100.1**
6	50	187.71	0.6	286	47	89	92	1.8	5.0		16.40	**100.6**
	55	191.01	0.6	287	48	90	92	1.65	5.0		16.41	**100.0**
7	60	194.32	0.65	287	48	89	92	1.65	5.0		17.08	**100.2**
	65	197.81	0.64	286	48	90	92	1.8	5.0		16.93	**101.6**
8	70	201.27	0.64	286	48	90	92	1.7	5.0		16.93	**101.4**
	75	204.70	0.65	286	48	90	93	1.7	5.0		17.07	**100.5**
9	80	208.13	0.67	286	48	90	92	1.7	5.0		17.33	**99.6**
	85	211.63	0.68	287	48	90	93	1.8	5.5		17.47	**100.2**
10	90	215.14	0.71	287	48	90	92	1.8	5.5		17.85	**99.8**
	95	218.76	0.7	288	48	90	92	2	6.0		17.73	**100.8**
11	100	222.40	0.7	284	49	90	92	2	6.0		17.69	**102.2**
	105	225.97	0.69	289	49	90	92	1.9	6.0		17.62	**100.0**
12	110	229.50	0.65	289	49	90	91	1.9	6.0		17.10	**99.9**
	115	233.03	0.62	289	50	90	92	1.8	5.9		16.70	**103.0**
	120	236.42										**101.1**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	2 - SVOC
Date:	March 20, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	4.674	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	140.4	°C
AVERAGE GAS MOISTURE BY VOLUME	17.5	%
AVERAGE GAS VELOCITY	17.93	m/s
BAROMETRIC PRESSURE (Station)	99.526	Kpa
STATIC PRESSURE	-2.916	Kpa
ABSOLUTE GAS PRESSURE	96.610	Kpa
OXYGEN CONCENTRATION	8.01	%
CARBON DIOXIDE CONCENTRATION	11.20	%
CARBON MONOXIDE CONCENTRATION	7.7	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	26.50	m^3/s
DRY REF GAS FLOWRATE	15.03	Rm^3/s
DRY ADJ GAS FLOWRATE	19.57	Rm^3/s
WET REF GAS FLOWRATE	18.22	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.674	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:	March 20, 2024	**Operator:**	bp

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.986	**Probe (mg)**	0		
Barometric Pressure	29.39 "Hg	**CWTR (g)**	714.9		
Static Pressure	-11.710 "H_2O	**WCBDA (g)**	14.3		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.402 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%	8.01
CO2%	11.20
COppm	7.7

Measured H2O
17.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	37.02	0.89	282	74	85	85	2.1	5.0		19.91	
	5	40.98	0.88	288	62	85	85	2.3	5.5		19.87	**100.1**
2	10	44.93	0.85	288	57	85	85	2.3	5.9		19.53	**100.9**
	15	48.84	0.87	289	54	85	86	2.2	5.9		19.77	**101.6**
3	20	52.79	0.84	288	53	85	86	2.3	6.0		19.42	**101.4**
	25	56.73	0.84	288	53	85	86	2.2	6.0		19.42	**102.9**
4	30	60.60	0.76	287	53	85	87	2.2	6.0		18.46	**101.0**
	35	64.27	0.76	287	54	85	88	1.98	5.5		18.46	**100.6**
5	40	67.94	0.7	287	54	85	88	1.98	5.5		17.71	**100.4**
	45	71.47	0.69	287	55	86	88	1.81	5.1		17.59	**100.7**
6	50	74.98	0.62	287	55	86	88	1.77	5.0		16.67	**100.7**
	55	78.33	0.6	287	56	86	89	1.63	4.9		16.40	**101.4**
7	60	81.62	0.68	287	56	86	90	1.54	4.9		17.46	**101.1**
	65	85.13	0.66	287	56	87	90	1.75	5.0		17.20	**101.2**
8	70	88.59	0.73	287	56	87	90	1.71	5.0		18.09	**101.2**
	75	92.19	0.76	287	56	87	90	1.9	5.0		18.46	**100.1**
9	80	95.90	0.77	288	57	88	90	1.97	5.7		18.59	**101.1**
	85	99.63	0.82	289	57	88	90	1.99	5.8		19.20	**101.0**
10	90	103.46	0.73	288	58	88	90	2.11	5.9		18.10	**100.6**
	95	107.13	0.74	288	58	88	90	1.9	5.6		18.22	**102.1**
11	100	110.90	0.64	280	59	88	90	1.93	5.6		16.86	**104.1**
	105	114.23	0.59	280	60	88	90	1.69	5.0		16.18	**98.4**
12	110	117.54	0.55	280	61	88	91	1.55	4.9		15.63	**101.8**
	115	120.75	0.54	280	61	88	91	1.46	4.8		15.48	**102.1**
	120	123.92								0.402		**101.7**
1	0	124.32	0.83	282	74	88	88	2.13	6.0		19.22	
	5	128.10	0.86	287	60	87	87	2.13	6.0		19.63	**98.4**
2	10	132.03	0.83	286	58	87	87	2.2	6.2		19.27	**101.0**
	15	135.90	0.81	286	57	87	88	2.1	6.0		19.04	**101.2**
3	20	139.73	0.78	285	57	87	88	2.09	6.0		18.67	**101.3**
	25	143.52	0.8	284	58	86	88	2.01	5.9		18.90	**102.1**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	2 - SVOC	**Test Location:**	APC Outlet No. 2
Date:	March 20, 2024	**Operator:**	bp

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.986	**Probe (mg)**	0		
Barometric Pressure	29.39 "Hg	**CWTR (g)**	714.9		
Static Pressure	-11.710 "H_2O	**WCBDA (g)**	14.3		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.402 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%	8.01
CO2%	11.20
COppm	7.7

Measured H2O
17.5 %

				Temperatures								
Point	**Time**	**DGM Reading**	**ΔP "H2O**	**Stack °F**	**Imp. Out °F**	**DGM Out °F**	**DGM In °F**	**ΔH "H2O**	**Vacuum "Hg**	**Leak Check Volume**	**Velocity m/s**	**Isokinetic %**
4	30	147.25	0.76	284	58	86	88	2.05	5.9		18.42	**99.2**
	35	150.98	0.79	284	59	86	88	2	5.9		18.78	**101.8**
5	40	154.73	0.68	285	59	86	88	2.07	5.9		17.43	**100.4**
	45	158.21	0.67	285	58	86	88	1.75	5.1		17.31	**100.5**
6	50	161.67	0.62	284	58	86	88	1.75	5.0		16.64	**100.6**
	55	165.06	0.61	284	59	86	88	1.62	5.0		16.50	**102.4**
7	60	168.39	0.65	283	59	86	88	1.6	5.0		17.02	**101.3**
	65	171.77	0.64	283	59	86	88	1.69	5.0		16.89	**99.6**
8	70	175.14	0.65	283	59	86	88	1.69	5.0		17.02	**100.1**
	75	178.53	0.67	283	57	86	88	1.72	5.0		17.28	**99.9**
9	80	182.00	0.67	282	55	86	89	1.77	5.5		17.27	**100.7**
	85	185.47	0.7	282	55	86	89	1.77	5.5		17.65	**100.6**
10	90	188.99	0.7	283	55	86	90	1.83	6.0		17.67	**99.8**
	95	192.55	0.72	283	55	86	89	1.84	6.0		17.92	**100.9**
11	100	196.17	0.66	280	55	86	89	1.89	6.2		17.12	**101.3**
	105	199.59	0.71	280	56	86	88	1.75	5.9		17.75	**99.8**
12	110	203.15	0.77	280	56	86	88	1.85	6.0		18.49	**100.2**
	115	206.85	0.6	280	57	86	88	2	6.2		16.32	**100.0**
	120	210.18										**102.0**

ORTECH Consulting Inc.

Plant:	Covanta DYEC
Plant Location:	Courtice, ON
Test Location:	APC Outlet No. 2
Test No.:	3 - SVOC
Date:	March 21, 2024

STACK GAS SAMPLING PARAMETERS

PITOT TUBE COEFFICIENT	0.843	
DGM CORRECTION FACTOR	0.986	
NOZZLE DIAMETER	6.34	mm
DRY REF GAS VOLUME SAMPLED	4.592	m^3
AVGERGE ISOKINETICITY	101.3	%
STACK DIAMETER	1.37	m
LENGTH	0.00	m
WIDTH	0.00	m
AREA OF STACK or DUCT	1.48	m^3

STACK GAS PHYSICAL PARAMETERS

AVERAGE GAS TEMPERATURE	140.2	°C
AVERAGE GAS MOISTURE BY VOLUME	16.5	%
AVERAGE GAS VELOCITY	17.02	m/s
BAROMETRIC PRESSURE (Station)	101.321	Kpa
STATIC PRESSURE	-2.916	Kpa
ABSOLUTE GAS PRESSURE	98.405	Kpa
OXYGEN CONCENTRATION	8.45	%
CARBON DIOXIDE CONCENTRATION	11.03	%
CARBON MONOXIDE CONCENTRATION	8.9	ppm

FLOWRATE

ACTUAL GAS FLOWRATE	25.15	m^3/s
DRY REF GAS FLOWRATE	14.70	Rm^3/s
DRY ADJ GAS FLOWRATE	18.49	Rm^3/s
WET REF GAS FLOWRATE	17.62	Rm^3/s

PARTICULATE EMISSION DATA

PARTICULATE COLLECTED	-PROBE	0	mg
	-FILTER	0	mg
	-TOTAL	0	mg
DRY REF GAS VOLUME SAMPLED		4.592	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:	March 21, 2024	**Operator:**	bp

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.986	**Probe (mg)**	0		
Barometric Pressure	29.92 "Hg	**CWTR (g)**	653		
Static Pressure	-11.710 "H_2O	**WCBDA (g)**	15.4		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.32 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%	8.45
CO2%	11.03
COppm	8.9

Measured H2O
16.5 %

Point	Time	DGM Reading	ΔP "H2O	Temperatures Stack °F	Imp. Out °F	DGM Out °F	DGM In °F	ΔH "H2O	Vacuum "Hg	Leak Check Volume	Velocity m/s	Isokinetic %
1	0	92.71	0.77	280	71	79	79	2	6.0		18.28	
	5	96.40	0.79	282	57	79	80	2	6.5		18.55	**101.1**
2	10	100.08	0.81	282	53	79	80	2	6.5		18.78	**99.6**
	15	103.87	0.82	283	52	80	81	2.1	7.0		18.91	**101.3**
3	20	107.65	0.79	284	52	80	82	2.1	7.0		18.57	**100.3**
	25	111.40	0.83	287	56	81	81	2.1	7.0		19.07	**101.4**
4	30	115.20	0.73	288	52	81	81	2.1	7.0		17.90	**100.4**
	35	118.73	0.74	288	52	81	82	1.9	6.9		18.02	**99.5**
5	40	122.30	0.7	288	53	81	82	1.9	6.9		17.53	**99.8**
	45	125.86	0.68	288	53	81	83	1.9	6.9		17.28	**102.4**
6	50	129.38	0.56	288	54	81	84	1.8	6.9		15.68	**102.6**
	55	132.62	0.56	287	54	81	84	1.5	6.0		15.67	**103.9**
7	60	135.74	0.6	286	55	82	85	1.4	5.9		16.21	**100.0**
	65	139.01	0.6	286	55	82	85	1.6	6.0		16.21	**100.9**
8	70	142.32	0.64	285	55	83	86	1.6	6.0		16.73	**102.2**
	75	145.69	0.63	285	55	83	86	1.7	6.5		16.59	**100.5**
9	80	149.10	0.62	285	55	83	86	1.7	6.5		16.46	**102.5**
	85	152.50	0.6	284	55	83	86	1.7	6.5		16.18	**103.1**
10	90	155.84	0.6	282	56	83	86	1.6	6.0		16.16	**102.8**
	95	159.08	0.58	281	56	84	86	1.5	6.0		15.88	**99.6**
11	100	162.33	0.51	281	57	84	86	1.6	6.0		14.89	**101.4**
	105	165.44	0.53	281	57	84	86	1.4	5.5		15.18	**103.5**
12	110	168.45	0.52	281	57	84	86	1.4	5.5		15.04	**98.3**
	115	171.55	0.55	281	57	84	87	1.4	5.5		15.46	**102.2**
	120	174.77								0.32		**103.1**
1	0	175.09	0.7	281	70	84	84	1.9	7.0		17.45	
	5	178.68	0.71	284	57	84	85	1.9	7.0		17.60	**102.3**
2	10	182.23	0.71	285	54	84	85	1.85	6.9		17.62	**100.5**
	15	185.75	0.73	285	52	84	85	1.85	6.9		17.86	**99.7**
3	20	189.30	0.76	285	52	83	86	1.9	7.0		18.23	**99.2**
	25	193.03	0.77	285	52	83	86	2	7.0		18.35	**102.2**

ORTECH Consulting Inc.

