



Report:

Reworld Durham York Renewable Energy L.P.
Durham York Energy Centre 2025 Compliance Source Testing
in Accordance with Amended Environmental Compliance
Approval (ECA) No. 7306-8FDKNX

Date: August 15, 2025



Report:

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EXECUTIVE SUMMARY

Alliance Technical Group North, Inc. (Alliance) completed the annual compliance source testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between May 12 and July 10, 2025. The source 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 Alliance (formerly ORTECH) to date is provided below:

Test Program	Test Date	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
2024 Voluntary	December 2024	AST-2024-4547
2025 Compliance	May/July 2025	AST-2025-2049

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 source 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 Method TO-15
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	Alliance per US EPA Method 25A

Note due to acetone contamination, the aldehyde testing was repeated on July 10, 2025. Volumetric flowrate measurements were also conducted to facilitate emission rate calculations.

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 2024, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide. Note the DYEC CEMS data for the days when isokinetic testing was performed at each unit (May 12 to May 15, 2025) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. Concentration data measured by Alliance on May 12 and May 13, 2025, was used to assess 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 source 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)*	-	-	-	376	-
Average Combustion Zone Temp. (°C)*	-	-	-	1232	-
Steam (tonnes/day)*	-	-	-	800	-
MSW Combusted (tonnes/day)*	-	-	-	193	-
NO _x Reagent Injection Rate (liters/day)*	-	-	-	455	-
Carbon Injection (kg/day)*	-	-	-	113	-
Lime Injection (kg/day)*	-	-	-	3412	-
Filterable Particulate (mg/Rm ³) ⁽¹⁾	<0.24	<0.34	<0.29	<0.29	9
PM ₁₀ with Condensable (mg/Rm ³) ⁽¹⁾	<3.23	<2.72	<3.69	<3.21	-
PM _{2.5} with Condensable (mg/Rm ³) ⁽¹⁾	<2.94	<2.43	<3.40	<2.92	-
Hydrogen Fluoride (mg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.12	<0.11	-
Ammonia (mg/Rm ³) ⁽¹⁾	0.59	0.58	0.49	0.55	-
Cadmium (µg/Rm ³) ⁽¹⁾	0.031	0.041	0.014	0.029	7
Lead (µg/Rm ³) ⁽¹⁾	0.32	0.28	0.19	0.26	50
Mercury (µg/Rm ³) ⁽¹⁾	<0.13	<0.12	<0.14	<0.13	15
Antimony (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Arsenic (µg/Rm ³) ⁽¹⁾	<0.12	<0.12	<0.12	<0.12	-
Barium (µg/Rm ³) ⁽¹⁾	2.41	2.39	2.43	2.41	-
Beryllium (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Chromium (µg/Rm ³) ⁽¹⁾	0.55	1.42	0.66	0.88	-
Cobalt (µg/Rm ³) ⁽¹⁾	0.029	0.044	<0.049	<0.040	-
Copper (µg/Rm ³) ⁽¹⁾	2.63	1.69	1.68	2.00	-
Molybdenum (µg/Rm ³) ⁽¹⁾	4.22	4.14	4.05	4.14	-
Nickel (µg/Rm ³) ⁽¹⁾	0.51	0.87	0.63	0.67	-
Selenium (µg/Rm ³) ⁽¹⁾	0.48	<0.24	<0.24	<0.32	-
Silver (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Thallium (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Vanadium (µg/Rm ³) ⁽¹⁾	<0.12	<0.12	<0.12	<0.12	-
Zinc (µg/Rm ³) ⁽¹⁾	4.07	4.04	4.44	4.18	-
Dioxins and Furans (pg TEQ/Rm ³) ⁽³⁾	<2.60	<2.55	<2.53	<2.56	60
Total Chlorobenzenes (ng/Rm ³) ⁽¹⁾	<350	<374	<287	<337	-
Total Chlorophenols (ng/Rm ³) ⁽¹⁾	<168	<168	<171	<169	-
Total PAHs (ng/Rm ³) ⁽¹⁾	<860	<164	<648	<557	-
VOCs (µg/Rm ³) ⁽¹⁾	<69.1	<46.4	<65.1	<60.2	-
Aldehydes (µg/Rm ³) ⁽¹⁾	<239	<138	<135	<171	-
Total VOCs (µg/Rm ³) ^{(1) (4)}	<308	<184	<200	<231	-
Quench Inlet Organic Matter (THC) (ppm, dry) ⁽²⁾	0.65	1.33	0.03	0.67	50