Plant:	Covanta DYEC	**Plant Location:**	Courtice, ON
Test No.:	3 - SVOC	**Test Location:**	APC Outlet No. 2
Date:	March 21, 2024	**Operator:**	bp

Pitot Factor	0.843	**Filter (mg)**	0		
DGMCF	0.986	**Probe (mg)**	0		
Barometric Pressure	29.92 "Hg	**CWTR (g)**	653		
Static Pressure	-11.710 "H_2O	**WCBDA (g)**	15.4		
Nozzle	0.2498 inches				
Stack Diameter	4.500 ft	**Leak Check Volume**		0.32 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%	8.45
CO2%	11.03
COppm	8.9

Measured H2O
16.5 %

				Temperatures								
Point	**Time**	**DGM Reading**	**ΔP "H2O**	**Stack °F**	**Imp. Out °F**	**DGM Out °F**	**DGM In °F**	**ΔH "H2O**	**Vacuum "Hg**	**Leak Check Volume**	**Velocity m/s**	**Isokinetic %**
4	30	196.75	0.75	285	52	84	86	2	7.5		18.11	**101.3**
	35	200.46	0.73	285	52	84	86	2	7.5		17.86	**102.2**
5	40	204.06	0.68	285	52	84	86	1.9	7.0		17.24	**100.5**
	45	207.58	0.67	285	52	84	86	1.8	7.0		17.11	**101.8**
6	50	211.08	0.6	285	52	84	86	1.8	7.0		16.19	**102.0**
	55	214.38	0.62	285	53	84	86	1.6	6.0		16.46	**101.6**
7	60	217.75	0.67	286	53	84	87	1.7	6.5		17.12	**102.0**
	65	221.25	0.65	286	53	84	87	1.8	6.9		16.87	**101.9**
8	70	224.62	0.64	285	53	84	87	1.7	6.5		16.73	**99.7**
	75	228.03	0.65	285	53	84	87	1.7	6.5		16.86	**101.5**
9	80	231.48	0.68	285	54	84	87	1.75	6.9		17.24	**101.9**
	85	234.98	0.68	285	54	84	87	1.8	7.0		17.24	**101.1**
10	90	238.48	0.68	285	54	84	87	1.8	7.0		17.24	**101.1**
	95	241.97	0.69	285	54	84	87	1.8	7.0		17.37	**100.8**
11	100	245.46	0.61	286	53	84	87	1.85	7.0		16.34	**100.1**
	105	248.78	0.61	282	53	84	86	1.6	6.5		16.30	**101.4**
12	110	252.09	0.61	282	53	84	87	1.65	6.5		16.30	**100.8**
	115	255.42	0.6	282	53	84	87	1.65	6.5		16.16	**101.4**
	120	258.77										**102.8**

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 March 19, 2024			Test No. 2 March 19, 2024			Test No. 3 March 19, 2024		
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
12:40	0.0		13:50	0.0		15:00	0.0	
12:41	0.0		13:51	0.0		15:01	0.0	
12:42	0.8		13:52	0.0		15:02	0.0	
12:43	0.8		13:53	0.0		15:03	0.0	
12:44	0.7		13:54	0.0		15:04	0.0	
12:45	0.7		13:55	0.0		15:05	0.0	
12:46	0.5		13:56	0.0		15:06	0.0	
12:47	0.4		13:57	0.0		15:07	0.0	
12:48	0.3		13:58	0.0		15:08	0.0	
12:49	0.1	0.4	13:59	0.0	0.0	15:09	0.0	0.0
12:50	0.0	0.4	14:00	0.0	0.0	15:10	0.0	0.0
12:51	0.0	0.4	14:01	0.0	0.0	15:11	0.0	0.0
12:52	0.0	0.3	14:02	0.6	0.1	15:12	0.0	0.0
12:53	0.0	0.3	14:03	0.4	0.1	15:13	0.0	0.0
12:54	0.0	0.2	14:04	0.3	0.1	15:14	0.0	0.0
12:55	0.0	0.1	14:05	0.3	0.2	15:15	0.0	0.0
12:56	0.0	0.1	14:06	0.3	0.2	15:16	0.0	0.0
12:57	0.0	0.0	14:07	0.2	0.2	15:17	0.0	0.0
12:58	0.0	0.0	14:08	0.2	0.2	15:18	0.0	0.0
12:59	0.0	0.0	14:09	0.2	0.2	15:19	0.0	0.0
13:00	0.0	0.0	14:10	0.2	0.3	15:20	0.0	0.0
13:01	0.0	0.0	14:11	0.2	0.3	15:21	0.0	0.0
13:02	0.0	0.0	14:12	0.4	0.3	15:22	0.0	0.0
13:03	0.0	0.0	14:13	0.3	0.3	15:23	0.0	0.0
13:04	0.0	0.0	14:14	0.4	0.3	15:24	0.0	0.0
13:05	0.0	0.0	14:15	0.4	0.3	15:25	0.0	0.0
13:06	0.0	0.0	14:16	0.4	0.3	15:26	0.0	0.0
13:07	0.0	0.0	14:17	0.4	0.3	15:27	0.0	0.0
13:08	0.0	0.0	14:18	0.5	0.3	15:28	0.0	0.0
13:09	0.0	0.0	14:19	0.5	0.4	15:29	0.0	0.0
13:10	0.0	0.0	14:20	0.4	0.4	15:30	0.0	0.0
13:11	0.0	0.0	14:21	0.3	0.4	15:31	0.0	0.0
13:12	0.0	0.0	14:22	0.2	0.4	15:32	0.0	0.0
13:13	0.0	0.0	14:23	0.1	0.4	15:33	0.0	0.0
13:14	0.0	0.0	14:24	0.1	0.3	15:34	0.0	0.0
13:15	0.0	0.0	14:25	0.0	0.3	15:35	0.0	0.0
13:16	0.0	0.0	14:26	0.0	0.2	15:36	0.0	0.0
13:17	0.0	0.0	14:27	0.0	0.2	15:37	0.0	0.0
13:18	0.0	0.0	14:28	0.0	0.2	15:38	0.0	0.0
13:19	0.0	0.0	14:29	0.0	0.1	15:39	0.0	0.0
13:20	0.0	0.0	14:30	0.0	0.1	15:40	0.0	0.0
13:21	0.0	0.0	14:31	0.0	0.0	15:41	0.0	0.0
13:22	0.0	0.0	14:32	0.0	0.0	15:42	0.0	0.0
13:23	0.0	0.0	14:33	0.0	0.0	15:43	0.0	0.0
13:24	0.0	0.0	14:34	0.0	0.0	15:44	0.0	0.0
13:25	0.0	0.0	14:35	0.0	0.0	15:45	0.0	0.0
13:26	0.0	0.0	14:36	0.0	0.0	15:46	0.0	0.0
13:27	0.0	0.0	14:37	0.0	0.0	15:47	0.0	0.0
13:28	0.0	0.0	14:38	0.0	0.0	15:48	0.0	0.0
13:29	0.0	0.0	14:39	0.0	0.0	15:49	0.0	0.0
13:30	0.0	0.0	14:40	0.0	0.0	15:50	0.0	0.0
13:31	0.0	0.0	14:41	0.0	0.0	15:51	0.0	0.0
13:32	0.0	0.0	14:42	0.0	0.0	15:52	0.0	0.0
13:33	0.0	0.0	14:43	0.0	0.0	15:53	0.0	0.0
13:34	0.0	0.0	14:44	0.0	0.0	15:54	0.0	0.0
13:35	0.0	0.0	14:45	0.0	0.0	15:55	0.0	0.0
13:36	0.0	0.0	14:46	0.0	0.0	15:56	0.0	0.0
13:37	0.0	0.0	14:47	0.0	0.0	15:57	0.0	0.0
13:38	0.0	0.0	14:48	0.0	0.0	15:58	0.0	0.0
13:39	0.0	0.0	14:49	0.0	0.0	15:59	0.0	0.0
13:40	0.0	0.0	14:50	0.0	0.0	16:00	0.0	0.0
Min	0.0	0.0	Min	0.0	0.0	Min	0.0	0.0
Max	0.8	0.4	Max	0.6	0.4	Max	0.0	0.0
Avg	0.1	0.0	Avg	0.1	0.1	Avg	0.0	0.0