* based on process data provided by Reworld

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

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

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

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

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

Parameter	Test No. 1	Test No. 2	Test No. 3	Average	In-Stack Limit
Total Power Output (MWh/day)*	-	-	-	376	-
Average Combustion Zone Temp. (°C)*	-	-	-	1229	-
Steam (tonnes/day)*	-	-	-	801	-
MSW Combusted (tonnes/day)*	-	-	-	197	-
NO _x Reagent Injection Rate (liters/day)*	-	-	-	466	-
Carbon Injection (kg/day)*	-	-	-	113	-
Lime Injection (kg/day)*	-	-	-	3523	-
Filterable Particulate (mg/Rm ³) ⁽¹⁾	<0.31	<0.41	<0.31	<0.34	9
PM ₁₀ with Condensable (mg/Rm ³) ⁽¹⁾	<2.89	<4.17	<3.52	<3.53	-
PM _{2.5} with Condensable (mg/Rm ³) ⁽¹⁾	<2.61	<3.89	<3.24	<3.25	-
Hydrogen Fluoride (mg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.12	<0.11	-
Ammonia (mg/Rm ³) ⁽¹⁾	0.46	0.48	0.50	0.48	-
Cadmium (µg/Rm ³) ⁽¹⁾	<0.022	0.027	<0.022	<0.024	7
Lead (µg/Rm ³) ⁽¹⁾	0.25	0.23	0.29	0.26	50
Mercury (µg/Rm ³) ⁽¹⁾	<0.13	<0.13	<0.12	<0.13	15
Antimony (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Arsenic (µg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.11	<0.11	-
Barium (µg/Rm ³) ⁽¹⁾	1.99	2.19	2.08	2.08	-
Beryllium (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Chromium (µg/Rm ³) ⁽¹⁾	0.49	0.48	0.46	0.48	-
Cobalt (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Copper (µg/Rm ³) ⁽¹⁾	1.43	1.67	1.33	1.48	-
Molybdenum (µg/Rm ³) ⁽¹⁾	3.73	3.83	3.71	3.76	-
Nickel (µg/Rm ³) ⁽¹⁾	0.39	0.51	0.34	0.41	-
Selenium (µg/Rm ³) ⁽¹⁾	<0.22	<0.23	<0.22	<0.22	-
Silver (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Thallium (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Vanadium (µg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.11	<0.11	-
Zinc (µg/Rm ³) ⁽¹⁾	2.61	3.08	1.79	2.49	-
Dioxins and Furans (pg TEQ/Rm ³) ⁽³⁾	<2.31	<2.52	<3.00	<2.61	60
Total Chlorobenzenes (ng/Rm ³) ⁽¹⁾	<280	<307	<334	<307	-
Total Chlorophenols (ng/Rm ³) ⁽¹⁾	<161	<164	<163	<163	-
Total PAHs (ng/Rm ³) ⁽¹⁾	<800	<1028	<684	<838	-
VOCs (µg/Rm ³) ⁽¹⁾	<50.9	<69.7	<44.8	<55.1	-
Aldehydes (µg/Rm ³) ⁽¹⁾	<197	<131	<149	<159	-
Total VOCs (µg/Rm ³) ^{(1) (4)}	<248	<201	<194	<214	-
Quench Inlet Organic Matter (THC) (ppm, dry) ⁽²⁾	0.47	0	0.02	0.16	50

* based on process data provided by Reworld

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

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

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

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

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

Boiler No.	Parameter	Minimum	Average	Maximum	In-Stack Limit
Boiler No. 1	Carbon Monoxide (mg/Rm ³) ⁽¹⁾	4.8	10.6	20.5	40
	Hydrogen Chloride (mg/Rm ³) ⁽²⁾	1.2	2.1	2.6	9
	Nitrogen Oxides (mg/Rm ³) ⁽²⁾	108	109	110	121
	Sulphur Dioxide (mg/Rm ³) ⁽²⁾	0.4	2.6	5.5	35
Boiler No. 2	Carbon Monoxide (mg/Rm ³) ⁽¹⁾	8.5	13.6	24.5	40
	Hydrogen Chloride (mg/Rm ³) ⁽²⁾	2.7	3.3	3.8	9
	Nitrogen Oxides (mg/Rm ³) ⁽²⁾	107	109	110	121
	Sulphur Dioxide (mg/Rm ³) ⁽²⁾	3.8	5.2	6.6	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 28) 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 source 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 795 tonnes of steam per day for each Boiler (approximately 98.5% 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

Alliance Technical Group North, Inc. (Alliance) completed the annual compliance source testing program at the Durham York Energy Centre (DYEC) located in Courtice, Ontario between May 12 and July 10, 2025. The source 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 Alliance (formerly ORTECH) to date is provided below:

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2022 Compliance	November/December 2022	22160
2023 Voluntary	April 2023	22230
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2024 Compliance	March 2024	22327
2024 Voluntary	December 2024	AST-2024-4547
2025 Compliance	May/July 2025	AST-2025-2049

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 was submitted to the MECP for review and approval. Provided in Appendix 3 is a copy of the Pre-Test Plan acceptance email received from the MECP, dated April 29, 2025, indicating acceptance of the proposed sampling strategy. A copy of the Amended ECA, 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 O ₂ /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 O ₂ /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 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 source 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 Method TO-15
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	Alliance per US EPA Method 25A

Since relative accuracy and system bias testing was conducted in August 2024, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide. Note the DYEC CEMS data for the days when isokinetic testing was performed at each unit (May 12 to May 15, 2025) was used to determine the minimum, average and maximum concentrations of the combustion gases listed in the ECA. Concentration data measured by Alliance on May 12 and May 13, 2025, was used to assess 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 (m³/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.

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 PM₁₀ 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.

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 m³/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. 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 H₂SO₄
- 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 m³/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.

4.6 Volatile Organic Compounds

Sampling for Volatile Organic Compounds was carried out using summa canisters following procedures described in US EPA Method TO-15, "Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)". Summa canister samples were collected from a single point in each duct. A forty-minute regulator was requested from the analytical laboratory. The actual sampling time ranged from One hundred and twelve to one hundred and eighty-seven minutes.

The sampling train components were cleaned using the procedures in US EPA TO-15.

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

A blank sample was analyzed for the program.

4.7 Aldehydes

Some of the compounds listed as VOC's (acetaldehyde, formaldehyde and acrolein) are more commonly classified as aldehydes. These compounds were captured in a separate test train in accordance with NCASI Method ISS/FP-A105.01.

Major components of the test train were as follows:

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

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

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

- Elapsed sampling time
- Dry gas meter volume
- Stack gas temperature
- Probe, oven, 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.

Note due to acetone contamination, the aldehyde testing was repeated on July 10, 2025.

4.8 Combustion Gases

In August 2024, 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 source testing program by the DYEC CEMS. Oxygen was also measured continuously by the DYEC CEMS at the Quench Inlet.

DYEC provided 1-hour average concentrations for each clock hour using the 1-minute combustion gas data measured by the DYEC CEMs during each isokinetic test day at each Boiler. The data measured by the DYEC CEMS, from May 12, 2025 at 00:00 to May 15, 2025 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 Alliance following the procedures detailed in US EPA Method 25A. Triplicate one-hour tests were conducted at the Quench Inlet and BH Outlet of each Boiler on May 12 and May 13, 2025. The total hydrocarbon data measured at the Quench Inlet sample locations was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA.