Covanta - Durham York Energy Centre

Total Hydrocarbon Sampling at the Boiler No. 1 APC Outlet

Test No. 1 March 19, 2024			Test No. 2 March 19, 2024			Test No. 3 March 19, 2024		
	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
12:40	0.0		13:50	0.0		15:00	0.0	
12:41	0.0		13:51	0.0		15:01	0.0	
12:42	0.0		13:52	0.0		15:02	0.0	
12:43	0.0		13:53	0.0		15:03	0.0	
12:44	0.0		13:54	0.0		15:04	0.0	
12:45	0.0		13:55	0.0		15:05	0.0	
12:46	0.0		13:56	0.0		15:06	0.0	
12:47	0.0		13:57	0.0		15:07	0.0	
12:48	0.0		13:58	0.0		15:08	0.0	
12:49	0.0	0.0	13:59	0.0	0.0	15:09	0.0	0.0
12:50	0.0	0.0	14:00	0.0	0.0	15:10	0.0	0.0
12:51	0.0	0.0	14:01	0.0	0.0	15:11	0.0	0.0
12:52	0.0	0.0	14:02	0.0	0.0	15:12	0.0	0.0
12:53	0.0	0.0	14:03	0.0	0.0	15:13	0.0	0.0
12:54	0.0	0.0	14:04	0.0	0.0	15:14	0.0	0.0
12:55	0.0	0.0	14:05	0.0	0.0	15:15	0.0	0.0
12:56	0.0	0.0	14:06	0.0	0.0	15:16	0.0	0.0
12:57	0.0	0.0	14:07	0.0	0.0	15:17	0.0	0.0
12:58	0.0	0.0	14:08	0.0	0.0	15:18	0.0	0.0
12:59	0.0	0.0	14:09	0.0	0.0	15:19	0.0	0.0
13:00	0.0	0.0	14:10	0.0	0.0	15:20	0.0	0.0
13:01	0.0	0.0	14:11	0.0	0.0	15:21	0.0	0.0
13:02	0.0	0.0	14:12	0.0	0.0	15:22	0.0	0.0
13:03	0.0	0.0	14:13	0.0	0.0	15:23	0.0	0.0
13:04	0.0	0.0	14:14	0.0	0.0	15:24	0.0	0.0
13:05	0.0	0.0	14:15	0.0	0.0	15:25	0.0	0.0
13:06	0.0	0.0	14:16	0.0	0.0	15:26	0.0	0.0
13:07	0.0	0.0	14:17	0.0	0.0	15:27	0.0	0.0
13:08	0.0	0.0	14:18	0.0	0.0	15:28	0.0	0.0
13:09	0.0	0.0	14:19	0.0	0.0	15:29	0.0	0.0
13:10	0.0	0.0	14:20	0.0	0.0	15:30	0.0	0.0
13:11	0.0	0.0	14:21	0.0	0.0	15:31	0.0	0.0
13:12	0.0	0.0	14:22	0.0	0.0	15:32	0.0	0.0
13:13	0.0	0.0	14:23	0.0	0.0	15:33	0.0	0.0
13:14	0.0	0.0	14:24	0.0	0.0	15:34	0.0	0.0
13:15	0.0	0.0	14:25	0.0	0.0	15:35	0.0	0.0
13:16	0.0	0.0	14:26	0.0	0.0	15:36	0.0	0.0
13:17	0.0	0.0	14:27	0.0	0.0	15:37	0.0	0.0
13:18	0.0	0.0	14:28	0.0	0.0	15:38	0.0	0.0
13:19	0.0	0.0	14:29	0.0	0.0	15:39	0.0	0.0
13:20	0.0	0.0	14:30	0.0	0.0	15:40	0.0	0.0
13:21	0.0	0.0	14:31	0.0	0.0	15:41	0.0	0.0
13:22	0.0	0.0	14:32	0.0	0.0	15:42	0.0	0.0
13:23	0.0	0.0	14:33	0.0	0.0	15:43	0.0	0.0
13:24	0.0	0.0	14:34	0.0	0.0	15:44	0.0	0.0
13:25	0.0	0.0	14:35	0.0	0.0	15:45	0.0	0.0
13:26	0.0	0.0	14:36	0.0	0.0	15:46	0.0	0.0
13:27	0.0	0.0	14:37	0.0	0.0	15:47	0.0	0.0
13:28	0.0	0.0	14:38	0.0	0.0	15:48	0.0	0.0
13:29	0.0	0.0	14:39	0.0	0.0	15:49	0.0	0.0
13:30	0.0	0.0	14:40	0.0	0.0	15:50	0.0	0.0
13:31	0.0	0.0	14:41	0.0	0.0	15:51	0.0	0.0
13:32	0.0	0.0	14:42	0.0	0.0	15:52	0.0	0.0
13:33	0.0	0.0	14:43	0.0	0.0	15:53	0.0	0.0
13:34	0.0	0.0	14:44	0.0	0.0	15:54	0.0	0.0
13:35	0.0	0.0	14:45	0.0	0.0	15:55	0.0	0.0
13:36	0.0	0.0	14:46	0.0	0.0	15:56	0.0	0.0
13:37	0.0	0.0	14:47	0.0	0.0	15:57	0.0	0.0
13:38	0.0	0.0	14:48	0.0	0.0	15:58	0.0	0.0
13:39	0.0	0.0	14:49	0.0	0.0	15:59	0.0	0.0
13:40	0.0	0.0	14:50	0.0	0.0	16:00	0.0	0.0
Min	0.0	0.0	Min	0.0	0.0	Min	0.0	0.0
Max	0.0	0.0	Max	0.0	0.0	Max	0.0	0.0
Avg	0.0	0.0	Avg	0.0	0.0	Avg	0.0	0.0

Covanta - Durham York Energy Centre

Total Hydrocarbon Sampling at the Boiler No. 2 Quench Inlet

Test No. 1 March 19, 2024			Test No. 2 March 19, 2024			Test No. 3 March 19, 2024		
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
08:12	1.1		09:20	0.0		10:30	0.0	
08:13	1.0		09:21	0.0		10:31	0.0	
08:14	1.2		09:22	0.0		10:32	0.0	
08:15	1.0		09:23	0.0		10:33	0.0	
08:16	1.1		09:24	0.0		10:34	0.0	
08:17	1.1		09:25	0.0		10:35	0.0	
08:18	1.1		09:26	0.0		10:36	0.0	
08:19	1.2		09:27	0.0		10:37	0.0	
08:20	1.7		09:28	0.0		10:38	0.0	
08:21	0.9	1.1	09:29	0.0	0.0	10:39	0.0	0.0
08:22	0.8	1.1	09:30	0.0	0.0	10:40	0.0	0.0
08:23	0.8	1.1	09:31	0.0	0.0	10:41	0.0	0.0
08:24	0.8	1.0	09:32	0.0	0.0	10:42	0.0	0.0
08:25	0.8	1.0	09:33	0.0	0.0	10:43	0.0	0.0
08:26	0.8	1.0	09:34	0.0	0.0	10:44	0.0	0.0
08:27	0.8	1.0	09:35	0.0	0.0	10:45	0.0	0.0
08:28	0.7	0.9	09:36	0.0	0.0	10:46	0.0	0.0
08:29	0.7	0.9	09:37	0.0	0.0	10:47	0.0	0.0
08:30	0.8	0.8	09:38	0.0	0.0	10:48	0.0	0.0
08:31	0.8	0.8	09:39	0.0	0.0	10:49	0.0	0.0
08:32	0.7	0.8	09:40	0.0	0.0	10:50	0.0	0.0
08:33	0.8	0.8	09:41	0.0	0.0	10:51	0.0	0.0
08:34	0.8	0.8	09:42	0.0	0.0	10:52	0.0	0.0
08:35	0.8	0.8	09:43	0.0	0.0	10:53	0.0	0.0
08:36	1.0	0.8	09:44	0.0	0.0	10:54	0.0	0.0
08:37	0.0	0.7	09:45	0.0	0.0	10:55	0.0	0.0
08:38	0.0	0.6	09:46	0.0	0.0	10:56	0.0	0.0
08:39	0.0	0.6	09:47	0.0	0.0	10:57	0.0	0.0
08:40	0.0	0.5	09:48	0.0	0.0	10:58	0.0	0.0
08:41	0.0	0.4	09:49	0.0	0.0	10:59	0.0	0.0
08:42	0.0	0.3	09:50	0.0	0.0	11:00	0.0	0.0
08:43	0.0	0.3	09:51	0.0	0.0	11:01	0.0	0.0
08:44	0.0	0.2	09:52	0.0	0.0	11:02	0.0	0.0
08:45	0.0	0.1	09:53	0.0	0.0	11:03	0.0	0.0
08:46	0.0	0.0	09:54	0.0	0.0	11:04	0.0	0.0
08:47	0.0	0.0	09:55	0.0	0.0	11:05	0.0	0.0
08:48	0.0	0.0	09:56	0.0	0.0	11:06	0.0	0.0
08:49	0.0	0.0	09:57	0.0	0.0	11:07	0.0	0.0
08:50	0.0	0.0	09:58	0.0	0.0	11:08	0.0	0.0
08:51	0.0	0.0	09:59	0.0	0.0	11:09	0.0	0.0
08:52	0.0	0.0	10:00	0.0	0.0	11:10	0.0	0.0
08:53	0.0	0.0	10:01	0.0	0.0	11:11	0.0	0.0
08:54	0.1	0.0	10:02	0.0	0.0	11:12	0.0	0.0
08:55	0.3	0.0	10:03	0.0	0.0	11:13	0.0	0.0
08:56	0.3	0.1	10:04	0.0	0.0	11:14	0.0	0.0
08:57	0.5	0.1	10:05	0.0	0.0	11:15	0.0	0.0
08:58	0.5	0.2	10:06	0.0	0.0	11:16	0.0	0.0
08:59	0.5	0.2	10:07	0.0	0.0	11:17	0.0	0.0
09:00	0.6	0.3	10:08	0.0	0.0	11:18	0.0	0.0
09:01	0.5	0.3	10:09	0.0	0.0	11:19	0.0	0.0
09:02	0.7	0.4	10:10	0.1	0.0	11:20	0.0	0.0
09:03	0.9	0.5	10:11	0.0	0.0	11:21	0.0	0.0
09:04	1.2	0.6	10:12	0.0	0.0	11:22	0.0	0.0
09:05	1.3	0.7	10:13	0.0	0.0	11:23	0.0	0.0
09:06	1.7	0.8	10:14	0.0	0.0	11:24	0.0	0.0
09:07	1.8	1.0	10:15	2.0	0.2	11:25	0.0	0.0
09:08	1.8	1.1	10:16	2.1	0.4	11:26	0.0	0.0
09:09	1.8	1.2	10:17	1.7	0.6	11:27	0.0	0.0
09:10	0.6	1.2	10:18	0.0	0.6	11:28	0.0	0.0
09:11	0.2	1.2	10:19	0.0	0.6	11:29	0.0	0.0
09:12	0.0	1.1	10:20	0.0	0.6	11:30	0.0	0.0
Min	0.0	0.0	Min	0.0	0.0	Min	0.0	0.0
Max	1.8	1.2	Max	2.1	0.6	Max	0.0	0.0
Avg	0.6	0.6	Avg	0.1	0.1	Avg	0.0	0.0