5. SAMPLE RECOVERY AND ANALYSIS

All sample analysis was performed by ALS Canada Ltd. Copies of Sample Logs/Chain of Custody Forms for all samples submitted for chemical analysis are provided in Appendix 10.

5.1 Particulate and Metals

Before loading of the field test trains commenced, recovery data sheets were prepared to record initial weights of the test train components. These sheets were also used during sample recovery to record final weights and determine moisture gains and sample volumes. The particulate and metals train recovery data sheets are provided in Appendix 11.

Following the conclusion of each test performed with the metals train, the probe was disconnected and all openings sealed with Teflon tape. The test trains, including the probes, were taken to the on-site 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 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, PM₁₀ 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 PM₁₀. The PM₁₀ cup and connecting parts were rinsed with acetone in a glass sample container to determine particulate less than PM₁₀ 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 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 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 Alliance 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 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 test, the canisters were capped and labeled. The canisters were sent to the analytical laboratory for volatile organic compound (VOC) analysis.

The collected samples are transferred to a pre-concentrator system and then thermally desorbed prior to injection into a GC-MS system for analysis.

The VOC 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 onsite 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 source testing programs, 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 source 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. The VOC canisters were cleaned and proven acceptable by the analytical laboratory prior to use.

A proof rinse of the sampling probes was collected and archived for future analysis if necessary.

The proof data for the semi-volatile organics glassware and VOC canisters 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 the 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 $120^{\circ}\text{C} \pm 14^{\circ}\text{C}$ 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 Reworld personnel to ensure it was operating as close as possible to the maximum continuous rating stated in the ECA. Reworld notified the sampling team when to commence sampling each day and if sampling should be paused due to issues with the process.

6.4 Sample Recovery, Handling and Custody

The sample identification scheme and system for handling and processing samples was initiated as part of the 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 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 number for sample identification.

The 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 Alliance personnel received as a record of the chain of custody for the samples.

6.5 Analytical Results

Alliance 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 Alliance and the modification was documented in the Pre-Test Plan approved by the MECP.

Analyses for the present source 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 3.4% well within the acceptable limit of less than $\pm 20\%$, for elements that are greater than 5 times the minimum detection limit.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 81.9-97.2%. 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 84.2-107%. The acceptable limit is 70-130% of the true value.

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

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

Barium, chromium, copper, lead, molybdenum and nickel were detected in the blank trains at levels greater than the limit of reporting. Chromium, copper 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. The relative percent difference was less than 2.0% well within the acceptable limit of less than $\pm 20\%$, for fractions that are greater than 5 times the minimum detection limit.
- A blank spike (performed as a pre-digestion spike) was analyzed with the test samples. All of the recovery results were between 90.3-97.8% within the acceptable limit of 90-110% of the true value.
- A matrix spike (performed as a post digestion spike) was analyzed with the test samples. All of the recovery results were between 87.1-95.3%, 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 1.3%, well within the acceptable limit of less than $\pm 20\%$ 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 100% for hydrogen chloride, 103% for hydrogen fluoride and 103% for ammonia, within the acceptable range of 90-110%.
- A matrix spike (spike confirmation) sample was analyzed with every 20 samples to confirm the identity of each peak. The recovery results of the matrix spike sample were 105% for hydrogen chloride, 100% for hydrogen fluoride and 96.4% 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.

The aldehyde samples collected on May 14, 2025 show high background levels of acetone. The acetone masked the target contaminant peaks and values could not be quantified for formaldehyde, acetaldehyde or acrolein. The source of the acetone contamination is unknown as the sampling trains were prepared and recovered in a separate recovery trailer that didn't contain solvents. The aldehyde sampling was repeated on July 10, 2025. Volumetric flowrate and moisture tests were conducted in conjunction with the aldehyde sampling to facilitate emission rate calculations.

A field spike sample was prepared by the analytical laboratory and analyzed with the test samples (Spike level = 12.5 µg). The recoveries were 15.5% for acrolein, 100% for formaldehyde and 120% for acetaldehyde.

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

The field blank showed low levels of acetaldehyde at levels similar to the test samples. Therefore, acetaldehyde levels in the test 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 56-104% 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 dioxins and furans, the recoveries of some of the field standards for Boiler No. 2 Test No. 2 and Test No. 3 were marginally below the method control limit. No significant impact on data quality is expected as a result.

For the chlorobenzenes and chlorophenols, the recoveries of many of the surrogates were below the method control limits. Sample target data, calculated via isotope dilution, is not expected to be biased where detected.

6.5.5 Volatile Organic Compound Analysis QA/QC

Acetone and toluene were detected in the field blank sample in quantities significantly higher than the analytical detection limit. The field blank sample was taken to the sampling location, opened and filled then recapped to provide background levels at the sampling location.

The analytical report includes the surrogate standards used. The surrogate recoveries for each of the surrogates should be between 70 - 130%. The recoveries were between 71.8 - 128%.

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 source testing program (May 12 to May 15, 2025) by the DYEC CEMS. Total hydrocarbon concentrations were also measured at the BH Outlet and Quench Inlet by Alliance on May 12 and May 13, 2025.

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.

The additional volumetric flowrate measurements conducted on July 10, 2025 are provided in Appendix 26.

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)	140	138
Moisture by Volume (%)	16.1	16.1
Velocity (m/s)	18.0	18.2
Static Pressure (kPa)	-2.25	-2.28
Absolute Pressure (kPa)	98.5	98.5
Carbon Dioxide by Volume (%)**	10.0	10.4
Oxygen by Volume (%)**	9.20	8.46

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

** dry basis, measured by DYEC CEMS

7.3 Volumetric Flowrate Data

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

Volumetric Flowrate	Boiler No. 1 BH Outlet*	Boiler No. 2 BH Outlet*
Actual Flowrate (m ³ /s)	26.6	26.9
Dry Reference Flowrate (Rm ³ /s)**	15.7	15.9
Dry Adjusted Flowrate (Rm ³ /s)***	18.5	20.0
Wet Reference Flowrate (Rm ³ /s)**	18.7	19.0

* 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)	<0.20	<0.26
Dry Reference Conc. (mg/Rm ³)*	<0.34	<0.44
Dry Adjusted Conc. (mg/Rm ³)**	<0.29	<0.34
Wet Reference Conc. (mg/Rm ³)*	<0.29	<0.37
Emission Rate (mg/s)	<5.46	<6.78

* at 25°C and 1 atmosphere

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

The ECA stipulates maximum in-stack limits for the emissions of various compounds including particulate matter. The average particulate dry adjusted concentration at the Boiler No. 1 BH Outlet (0.29 mg/Rm³, adjusted to 11% oxygen) and the Boiler No. 2 BH Outlet (<0.34 mg/Rm³, adjusted to 11% oxygen) were well below the maximum limit (9 mg/Rm³, 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 was <0.60 mg and <0.40 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. PM₁₀ 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	<0.73	<0.51	<0.52
Dry Reference Conc. (mg/Rm ³)*	<1.21	<1.23	<0.87	<0.88
Dry Adjusted Conc. (mg/Rm ³)**	<1.03	<0.98	<0.74	<0.70
Wet Reference Conc. (mg/Rm ³)*	<1.02	<1.04	<0.73	<0.74
Emission Rate (mg/s)	<18.4	<19.8	<13.2	<14.1

* 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)	0.72	0.96	0.78	0.94
Dry Reference Conc. (mg/Rm ³)*	1.24	1.61	1.33	1.58
Dry Adjusted Conc. (mg/Rm ³)**	1.06	1.29	1.13	1.26
Wet Reference Conc. (mg/Rm ³)*	1.04	1.36	1.12	1.33
Emission Rate (mg/s)	18.8	25.9	20.2	25.4

* 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 was <0.4 mg for the inorganic fraction and 0.7 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 PM₁₀ 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)	<2.21	<2.63	<2.01	<2.42
Dry Reference Conc. (mg/Rm ³)*	<3.78	<4.42	<3.43	<4.07
Dry Adjusted Conc. (mg/Rm ³)**	<3.21	<3.53	<2.92	<3.25
Wet Reference Conc. (mg/Rm ³)*	<3.17	<3.73	<2.88	<3.44
Emission Rate (mg/s)	<57.4	<71.0	<52.2	<65.4