Covanta - Durham York Energy Centre

Total Hydrocarbon Sampling at the Boiler No. 2 APC Outlet

Test No. 1 March 19, 2024			Test No. 2 March 19, 2024			Test No. 3 March 19, 2024		
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
08:12	0.7		09:20	0.1		10:30	1.0	
08:13	0.7		09:21	0.2		10:31	1.1	
08:14	0.7		09:22	0.8		10:32	0.2	
08:15	0.8		09:23	0.2		10:33	0.6	
08:16	0.8		09:24	0.2		10:34	0.1	
08:17	0.8		09:25	0.1		10:35	0.1	
08:18	0.8		09:26	0.0		10:36	0.0	
08:19	0.8		09:27	4.7		10:37	0.1	
08:20	0.9		09:28	0.0		10:38	0.0	
08:21	0.8	0.8	09:29	0.2	0.6	10:39	0.0	0.3
08:22	0.9	0.8	09:30	0.3	0.7	10:40	0.0	0.2
08:23	0.9	0.8	09:31	0.0	0.6	10:41	0.0	0.1
08:24	0.9	0.8	09:32	0.1	0.6	10:42	0.0	0.1
08:25	0.9	0.8	09:33	0.1	0.6	10:43	0.0	0.0
08:26	0.9	0.9	09:34	0.1	0.6	10:44	0.0	0.0
08:27	0.9	0.9	09:35	0.2	0.6	10:45	0.0	0.0
08:28	0.9	0.9	09:36	0.3	0.6	10:46	0.0	0.0
08:29	1.2	0.9	09:37	0.1	0.1	10:47	0.0	0.0
08:30	1.0	0.9	09:38	0.2	0.2	10:48	0.0	0.0
08:31	1.1	1.0	09:39	0.1	0.2	10:49	0.0	0.0
08:32	1.0	1.0	09:40	0.1	0.1	10:50	0.0	0.0
08:33	1.0	1.0	09:41	0.3	0.2	10:51	0.0	0.0
08:34	1.1	1.0	09:42	0.1	0.2	10:52	0.0	0.0
08:35	0.9	1.0	09:43	0.4	0.2	10:53	0.0	0.0
08:36	0.4	1.0	09:44	0.0	0.2	10:54	0.0	0.0
08:37	0.5	0.9	09:45	0.2	0.2	10:55	0.0	0.0
08:38	0.6	0.9	09:46	0.0	0.2	10:56	0.0	0.0
08:39	0.4	0.8	09:47	0.0	0.2	10:57	0.0	0.0
08:40	0.5	0.8	09:48	0.0	0.1	10:58	0.0	0.0
08:41	0.6	0.7	09:49	0.1	0.1	10:59	0.0	0.0
08:42	0.6	0.7	09:50	0.1	0.1	11:00	0.0	0.0
08:43	1.1	0.7	09:51	0.2	0.1	11:01	0.0	0.0
08:44	1.2	0.7	09:52	0.2	0.1	11:02	0.0	0.0
08:45	1.2	0.7	09:53	0.1	0.1	11:03	0.0	0.0
08:46	0.9	0.8	09:54	0.1	0.1	11:04	0.0	0.0
08:47	0.3	0.7	09:55	0.0	0.1	11:05	0.0	0.0
08:48	0.3	0.7	09:56	0.2	0.1	11:06	0.0	0.0
08:49	0.3	0.7	09:57	0.0	0.1	11:07	0.0	0.0
08:50	0.3	0.7	09:58	0.0	0.1	11:08	0.0	0.0
08:51	0.6	0.7	09:59	0.1	0.1	11:09	0.0	0.0
08:52	0.4	0.7	10:00	0.8	0.2	11:10	0.0	0.0
08:53	0.3	0.6	10:01	0.6	0.2	11:11	0.0	0.0
08:54	0.3	0.5	10:02	0.1	0.2	11:12	0.0	0.0
08:55	0.3	0.4	10:03	0.0	0.2	11:13	0.0	0.0
08:56	0.3	0.3	10:04	0.2	0.2	11:14	0.0	0.0
08:57	0.5	0.4	10:05	0.0	0.2	11:15	0.0	0.0
08:58	0.2	0.3	10:06	0.0	0.2	11:16	0.0	0.0
08:59	0.4	0.4	10:07	0.0	0.2	11:17	0.0	0.0
09:00	0.2	0.3	10:08	0.0	0.2	11:18	0.0	0.0
09:01	0.4	0.3	10:09	0.0	0.2	11:19	0.0	0.0
09:02	0.2	0.3	10:10	0.0	0.1	11:20	0.0	0.0
09:03	0.2	0.3	10:11	0.0	0.0	11:21	0.0	0.0
09:04	0.2	0.3	10:12	0.0	0.0	11:22	0.0	0.0
09:05	0.2	0.3	10:13	0.0	0.0	11:23	0.0	0.0
09:06	0.2	0.3	10:14	0.0	0.0	11:24	0.0	0.0
09:07	0.2	0.2	10:15	0.0	0.0	11:25	0.0	0.0
09:08	0.2	0.2	10:16	0.0	0.0	11:26	0.0	0.0
09:09	0.2	0.2	10:17	0.0	0.0	11:27	0.0	0.0
09:10	0.3	0.2	10:18	0.0	0.0	11:28	0.0	0.0
09:11	0.2	0.2	10:19	0.0	0.0	11:29	0.0	0.0
09:12	0.2	0.2	10:20	0.0	0.0	11:30	0.0	0.0
Min	0.2	0.2	Min	0.0	0.0	Min	0.0	0.0
Max	1.2	1.0	Max	4.7	0.7	Max	1.1	0.3
Avg	0.6	0.6	Avg	0.2	0.2	Avg	0.1	0.0

APPENDIX 27

Dispersion Modelling Results
for the March 2024 Testing Program
(15 pages)

TECHNICAL MEMORANDUM

DATE June 17, 2024 **Project No.** CA0034428.5376

TO Supreet Kaur
Covanta Durham York Renewable Energy LP

CC Poornitha Suresh

FROM Katie Armstrong **EMAIL katherine.armstrong@wsp.com**

CALPUFF MODELLING FOR MARCH 2024 COMPLIANCE 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 WSP Canada Inc. (WSP), 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 Compliance March 2024 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 2023.

2.0 EMISSION RATES

Compliance source testing was completed by Ortech Environmental in March 2024 for each of the two combustion train units and results were provided to WSP 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 was 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 was requested and approved under s7(1) and s13(1) of O.Reg. 419/05. 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 2022. 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)	53.98 (UPDATED)	23.78 (UPDATED)	411.5 (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]	**45.73**	**33.26**	**27.72**	**1.23**	**0.17**	**0.06**
Dispersion Factor with meteorological anomaly removal [µg/m³ per g/s]	17.35	12.62	10.52	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 2023, 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 Compliance March 2024 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 March 2024 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 2023 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.

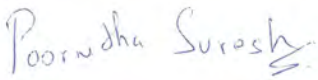
6.0 CONCLUSIONS

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.

WSP Canada Inc.