* 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)	3.12	2.38	<0.079	<0.085	0.39	0.36
Dry Reference Conc. (mg/Rm ³)*	5.21	4.00	<0.13	<0.14	0.65	0.61
Dry Adjusted Conc. (mg/Rm ³)**	4.43	3.16	<0.11	<0.11	0.55	0.48
Wet Reference Conc. (mg/Rm ³)*	4.41	3.37	<0.11	<0.12	0.55	0.52
Emission Rate (mg/s)	83.6	61.5	<2.12	<2.20	10.4	9.41
Dry Adjusted Conc. (ppm)**	2.97	2.12	<0.14	<0.14	0.79	0.69

* 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 sample 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 May 12, 2025 at 00:00 to May 15, 2025 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)	-	10.3	10.3
	Carbon Monoxide (mg/Rm ³ , 4-hr)*	≤ 40	20.5	24.5
	Sulphur Dioxide (mg/Rm ³ , 24-hr)*	≤ 35	5.5	6.6
	Nitrogen Oxides (mg/Rm ³ , 24-hr)*	≤ 121	110	110
	Hydrogen Chloride (mg/Rm ³ , 24-hr)*	≤ 9	2.6	3.8
	Total Hydrocarbons (mg/Rm ³ , 1-hr)*	-	0	1.6
Quench Inlet	Oxygen (% , 1-hr)	≥ 6	6 (minimum)	6 (minimum)

* dry at reference conditions, adjusted to 11% oxygen

** dry at reference conditions

Total hydrocarbon concentration data was measured by Alliance on May 12 and May 13, 2025 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)*	-	0.91	0.67
Quench Inlet	Total Hydrocarbons (1-minute)*	-	0.67	0.16
	Total Hydrocarbons (10-minute)**	50	0.69	0.16

* 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 expressed on a dry basis as equivalent methane is provided in Appendix 27.

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. ($\mu\text{g}/\text{m}^3$)	0.020	<0.018
Dry Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	0.034	<0.030
Dry Adjusted Conc. ($\mu\text{g}/\text{Rm}^3$)**	0.029	<0.024
Wet Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	0.028	<0.026
Emission Rate (mg/s)	0.00054	<0.00047

* 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. ($\mu\text{g}/\text{m}^3$)	0.18	0.19
Dry Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	0.31	0.33
Dry Adjusted Conc. ($\mu\text{g}/\text{Rm}^3$)**	0.26	0.26
Wet Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	0.26	0.27
Emission Rate (mg/s)	0.0049	0.0051

* 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 $\mu\text{g}/\text{Rm}^3$, adjusted to 11% oxygen for cadmium and 50 $\mu\text{g}/\text{Rm}^3$, 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. ($\mu\text{g}/\text{m}^3$)	<0.090	<0.095
Dry Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	<0.15	<0.16
Dry Adjusted Conc. ($\mu\text{g}/\text{Rm}^3$)**	<0.13	<0.13
Wet Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	<0.13	<0.14
Emission Rate (mg/s)	<0.0024	<0.0025

* 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 $\mu\text{g}/\text{Rm}^3$, 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)	<0.0096	<0.011
Dry Reference Conc. (ng/Rm ³)*	<0.016	<0.018
Dry Adjusted Conc. (ng/Rm ³)**	<0.014	<0.015
Wet Reference Conc. (ng/Rm ³)*	<0.014	<0.015
Emission Rate (ng/s)	<0.026	<0.30

* 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)	<0.0052	<0.0079
Dry Reference Conc. (ng/Rm ³)*	<0.0090	<0.013
Dry Adjusted Conc. (ng/Rm ³)**	<0.0075	<0.011
Wet Reference Conc. (ng/Rm ³)*	<0.0075	<0.011
Emission Rate (ng/s)	<0.14	<0.22