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https://wsponline.sharepoint.com/sites/ca-ca00344285376/shared documents/05. technical/spring 2024/report/ca0034428.5376-tm-rev0 covanta updated modelling memo 7june2024 copy.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 Quality	Percentage of Overall Emissions [%]
1A	Main Stack - Spring 2024 Source Testing Conditions	53.98	138.35	1.7	87.6	(680538, 4860346)	1 – methylnaphthalene	90-12-0	2.22E-07	1,24, annual	ST	Above-Average	100%
							1,1,2-Trichloroethane	79-00-5	7.36E-05	1,24, annual	ST	Above-Average	100%
							1,2,3,4-tetrachlorobenzene	634-66-2	7.50E-08	1,24, annual	ST	Above-Average	100%
							1,2,3-trichlorobenzene	87-61-6	7.94E-08	1,24, annual	ST	Above-Average	100%
							1,2,4 – Trichlorobenzene	120-82-1	8.40E-08	1,24, annual	ST	Above-Average	100%
							1,2,4,5-Tetrachlorobenzene	95-94-3	7.50E-08	1,24, annual	ST	Above-Average	100%
							1,2-Dichlorobenzene	95-50-1	2.20E-07	1,24, annual	ST	Above-Average	100%
							1,2-Dichloroethane	107-06-2	7.36E-05	1,24, annual	ST	Above-Average	100%
							1,2-Dichloropropane	78-87-5	7.36E-05	1,24, annual	ST	Above-Average	100%
							1,3,5-trichlorobenzene	108-70-3	7.50E-08	1,24, annual	ST	Above-Average	100%
							1,3-Butadiene	106-99-0	7.36E-05	1,24, annual	ST	Above-Average	100%
							1,3-Dichlorobenzene	541-73-1	3.80E-07	1,24, annual	ST	Above-Average	100%
							1,4-Dichlorobenzene	106-46-7	3.12E-07	1,24, annual	ST	Above-Average	100%
							1-Methylphenanthrene	832-69-9	7.50E-08	1,24, annual	ST	Above-Average	100%
							2 – methylnaphthalene	91-57-6	3.72E-07	1,24, annual	ST	Above-Average	100%
							2,3,4,5-tetrachlorophenol	4901-51-3	4.81E-07	1,24, annual	ST	Above-Average	100%
							2,3,4,6-Tetrachlorophenol	58-90-2	1.02E-06	1,24, annual	ST	Above-Average	100%
							2,3,4-trichlorophenol	15950-66-0	3.75E-07	1,24, annual	ST	Above-Average	100%
							2,3,5,6-tetrachlorophenol	935-95-5	1.02E-06	1,24, annual	ST	Above-Average	100%
							2,3,5-trichlorophenol	933-78-8	3.75E-07	1,24, annual	ST	Above-Average	100%
							2,3,6-trichlorophenol	933-75-5	3.75E-07	1,24, annual	ST	Above-Average	100%
							2,3-dichlorophenol	576-24-9	5.54E-06	1,24, annual	ST	Above-Average	100%
							2,4,5-trichlorophenol	95-95-4	3.75E-07	1,24, annual	ST	Above-Average	100%
							2,4,6-Trichlorophenol	88-06-2	3.75E-07	1,24, annual	ST	Above-Average	100%
							2,4-Dichlorophenol	120-83-2	5.54E-06	1,24, annual	ST	Above-Average	100%
							2,6-dichlorophenol	87-65-0	5.54E-06	1,24, annual	ST	Above-Average	100%
							2-Butanone	78-93-3	7.36E-05	1,24, annual	ST	Above-Average	100%
							2-Chloronaphthalene	91-58-7	7.50E-08	1,24, annual	ST	Above-Average	100%
							2-Methylanthracene	613-12-7	9.65E-08	1,24, annual	ST	Above-Average	100%
							2-monochlorophenol	95-57-8	5.18E-06	1,24, annual	ST	Above-Average	100%
							3,4,5-trichlorophenol	609-19-8	1.51E-06	1,24, annual	ST	Above-Average	100%
							3,4-dichlorophenol	95-77-2	1.40E-05	1,24, annual	ST	Above-Average	100%
							3,5-dichlorophenol	591-35-5	5.54E-06	1,24, annual	ST	Above-Average	100%
							3-Methylcholanthrene	56-49-5	3.75E-07	1,24, annual	ST	Above-Average	100%
							3-monochlorophenol	108-43-0	5.18E-06	1,24, annual	ST	Above-Average	100%
							4-monochlorophenol	106-48-9	5.18E-06	1,24, annual	ST	Above-Average	100%
							7,12-Dimethylbenzo(a)anthracene	57-97-6	1.24E-07	1,24, annual	ST	Above-Average	100%
							9,10-Dimethylanthracene	781-43-1	7.50E-08	1,24, annual	ST	Above-Average	100%
							9-Methylphenanthrene	883-20-5	2.24E-07	1,24, annual	ST	Above-Average	100%
							Acenaphthene	83-32-9	9.06E-08	1,24, annual	ST	Above-Average	6%
							Acenaphthylene	208-96-8	8.31E-08	1,24, annual	ST	Above-Average	3%
							Acetaldehyde	75-07-0	2.49E-04	1,24, annual	ST	Above-Average	97%
							Acetone	67-64-1	1.19E-04	1,24, annual	ST	Above-Average	100%
							Acrolein	107-02-8	6.50E-05	1,24, annual	ST	Above-Average	96%
							Ammonia	7664-41-7	1.74E-02	1,24, annual	ST	Above-Average	100%
							Anthracene	120-12-7	8.15E-08	1,24, annual	ST	Above-Average	17%
							Antimony	7440-36-0	1.87E-06	1,24, annual	ST	Above-Average	100%
							Arsenic	7440-38-2	1.71E-06	1,24, annual	ST	Above-Average	100%
							Barium	7440-39-3	4.14E-04	1,24, annual	ST	Above-Average	100%
							Benzene	71-43-2	7.36E-05	1,24, annual	ST	Above-Average	22%
							Benzo(a)anthracene	56-55-3	7.50E-08	1,24, annual	ST	Above-Average	27%
							Benzo(a)fluorene	238-84-6	7.94E-08	1,24, annual	ST	Above-Average	100%
							Benzo(a)pyrene	50-32-8	7.50E-08	1,24, annual	ST	Above-Average	47%
							Benzo(b)fluoranthene	205-99-2	1.26E-07	1,24, annual	ST	Above-Average	26%
							Benzo(b)fluorene	243-17-4	7.50E-08	1,24, annual	ST	Above-Average	100%
							Benzo(e)pyrene	192-97-2	9.74E-08	1,24, annual	ST	Above-Average	100%
							Benzo(g,h,i)perylene	191-24-2	1.03E-07	1,24, annual	ST	Above-Average	100%
							Benzo(k)fluoranthene	207-08-9	8.43E-08	1,24, annual	ST	Above-Average	54%
							Beryllium	7440-41-7	1.71E-06	1,24, annual	ST	Above-Average	100%
							Biphenyl	92-51-3	7.09E-07	1,24, annual	ST	Above-Average	100%
							Bromodichloromethane	75-27-4	7.36E-05	1,24, annual	ST	Above-Average	100%
							Bromoform	75-25-2	7.36E-05	1,24, annual	ST	Above-Average	100%
							Bromomethane	74-83-9	7.36E-05	1,24, annual	ST	Above-Average	100%
							Cadmium	7440-43-9	2.85E-06	1,24, annual	ST	Above-Average	100%
							Carbon Monoxide	630-08-0	2.74E-01	1,24, annual	ST	Above-Average	52%
							Carbon tetrachloride	56-23-5	7.36E-05	1,24, annual	ST	Above-Average	100%
							Chlorobenzene	108-90-7	3.10E-06	1,24, annual	ST	Above-Average	100%
							Chloroform	67-66-3	7.36E-05	1,24, annual	ST	Above-Average	100%
							Chromium (hexavalent)	18540-29-9	3.52E-05	1,24, annual	ST	Above-Average	100%
							Chrysene	218-01-9	2.90E-07	1,24, annual	ST	Above-Average	37%
							Cobalt	7440-48-4	1.33E-06	1,24, annual	ST	Above-Average	100%
							Copper	7440-50-8	6.20E-05	1,24, annual	ST	Above-Average	100%
							Coronene	191-07-1	3.75E-07	1,24, annual	ST	Above-Average	100%
							Cumene (Isopropylbenzene)	98-82-8	7.36E-05	1,24, annual	ST	Above-Average	100%
							Dibenzo(a,c)anthracene	215-58-7	7.50E-08	1,24, annual	ST	Above-Average	100%
							Dibenzo(a,e)pyrene	192-65-4	3.75E-07	1,24, annual	ST	Above-Average	100%
							Dibenzo(a,h)anthracene	53-70-3	7.50E-08	1,24, annual	ST	Above-Average	40%
							Dibromochloromethane	124-48-1	7.36E-05	1,24, annual	ST	Above-Average	100%
							Dichlorodifluoromethane	75-71-8	7.36E-05	1,24, annual	ST	Above-Average	100%
							Dichloroethene, 1,1 -	75-34-3	7.36E-05	1,24, annual	ST	Above-Average	100%
							Dichloromethane	75-09-2	1.15E-04	1,24, annual	ST	Above-Average	100%
							Dioxins, Furans and Dioxin- like PCBs	N/A	0.00008 µg TEQ/s	1,24, annual	ST	Above-Average	100%
							Ethylbenzene	100-41-4	7.36E-05	1,24, annual	ST	Above-Average	100%
							Ethylene Dibromide	106-93-4	7.36E-05	1,24, annual	ST	Above-Average	100%
							Fluoranthene	206-44-0	5.25E-07	1,24, annual	ST	Above-Average	28%
							Fluorides	7664-39-3	3.72E-03	1,24, annual	ST	Above-Average	100%
							Fluorene	86-73-7	2.24E-07	1,24, annual	ST	Above-Average	5%
							Formaldehyde	50-00-0	4.52E-03	1,24, annual	ST	Above-Average	99%
							Hexachlorobenzene	118-74-1	7.50E-08	1,24, annual	ST	Above-Average	100%
							Hydrogen Chloride	7647-01-0	1.13E-01	1,24, annual	ST	Above-Average	100%
							Indeno(1,2,3 – cd)pyrene	193-39-5	7.50E-08	1,24, annual	ST	Above-Average	36%
							Lead	7439-92-1	1.10E-05	1,24, annual	ST	Above-Average	100%
							M&P-Xylene	179601-23-1	1.50E-04	1,24, annual	ST	Above-Average	100%
							Mercury	7439-97-6	1.44E-05	1,24, annual	ST	Above-Average	100%
							Mesitylene (1,3,5-Trimethylbenzene)	108-67-8	7.36E-05	1,24, annual	ST	Above-Average	100%
							Molybdenum	7439-98-7	1.56E-04	1,24, annual	ST	Above-Average	100%
							m-Terphenyl	92-06-8	7.50E-08	1,24, annual	ST	Above-Average	100%
							Naphthalene	91-20-3	8.74E-07	1,24, annual	ST	Above-Average	2%
							Nickel	7440-02-0	2.32E-05	1,24, annual	ST	Above-Average	100%
							Nitrogen Oxides	10102-44-0	4.31E+00	1,24, annual	ST	Above-Average	44%
							Nitrogen Oxides	10102-44-0	4.31E+00	1,24, annual	ST	Above-Average	44%
							O-terphenyl	84-15-1	8.43E-08	1,24, annual	ST	Above-Average	100%
							O-Xylene	95-47-6	7.36E-05	1,24, annual	ST	Above-Average	100%
							Pentachlorobenzene	608-93-5	7.50E-08	1,24, annual	ST	Above-Average	100%
							Pentachlorophenol	87-86-5	3.34E-06	1,24, annual	ST	Above-Average	100%
							Perylene	198-55-0	7.50E-08	1,24, annual	ST	Above-Average	100%
							Phenanthrene	85-01-8	2.78E-06	1,24, annual	ST	Above-Average	17%
							Picene	213-46-7	3.75E-07	1,24, annual	ST	Above-Average	100%
							PM_{10} (Condensable and Filterable)	N/A	2.39E-01	1,24, annual	ST	Above-Average	80%
							PM_{10} (Filterable Only)	N/A	4.17E-02	1,24, annual	ST	Above-Average	100%
							$PM_{2.5}$ (Condensable and Filterable)	N/A	2.31E-01	1,24, annual	ST	Above-Average	79%
							$PM_{2.5}$ (Filterable Only)	N/A	3.37E-02	1,24, annual	ST	Above-Average	100%
							Polychlorinated Biphenyls (PCB)	N/A	8.07E-05	1,24, annual	ST	Above-Average	100%
							p-Terphenyl	92-94-4	7.50E-08	1,24, annual	ST	Above-Average	100%
							Pyrene	129-00-0	4.85E-07	1,24, annual	ST	Above-Average	29%

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 Quality	Percentage of Overall Emissions [%]
							Selenium	7782-49-2	8.53E-06	1,24, annual	ST	Above-Average	100%
							Silver	7440-22-4	1.71E-06	1,24, annual	ST	Above-Average	100%
							Styrene	100-42-5	7.36E-05	1,24, annual	ST	Above-Average	100%
							Sulphur Dioxide	7446-09-5	2.95E-02	1,24, annual	ST	Above-Average	61%
							Tetrachloroethene	127-18-4	7.36E-05	1,24, annual	ST	Above-Average	100%
							Tetralin	119-64-2	2.88E-07	1,24, annual	ST	Above-Average	100%
							Thallium	7440-28-0	1.71E-06	1,24, annual	ST	Above-Average	100%
							Toluene	108-88-3	4.64E-03	1,24, annual	ST	Above-Average	98%
							Total Chromium (and compounds)	7440-47-3	3.52E-05	1,24, annual	ST	Above-Average	100%
							Total Particulate Matter (Condensable and Filterable)	N/A	2.52E-01	1,24, annual	ST	Above-Average	77%
							Total Particulate Matter (Filterable Only)	N/A	5.47E-02	1,24, annual	ST	Above-Average	73%
							trans,1,2-Dichloroethene	156-60-5	7.36E-05	1,24, annual	ST	Above-Average	100%
							Trichloroethane, 1,1,1 -	71-55-6	7.36E-05	1,24, annual	ST	Above-Average	100%
							Trichloroethene	79-01-6	7.36E-05	1,24, annual	ST	Above-Average	100%
							Trichloroethylene, 1,1,2 -	79-01-6	7.36E-05	1,24, annual	ST	Above-Average	100%
							Trichlorofluoromethane	75-69-4	7.36E-05	1,24, annual	ST	Above-Average	100%
							Trichlorotrifluoroethane	76-13-1	7.36E-05	1,24, annual	ST	Above-Average	100%
							Vanadium	7440-62-2	8.53E-07	1,24, annual	ST	Above-Average	100%
							Vinyl chloride	75-01-4	7.36E-05	1,24, annual	ST	Above-Average	100%
							Xylenes, m-, p- and o-	1330-20-7	2.23E-04	1,24, annual	ST	Above-Average	78%
							Zinc	7440-66-6	4.14E-04	1,24, annual	ST	Above-Average	100%
2	Silo Filling	0.31	Ambient	0.10	5.4864	(680551,4860 359)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	3%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	4%
		0.31	Ambient	0.10	4.8768	(680513,4860 332)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	3%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	4%
		0.31	Ambient	0.10	3.9624	(680517,4860 333)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	3%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	4%
		0.31	Ambient	0.10	12.4	(680537,4860 391)	Total Particulate Matter	N/A	1.07E-02	1	EC	Above-Average	3%
							PM_{10}	N/A	1.07E-02	1	EC	Above-Average	4%
							$PM_{2.5}$	N/A	1.07E-02	1	EC	Above-Average	4%
3	Stand-by generator	1.16	265.85	0.2	3	(680475,4860 419)	Carbon Monoxide	630-08-0	2.56E-01	½	EF	Marginal	48%
							Nitrogen Oxides	10102-44-0	1.12E+00	½	EF	Marginal	11%
							Sulphur Dioxide	7446-09-5	1.88E-02	½	EF	Above-Average	39%
							Total Particulate Matter	N/A	3.25E-02	½	EF	Above-Average	10%
							Filterable TSP	N/A	2.03E-02	½	EF	Above-Average	27%
							PM_{10}	N/A	1.88E-02	½	EF	Above-Average	6%
							$PM_{2.5}$	N/A	1.88E-02	½	EF	Above-Average	6%
							Sulphuric Acid	7664-93-9	2.88E-04	½	EC	Above-Average	100%
							Benzene	71-43-2	2.54E-04	½	EF	Marginal	78%
							Toluene	108-88-3	9.21E-05	½	EF	Marginal	2%
							Xylenes, m-, p- and o-	1330-20-7	6.32E-05	½	EF	Marginal	22%
							Propylene	115-07-1	9.14E-04	½	EF	Marginal	100%
							Formaldehyde	50-00-0	2.58E-05	½	EF	Marginal	<1%
							Acetaldehyde	75-07-0	8.26E-06	½	EF	Marginal	3%
							Acrolein	107-02-8	2.58E-06	½	EF	Marginal	4%
							Naphthalene	91-20-3	4.26E-05	½	EF	Marginal	98%
							Acenaphthylene	208-96-8	3.02E-06	½	EF	Marginal	97%
							Acenaphthene	83-32-9	1.53E-06	½	EF	Marginal	94%
							Fluorene	86-73-7	4.19E-06	½	EF	Marginal	95%
							Phenanthrene	85-01-8	1.34E-05	½	EF	Marginal	83%
							Anthracene	120-12-7	4.03E-07	½	EF	Marginal	83%
							Fluoranthene	206-44-0	1.32E-06	½	EF	Marginal	72%
							Pyrene	129-00-0	1.22E-06	½	EF	Marginal	71%
							Benzo(a)anthracene	56-55-3	2.04E-07	½	EF	Marginal	73%
							Chrysene	218-01-9	5.01E-07	½	EF	Marginal	63%
							Benzo(b)fluoranthene	205-99-2	3.64E-07	½	EF	Marginal	74%
							Benzo(k)fluoranthene	207-08-9	7.14E-08	½	EF	Marginal	46%
							Benzo(a)pyrene	50-32-8	8.42E-08	½	EF	Marginal	53%
							Indeno(1,2,3 – cd)pyrene	193-39-5	1.36E-07	½	EF	Marginal	64%
							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 Meteorological Anomaly Removal [µg/m³]	Averaging Period	MECP POI Limit [µg/m³]	Limiting Effect	Schedule	Source	Benchmark	Percentage of MECP Limit [%]	Notes	Version Date of ACB List (i.e. Version 2.0 - April 2018)
1 – methylnaphthalene	90-12-0	2.22E-07	CALPUFF	2.73E-07	2.59E-07	24-hour	35.5	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
1,2,4 – Trichlorobenzene	120-82-1	8.40E-08	CALPUFF	1.03E-07	9.83E-08	24-hour	400	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
1,2,4,5-Tetrachlorobenzene	95-94-3	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	1	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
1,2-Dichlorobenzene	95-50-1	2.20E-07	CALPUFF	6.09E-06	2.31E-06	1-hour	30500	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
2 – methylnaphthalene	91-57-6	3.72E-07	CALPUFF	4.57E-07	4.35E-07	24-hour	35.5	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
2,3,4,6-Tetrachlorophenol	58-90-2	1.02E-06	CALPUFF	1.26E-06	1.20E-06	24-hour	0.75	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
2,4,6-Trichlorophenol	88-06-2	3.75E-07	CALPUFF	4.61E-07	4.39E-07	24-hour	1.5	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
2,4-Dichlorophenol	120-83-2	5.54E-06	CALPUFF	6.81E-06	6.48E-06	24-hour	33.5	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
3-Methylcholanthrene	56-49-5	3.75E-07	CALPUFF	4.61E-07	4.39E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
7,12-Dimethylbenzo(a)anthracene	57-97-6	1.24E-07	CALPUFF	1.52E-07	1.45E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Acenaphthene	83-32-9	9.06E-08	CALPUFF	1.11E-07	1.06E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Acenaphthylene	208-96-8	8.31E-08	CALPUFF	1.02E-07	9.72E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Acetaldehyde	75-07-0	2.49E-04	CALPUFF	3.06E-04	2.91E-04	24-hour	500	Health	Sch. 3	Standard	B1	<1%	Note 10 URT - Note 8, Table 4	Version 3.0 April 2023
Acetaldehyde	75-07-0	2.49E-04	CALPUFF	3.06E-04	2.91E-04	24-hour	5000	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Acrolein	107-02-8	6.50E-05	CALPUFF	8.00E-05	7.61E-05	24-hour	0.4	Health	Sch. 3	Standard	B1	<1%	Note 10 URT - Note 8, Table 4	Version 3.0 April 2023
Acrolein	107-02-8	6.50E-05	CALPUFF	1.80E-03	6.84E-04	1-hour	4.5	Health	Sch. 3	Standard	B1	<1%	Note 10 URT - Note 8, Table 4	
Ammonia	7664-41-7	1.74E-02	CALPUFF	2.14E-02	2.03E-02	24-hour	100	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Ammonia	7664-41-7	1.74E-02	CALPUFF	2.14E-02	2.03E-02	24-hour	1000	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Anthracene	120-12-7	8.15E-08	CALPUFF	1.00E-07	9.54E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Antimony	7440-36-0	1.87E-06	CALPUFF	2.30E-06	2.19E-06	24-hour	25	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Arsenic	7440-38-2	1.71E-06	CALPUFF	2.10E-06	2.00E-06	24-hour	0.3	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Barium	7440-39-3	4.14E-04	CALPUFF	5.09E-04	4.84E-04	24-hour	10	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Benzene	71-43-2	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	0.45	Health	Sch. 3	Standard	B1	<1%	Note 7, Table 2, 3 URT - Note 8, Table 4	Version 3.0 April 2023
Benzene	71-43-2	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	100	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Benzene	71-43-2	7.36E-05	CALPUFF	4.42E-06	4.42E-06	Annual	4.5	—	—	AAV	—	0%		Version 3.0 April 2023
Benzo(a)anthracene	56-55-3	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Benzo(a)fluorene	238-84-6	7.94E-08	CALPUFF	9.77E-08	9.30E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Benzo(a)pyrene	50-32-8	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.00001	Health	Sch. 3	Standard	B1	<1%	Notes 6, 7, Table 2, 3 URT - Note 8, Table 4	Version 3.0 April 2023
Benzo(a)pyrene	50-32-8	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.005	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Benzo(a)pyrene	50-32-8	7.50E-08	CALPUFF	4.50E-09	4.50E-09	Annual	0.0001	—	—	AAV	—	0%		Version 3.0 April 2023
Benzo(b)fluoranthene	205-99-2	1.26E-07	CALPUFF	1.55E-07	1.48E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Benzo(b)fluorene	243-17-4	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Benzo(e)pyrene	192-97-2	9.74E-08	CALPUFF	1.20E-07	1.14E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Benzo(g,h,i)perylene	191-24-2	1.03E-07	CALPUFF	1.27E-07	1.21E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Benzo(k)fluoranthene	207-08-9	8.43E-08	CALPUFF	1.04E-07	9.86E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Beryllium	7440-41-7	1.71E-06	CALPUFF	2.10E-06	2.00E-06	24-hour	0.01	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Biphenyl	92-51-3	7.09E-07	CALPUFF	8.72E-07	8.29E-07	24-hour	170	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
Bromodichloromethane	75-27-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	350	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
Bromoform	75-25-2	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	55	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Bromomethane	74-83-9	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1350	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Cadmium	7440-43-9	2.85E-06	CALPUFF	3.51E-06	3.34E-06	24-hour	0.025	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Cadmium	7440-43-9	2.85E-06	CALPUFF	3.51E-06	3.34E-06	24-hour	0.25	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Carbon Monoxide	630-08-0	2.74E-01	CALPUFF	9.13E+00	3.46E+00	½-hour	6000	Health	Sch. 3	Standard	B1	<1%	Note 17	Version 3.0 April 2023
Carbon tetrachloride	56-23-5	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	2.4	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Carbon tetrachloride	56-23-5	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	24	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Chlorobenzene	108-90-7	3.10E-06	CALPUFF	8.58E-05	3.26E-05	1-hour	3500	Health Odour	Sch. 3	Guideline	B1	<1%	Notes 10, 11	Version 3.0 April 2023
Chlorobenzene	108-90-7	3.10E-06	CALPUFF	1.42E-04	5.37E-05	10-minute	4,500	Health Odour	Sch. 3	Guideline	B1	<1%	Notes 10, 11	Version 3.0 April 2023
Chloroform	67-66-3	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Chloroform	67-66-3	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	100	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Chromium (hexavalent)	18540-29-9	3.52E-05	CALPUFF	2.11E-06	2.11E-06	Annual	0.00014	Health	Sch. 3	Standard	B1	2%	Notes 7, 29, Tables 2, 3 URT - Note 8, Table 4	Version 3.0 April 2023
Chromium (hexavalent)	18540-29-9	3.52E-05	CALPUFF	4.33E-05	4.12E-05	24-hour	0.07	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Chromium (hexavalent)	18540-29-9	3.52E-05	CALPUFF	2.11E-06	2.11E-06	Annual	0.0014	—	—	AAV	—	0%		Version 3.0 April 2023
Chrysene	218-01-9	2.90E-07	CALPUFF	3.57E-07	3.39E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Cobalt	7440-48-4	1.33E-06	CALPUFF	1.64E-06	1.56E-06	24-hour	0.1	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Copper	7440-50-8	6.20E-05	CALPUFF	7.63E-05	7.25E-05	24-hour	50	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Dibenzo(a,c)anthracene	215-58-7	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Dibenzo(a,h)anthracene	53-70-3	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Dichlorodifluoromethane	75-71-8	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	500000	Health	Sch. 3	Guideline	B1	<1%	Note 15	Version 3.0 April 2023
Dichloroethene, 1,1 -	75-34-3	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	165	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Dichloroethene, 1,1 -	75-34-3	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1650	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Dichloromethane	75-09-2	1.15E-04	CALPUFF	1.42E-04	1.35E-04	24-hour	220	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Dichloromethane	75-09-2	1.15E-04	CALPUFF	1.42E-04	1.35E-04	24-hour	22000	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Dioxins, Furans and Dioxin- like PCBs	N/A	0.00008 µg TEQ/s	CALPUFF	0.0001 pg TEQ/m³	0.00009 pg TEQ/m³	24-hour	0.1 pg TEQ/m³	—	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Ethylbenzene	100-41-4	7.36E-05	CALPUFF	3.37E-03	1.28E-03	10-minute	1900	Odour	Sch. 3	Guideline	B1	<1%	Notes 10, 11	Version 3.0 April 2023
Ethylbenzene	100-41-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1000	Health	Sch. 3	Standard	B1	<1%	Note 10 URT - Note 8, Table 4	Version 3.0 April 2023
Ethylbenzene	100-41-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	10000	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Ethylene Dibromide	106-93-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	3	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Fluoranthene	206-44-0	5.25E-07	CALPUFF	6.46E-07	6.15E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Fluorene	86-73-7	2.24E-07	CALPUFF	2.75E-07	2.62E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Fluorides	7664-39-3	3.72E-03	CALPUFF	4.58E-03	4.35E-03	24-hour	0.86	Vegetation	Sch. 3	Standard	B1	<1%	Notes 10, 24	Version 3.0 April 2023
Fluorides	7664-39-3	3.72E-03	CALPUFF	6.32E-04	6.32E-04	30-day	0.34	Vegetation	Sch. 3	Standard	B1	<1%	Notes 10, 24	Version 3.0 April 2023
Formaldehyde	50-00-0	4.52E-03	CALPUFF	5.56E-03	5.29E-03	24-hour	65	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Hexachlorobenzene	118-74-1	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.011	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
Hexachlorobenzene	118-74-1	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.01	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Hydrogen Chloride	7647-01-0	1.13E-01	CALPUFF	1.39E-01	1.33E-01	24-hour	20	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Hydrogen Chloride	7647-01-0	1.13E-01	CALPUFF	1.39E-01	1.33E-01	24-hour	200	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Indeno(1,2,3 – cd)pyrene	193-39-5	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Lead	7439-92-1	1.10E-05	CALPUFF	1.35E-05	1.28E-05	24-hour	0.5	Health	Sch. 3	Standard	B1	<1%	Note 10 URT - Note 8, Table 4	Version 3.0 April 2023
Lead	7439-92-1	1.10E-05	CALPUFF	1.86E-06	1.86E-06	30-day	0.2	Health	Sch. 3	Standard	B1	<1%	Note 10 URT - Note 8, Table 4	
Lead	7439-92-1	1.10E-05	CALPUFF	1.35E-05	1.28E-05	24-hour	2	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Mercury	7439-97-6	1.44E-05	CALPUFF	1.77E-05	1.68E-05	24-hour	2	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Mercury	7439-97-6	1.44E-05	CALPUFF	1.77E-05	1.68E-05	24-hour	0.5	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Molybdenum	7439-98-7	1.56E-04	CALPUFF	1.92E-04	1.82E-04	24-hour	120	Particulate	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Naphthalene	91-20-3	8.74E-07	CALPUFF	1.08E-06	1.02E-06	24-hour	22.5	Health Odour	Sch. 3	Guideline	B1	<1%	Notes 10, 11	Version 3.0 April 2023
Naphthalene	91-20-3	8.74E-07	CALPUFF	4.00E-05	1.52E-05	10-minute	50	Health Odour	Sch. 3	Guideline	B1	<1%	Notes 10, 11	Version 3.0 April 2023
Nickel	7440-02-0	2.32E-05	CALPUFF	1.39E-06	1.39E-06	Annual	0.04	Health	Sch. 3	Standard	B1	<1%	Note 7, Table 2, 3 URT - Note 8, Table 4	Version 3.0 April 2023
Nickel	7440-02-0	2.32E-05	CALPUFF	2.86E-05	2.72E-05	24-hour	2	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Nickel	7440-02-0	2.32E-05	CALPUFF	1.39E-06	1.39E-06	Annual	0.4	—	—	AAV	—	0%		Version 3.0 April 2023
Nitrogen Oxides	10102-44-0	4.31E+00	CALPUFF	5.30E+00	5.04E+00	24-hour	200	Health	Sch. 3	Standard	B1	3%	Notes 10, 28	Version 3.0 April 2023
Nitrogen Oxides	10102-44-0	4.31E+00	CALPUFF	1.19E+02	4.53E+01	1-hour	400	Health	Sch. 3	Standard	B1	11%	Notes 10, 28	Version 3.0 April 2023
O-terphenyl	84-15-1	8.43E-08	CALPUFF	1.04E-07	9.86E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Pentachlorobenzene	608-93-5	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	80	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
Pentachlorophenol	87-86-5	3.34E-06	CALPUFF	4.11E-06	3.91E-06	24-hour	20	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Perylene	198-55-0	7.50E-08	CALPUFF	9.22E-08	8.77E-08	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Phenanthrene	85-01-8	2.78E-06	CALPUFF	3.42E-06	3.25E-06	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
PM_{10} (Condensable and Filterable)	N/A	2.39E-01	CALPUFF	3.17E-01	3.04E-01	24-hour	50	Particulate	—	AAQC	—	<1%		Version 3.0 April 2023
PM_{10} (Filterable Only)	N/A	4.17E-02	CALPUFF	1.35E-01	9.47E-02	24-hour	50	Particulate	—	AAQC	—	<1%		Version 3.0 April 2023
$PM_{2.5}$ (Condensable and Filterable)	N/A	2.31E-01	CALPUFF	3.07E-01	2.94E-01	24-hour	27	Particulate	—	AAQC	—	1%		Version 3.0 April 2023
$PM_{2.5}$ (Filterable Only)	N/A	3.37E-02	CALPUFF	1.30E-01	9.33E-02	24-hour	27	Particulate	—	AAQC	—	<1%		Version 3.0 April 2023
Pyrene	129-00-0	4.85E-07	CALPUFF	5.97E-07	5.68E-07	24-hour	0.1	—	—	De Minimus	—	Below De Minimus		Version 3.0 April 2023
Selenium	7782-49-2	8.53E-06	CALPUFF	1.05E-05	9.98E-06	24-hour	10	Health	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Silver	7440-22-4	1.71E-06	CALPUFF	2.10E-06	2.00E-06	24-hour	1	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Sulphur Dioxide	7446-09-5	2.95E-02	CALPUFF	8.17E-01	3.10E-01	1-hour	100	Health & Vegetation	Sch. 3	Standard	B1	<1%	Effective date - July 1, 2023 Note 10 URT - Note 8, Table 4	Version 3.0 April 2023
Sulphur Dioxide	7446-09-5	2.95E-02	CALPUFF	1.77E-03	1.77E-03	annual	10	Health & Vegetation	Sch. 3	Standard	B1	<1%	Effective date - July 1, 2023 Note 10 URT - Note 8, Table 4	Version 3.0 April 2023
Sulphur Dioxide	7446-09-5	2.95E-02	CALPUFF	8.17E-01	3.10E-01	1-hour	690	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Tetrachloroethene	127-18-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	360	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Tetrachloroethene	127-18-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	3600	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Tetralin	119-64-2	2.88E-07	CALPUFF	3.54E-07	3.37E-07	24-hour	151.5	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
Thallium	7440-28-0	1.71E-06	CALPUFF	2.10E-06	2.00E-06	24-hour	0.5	Health	Sch. 3	SL-JSL	B2	Below B2		Version 3.0 April 2023
Toluene	108-88-3	4.64E-03	CALPUFF	5.71E-03	5.43E-03	24-hour	2000	Odour	Sch. 3	Guideline	B1	<1%	To be updated - Note 13	Version 3.0 April 2023
Total Chromium (and compounds)	7440-47-3	3.52E-05	CALPUFF	4.33E-05	4.12E-05	24-hour	0.5	Health	Sch. 3	Standard	B1	<1%	Note 22 URT - Note 8, Table 4	Version 3.0 April 2023
Total Chromium (and compounds)	7440-47-3	3.52E-05	CALPUFF	4.33E-05	4.12E-05	24-hour	5	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Total Particulate Matter (Condensable and Filterable)	N/A	2.52E-01	CALPUFF	3.33E-01	3.19E-01	24-hour	120	Particulate	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Total Particulate Matter (Filterable only)	N/A	5.47E-02	CALPUFF	1.43E-01	9.96E-02	24-hour	120	Particulate	Sch. 3	Guideline	B1	<1%		Version 3.0 April 2023
Trichloroethane, 1,1,1 -	71-55-6	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	115000	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Trichloroethene	79-01-6	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	12	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Trichloroethene	79-01-6	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1200	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Trichloroethylene, 1,1,2 -	79-01-6	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	12	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Trichloroethylene, 1,1,2 -	79-01-6	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1200	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Trichlorofluoromethane	75-69-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	6000	Health	Sch. 3	Guideline	B1	<1%	Note 15	Version 3.0 April 2023
Vanadium	7440-62-2	8.53E-07	CALPUFF	1.05E-06	9.98E-07	24-hour	2	Health	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023
Vinyl chloride	75-01-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	1	Health	Sch. 3	Standard	B1	<1%	URT - Note 8, Table 4	Version 3.0 April 2023
Vinyl chloride	75-01-4	7.36E-05	CALPUFF	9.05E-05	8.61E-05	24-hour	100	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Xylenes, m-, p- and o-	1330-20-7	2.23E-04	CALPUFF	1.02E-02	3.87E-03	10-minute	3000	Odour	Sch. 3	Guideline	B1	<1%	Notes 10, 11, 19	Version 3.0 April 2023
Xylenes, m-, p- and o-	1330-20-7	2.23E-04	CALPUFF	2.74E-04	2.61E-04	24-hour	730	Health	Sch. 3	Standard	B1	<1%	Notes 10, 19 URT - Note 8, Table 4	Version 3.0 April 2023
Xylenes, m-, p- and o-	1330-20-7	2.23E-04	CALPUFF	2.74E-04	2.61E-04	24-hour	7300	—	Sch. 6	URT	—	Below URT		Version 3.0 April 2023
Zinc	7440-66-6	4.14E-04	CALPUFF	5.09E-04	4.84E-04	24-hour	120	Particulate	Sch. 3	Standard	B1	<1%		Version 3.0 April 2023

APPENDIX 28

DYEC CEMS 1-Hour Average Data
(4 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
18-Mar-24	8:00	9.17	7		8		120		1		0	8
18-Mar-24	9:00	8.95	8		0		111		1		0	8
18-Mar-24	10:00	8.68	6		0		93		0		0	8
18-Mar-24	11:00	9.09	5	6.5	0		117		0		0	8
18-Mar-24	12:00	8.80	6	6.3	0		101		0		0	8
18-Mar-24	13:00	8.79	5	5.5	0		111		0		0	8
18-Mar-24	14:00	8.65	5	5.3	0		107		0		0	8
18-Mar-24	15:00	8.83	4	5.0	0		105		1		0	8
18-Mar-24	16:00	8.87	4	4.5	0		119		1		0	8
18-Mar-24	17:00	9.01	3	4.0	0		116		0		0	8
18-Mar-24	18:00	8.58	5	4.0	0		105		0		0	8
18-Mar-24	19:00	8.84	4	4.0	0		109		0		0	8
18-Mar-24	20:00	8.66	6	4.5	0		105		1		0	8
18-Mar-24	21:00	8.80	6	5.3	1		117		1		0	8
18-Mar-24	22:00	8.70	4	5.0	0		108		0		0	8
18-Mar-24	23:00	8.58	4	5.0	0		111		0		0	8
19-Mar-24	0:00	8.73	4	4.5	0		107		0		0	8
19-Mar-24	1:00	8.68	5	4.3	0		111		0		0	8
19-Mar-24	2:00	9.02	6	4.8	0		98		1		0	8
19-Mar-24	3:00	8.84	4	4.8	0		122		0		0	8
19-Mar-24	4:00	8.87	5	5.0	0		131		0		0	8
19-Mar-24	5:00	8.59	4	4.8	0		112		0		0	8
19-Mar-24	6:00	8.96	5	4.5	0		140		1		0	8
19-Mar-24	7:00	8.43	11	6.3	0	0.4	109	112	1	0.4	0	8
19-Mar-24	8:00	8.69	7	6.8	0	0.0	109	111	0	0.3	0	8
19-Mar-24	9:00	8.80	8	7.8	0	0.0	102	111	0	0.3	0	8
19-Mar-24	10:00	8.67	8	8.5	0	0.0	96	111	0	0.3	0	8
19-Mar-24	11:00	8.81	6	7.3	0	0.0	123	111	1	0.3	0	8
19-Mar-24	12:00	9.33	9	7.8	0	0.0	111	112	1	0.4	0	9
19-Mar-24	13:00	8.90	6	7.3	4	0.2	116	112	1	0.4	0	8
19-Mar-24	14:00	8.97	7	7.0	0	0.2	107	112	1	0.5	0	8
19-Mar-24	15:00	8.50	5	6.8	0	0.2	109	112	0	0.4	0	8
19-Mar-24	16:00	8.26	6	6.0	0	0.2	110	112	0	0.4	0	7
19-Mar-24	17:00	8.31	6	6.0	0	0.2	104	111	0	0.4	0	8
19-Mar-24	18:00	8.72	9	6.5	0	0.2	109	112	0	0.4	0	8
19-Mar-24	19:00											8
19-Mar-24	20:00											8
19-Mar-24	21:00											7
19-Mar-24	22:00											8
19-Mar-24	23:00	8.30	4		0		125		1		0	8
20-Mar-24	0:00	8.63	5		0		99		1		0	8
20-Mar-24	1:00	8.43	6		0		115		1		0	8
20-Mar-24	2:00	8.11	7	5.5	0		113		0		0	7
20-Mar-24	3:00	8.21	6	6.0	0		117		0		0	7
20-Mar-24	4:00	8.14	5	6.0	0		128		0		0	7
20-Mar-24	5:00	8.34	9	6.8	0		93		2		0	8
20-Mar-24	6:00	8.46	11	7.8	1		137		2		0	8
20-Mar-24	7:00	8.28	7	8.0	0		109		1		0	7
20-Mar-24	8:00	7.93	8	8.8	0		105		1		0	7
20-Mar-24	9:00	8.18	12	9.5	0		100		1		0	7
20-Mar-24	10:00	7.97	8	8.8	0		100		1		0	7
20-Mar-24	11:00	8.10	5	8.3	0		109		1		0	7
20-Mar-24	12:00	8.22	6	7.8	0		115		0		0	7
20-Mar-24	13:00	8.02	5	6.0	0		109		0		0	7
20-Mar-24	14:00	7.82	6	5.5	0		106		0		0	7
20-Mar-24	15:00	8.37	7	6.0	0		111		0		0	7
20-Mar-24	16:00	8.06	7	6.3	0		118		0		0	7
20-Mar-24	17:00	8.30	8	7.0	0		102		0		0	7
20-Mar-24	18:00	8.45	5	6.8	0		113		0		0	7
20-Mar-24	19:00	8.35	4	6.0	0		118		0		0	7
20-Mar-24	20:00	8.50	6	5.8	0		102		1		0	8
20-Mar-24	21:00	8.59	6	5.3	0		98		0		0	8
20-Mar-24	22:00	8.64	6	5.5	0	0.0	109	110	0	0.5	0	8
20-Mar-24	23:00	8.58	4	5.5	0	0.0	115	110	0	0.5	0	7
21-Mar-24	0:00	8.25	5	5.3	0	0.0	108	110	0	0.5	0	7
21-Mar-24	1:00	8.27	5	5.0	0	0.0	111	110	0	0.4	0	7
21-Mar-24	2:00	8.16	5	4.8	0	0.0	98	110	0	0.4	0	7
21-Mar-24	3:00	8.43	6	5.3	0	0.0	125	110	0	0.4	0	7
21-Mar-24	4:00	8.08	14	7.5	0	0.0	124	110	0	0.4	0	7
21-Mar-24	5:00	8.97	5	7.5	0	0.0	108	110	0	0.3	0	8
21-Mar-24	6:00	8.05	5	7.5	0	0.0	141	111	0	0.3	0	7
21-Mar-24	7:00	8.15	4	7.0	0	0.0	113	111	0	0.2	1	7

Note: All times are Eastern Standard Time

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
21-Mar-24	8:00	8.05	6	5.0	0	0.0	108	111	0	0.2	1	7
21-Mar-24	9:00	8.13	6	5.3	0	0.0	111	111	1	0.2	0	7
21-Mar-24	10:00	8.19	8	6.0	0	0.0	110	112	1	0.2	0	7
21-Mar-24	11:00	8.17	5	6.3	0	0.0	110	112	1	0.2	0	7
21-Mar-24	12:00	8.26	6	6.3	0	0.0	113	112	1	0.2	0	7
21-Mar-24	13:00	8.27	5	6.0	0	0.0	121	112	1	0.3	0	7
21-Mar-24	14:00	8.48	5	5.3	2	0.1	115	113	1	0.3	0	8
21-Mar-24	15:00	8.77	8	6.0	40	1.8	83	111	1	0.3	0	8
21-Mar-24	16:00	9.20	6	6.1	0	1.6	103	111	0	0.3	0	9
	Min	7.82	3	4.0	0	0	83	110	0	0.2	0	7
	Max	9.33	14	9.5	40	1.75	141	113	2	0.5	1	9
	Avg	8.52	6	6.1	0.73	0.18	111	111	0	0.3	0	8
	Std Dev	0.34	2.0	1.3	4.7	0.4	10.14	0.8	0.5	0.1	0	0.5

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/m³ @ 11% O_2		mg/m³ @ 11% O_2		mg/m³ @ 11% O_2		mg/m³ @ 11% O_2		mg/m³ @ 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
18-Mar-24	8:00	8.91	10		29		108		2		0	8
18-Mar-24	9:00	8.32	19		9		112		3		0	7
18-Mar-24	10:00	8.59	11		0		109		2		0	7
18-Mar-24	11:00	8.85	7	11.8	0		111		2		0	7
18-Mar-24	12:00	8.39	6	10.8	0		108		2		0	7
18-Mar-24	13:00	8.28	7	7.8	0		112		2		0	7
18-Mar-24	14:00	8.77	8	7.0	0		100		2		0	7
18-Mar-24	15:00	8.37	8	7.3	0		111		2		0	7
18-Mar-24	16:00	8.24	7	7.5	0		109		2		0	7
18-Mar-24	17:00	8.36	7	7.5	0		108		2		0	7
18-Mar-24	18:00	8.09	10	8.0	0		113		2		0	7
18-Mar-24	19:00	8.63	8	8.0	0		111		2		0	7
18-Mar-24	20:00	8.54	7	8.0	0		108		2		0	7
18-Mar-24	21:00	8.36	7	8.0	13		110		3		0	7
18-Mar-24	22:00	8.33	8	7.5	0		108		3		0	7
18-Mar-24	23:00	8.43	8	7.5	7		109		2		0	7
19-Mar-24	0:00	8.26	9	8.0	0		105		3		0	7
19-Mar-24	1:00	8.38	7	8.0	0		107		2		0	7
19-Mar-24	2:00	8.38	8	8.0	0		107		2		0	7
19-Mar-24	3:00	8.47	6	7.5	0		108		2		0	7
19-Mar-24	4:00	8.29	8	7.3	0		116		2		0	7
19-Mar-24	5:00	7.87	7	7.3	0		97		3		0	7
19-Mar-24	6:00	8.28	6	6.8	0		117		3		0	7
19-Mar-24	7:00	7.97	7	7.0	0	2.4	109	109	2	2.3	0	7
19-Mar-24	8:00	8.63	5	6.3	0	1.2	113	109	2	2.3	0	7
19-Mar-24	9:00	8.79	6	6.0	0	0.8	111	109	2	2.2	0	8
19-Mar-24	10:00	8.57	8	6.5	0	0.8	104	109	2	2.2	0	7
19-Mar-24	11:00	8.33	9	7.0	0	0.8	102	108	2	2.2	0	7
19-Mar-24	12:00	8.27	13	9.0	0	0.8	111	109	3	2.3	0	7
19-Mar-24	13:00	8.18	16	11.5	1	0.9	111	109	3	2.3	0	7
19-Mar-24	14:00	8.05	7	11.3	0	0.9	103	109	3	2.3	0	7
19-Mar-24	15:00	8.22	9	11.3	0	0.9	113	109	3	2.4	0	7
19-Mar-24	16:00	8.27	7	9.8	0	0.9	107	109	3	2.4	0	7
19-Mar-24	17:00	8.10	6	7.3	0	0.9	108	109	2	2.4	0	7
19-Mar-24	18:00	8.11	7	7.3	0	0.9	109	109	2	2.4	0	7
19-Mar-24	19:00											7
19-Mar-24	20:00											7
19-Mar-24	21:00											7
19-Mar-24	22:00											7
19-Mar-24	23:00	8.46	6		0		116		3		0	7
20-Mar-24	0:00	7.92	5		0		113		3		0	7
20-Mar-24	1:00	8.18	5		0		112		3		0	7
20-Mar-24	2:00	8.13	6	5.5	0		100		2		0	7
20-Mar-24	3:00	8.10	9	6.3	0		114		2		0	7
20-Mar-24	4:00	8.14	7	6.8	0		113		2		0	7
20-Mar-24	5:00	8.04	8	7.5	0		92		3		0	7
20-Mar-24	6:00	8.11	8	8.0	0		109		3		0	7
20-Mar-24	7:00	8.06	8	7.8	0		108		2		0	7
20-Mar-24	8:00	8.43	8	8.0	0		111		2		0	7
20-Mar-24	9:00	7.94	14	9.5	0		98		2		0	7
20-Mar-24	10:00	8.60	9	9.8	0		98		2		0	8
20-Mar-24	11:00	8.00	13	11.0	0		76		2		0	7
20-Mar-24	12:00	8.30	4	10.0	0		119		3		0	7
20-Mar-24	13:00	8.41	5	7.8	0		107		3		0	7
20-Mar-24	14:00	8.51	6	7.0	0		109		2		0	7
20-Mar-24	15:00	8.02	7	5.5	0		108		2		0	7
20-Mar-24	16:00	7.48	7	6.3	0		105		2		0	6
20-Mar-24	17:00	7.98	9	7.3	0		110		2		0	7
20-Mar-24	18:00	8.13	8	7.8	0		112		2		0	7
20-Mar-24	19:00	8.49	8	8.0	0		112		2		0	7
20-Mar-24	20:00	8.67	7	8.0	0		107		2		0	7
20-Mar-24	21:00	8.34	7	7.5	0		111		2		0	7
20-Mar-24	22:00	8.26	7	7.3	0	0.0	111	107	2	2.3	0	7
20-Mar-24	23:00	8.31	8	7.3	0	0.0	108	107	2	2.3	0	7
21-Mar-24	0:00	8.65	6	7.0	0	0.0	109	107	3	2.3	0	8
21-Mar-24	1:00	9.59	9	7.5	0	0.0	108	106	3	2.3	0	9
21-Mar-24	2:00	8.35	7	7.5	0	0.0	101	107	2	2.3	0	7
21-Mar-24	3:00	8.14	5	6.8	0	0.0	112	106	1	2.2	0	7
21-Mar-24	4:00	8.79	7	7.0	0	0.0	114	106	2	2.2	0	8
21-Mar-24	5:00	8.19	10	7.3	0	0.0	87	106	3	2.2	0	7
21-Mar-24	6:00	8.60	8	7.5	0	0.0	113	106	2	2.2	0	8
21-Mar-24	7:00	8.41	8	8.3	0	0.0	104	106	2	2.2	0	7

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
21-Mar-24	8:00	8.32	9	8.8	0	0.0	108	106	2	2.2	0	7
21-Mar-24	9:00	8.64	7	8.0	0	0.0	114	107	2	2.2	0	8
21-Mar-24	10:00	9.57	12	9.0	0	0.0	114	107	2	2.2	0	9
21-Mar-24	11:00	8.71	7	8.8	0	0.0	104	109	2	2.2	0	8
21-Mar-24	12:00	8.38	8	8.5	0	0.0	110	108	2	2.1	0	7
21-Mar-24	13:00	8.38	7	8.5	0	0.0	118	109	2	2.1	0	7
21-Mar-24	14:00	8.62	7	7.3	0	0.0	99	108	2	2.1	0	7
21-Mar-24	15:00	8.59	13	8.8	0	0.0	110	108	2	2.1	0	8
21-Mar-24	16:00	8.97	33	12.4	0	0.0	105	108	2	2.1	0	8
	Min	7.48	4	5.5	0	0	76	106	1	2.1	0	6
	Max	9.59	33	12.4	29	2.4	119	109	3	2.4	0	9
	Avg	8.37	8	8.0	0.77	0.39	108	108	2	2.2	0	7
	Std Dev	0.33	3.8	1.5	3.8	0.6	6.65	1.1	0.5	0.1	0	0.5

Note: All times are Eastern Standard Time