* 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 train and in the laboratory blank were significant 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)	1.20	1.36
Dry Reference Conc. (pg TEQ/Rm ³)*	2.05	2.31
Dry Adjusted Conc. (pg TEQ/Rm ³)**	1.71	1.86
Wet Reference Conc. (pg TEQ/Rm ³)*	1.71	1.93
Emission Rate (ng TEQ/s)	0.032	0.037

* 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)*	<2.56	<2.61

* 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/Rm³, 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 C₆H₆. Chlorobenzene congener groups have the molecular formulae C₆H₅Cl, C₆H₄Cl₂, C₆H₃Cl₃, C₆H₂Cl₄, C₆HCl₅ and C₆Cl₆. 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 C₆H₅OH. Chlorophenol congener groups have the molecular formulae C₆H₄ClOH, C₆H₃Cl₂OH, C₆H₂Cl₃OH, C₆HCl₄OH and C₆Cl₅OH.

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)	<236	<224
Dry Reference Conc. (ng/Rm ³)*	<404	<380
Dry Adjusted Conc. (ng/Rm ³)**	<337	<307
Wet Reference Conc. (ng/Rm ³)*	<337	<318
Emission Rate (µg/s)	<6.37	<6.15

* at 25°C and 1 atmosphere

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

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

Chlorophenol congener and isomer analytical results and emission data is given in Table 61 to Table 69 for the BH Outlet of each Boiler.

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

The average total chlorophenol emission data is presented below:

Chlorophenol Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. (ng/m ³)	<118	<119
Dry Reference Conc. (ng/Rm ³)*	<202	<201
Dry Adjusted Conc. (ng/Rm ³)**	<169	<163
Wet Reference Conc. (ng/Rm ³)*	<169	<168
Emission Rate (µg/s)	<3.18	<3.26

* 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)	<391	<610
Dry Reference Conc. (ng/Rm ³)*	<670	<1032
Dry Adjusted Conc. (ng/Rm ³)**	<557	<838
Wet Reference Conc. (ng/Rm ³)*	<559	<863
Emission Rate (µg/s)	<10.5	<16.8

* 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)	47.3	74.8	63.5	30.2	<9.86	<10.7
Dry Reference Conc. (µg/Rm ³)*	81.5	124	109	50.0	<17.0	<17.8
Dry Adjusted Conc. (µg/Rm ³)**	66.7	103	90.0	41.3	<13.9	<14.7
Wet Reference Conc. (µg/Rm ³)*	66.8	105	89.7	42.4	<13.9	<15.1
Emission Rate (mg/s)	1.15	1.93	1.56	0.78	<0.24	<0.28

* at 25°C and 1 atmosphere

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

Acetaldehyde and formaldehyde were detected in the field 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 test runs were completed at each BH Outlet for volatile organic compounds. Volatile organic analysis data for the tests is provided in Table 82, 83 and Table 84. 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 is presented below:

VOC Emission Parameter	Boiler No. 1 BH Outlet	Boiler No. 2 BH Outlet
Actual Conc. ($\mu\text{g}/\text{m}^3$)	<42.1	<40.1
Dry Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	<72.1	<67.7
Dry Adjusted Conc. ($\mu\text{g}/\text{Rm}^3$)**	<60.2	<55.1
Wet Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	<60.2	<56.6
Emission Rate (mg/s)	<1.14	<1.11

* 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. ($\mu\text{g}/\text{Rm}^3$)*	<280	<259
Dry Adjusted Conc. ($\mu\text{g}/\text{Rm}^3$)**	<231	<214
Emission Rate (mg/s)	<4.09	<4.10

* at 25°C and 1 atmosphere

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

Analysis of blank summa canister 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 28. 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 May/July 2025 source 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 2% of the 24-hour standard with meteorological anomaly removal), 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 source test program. The 1-hour CEM System data was provided for the following process parameters at the BH Outlet sampling locations:

- Hydrogen Chloride (mg/Rm³, adjusted to 11% oxygen)
- Nitrogen Oxides (mg/Rm³, adjusted to 11% oxygen)
- Sulphur Dioxide (mg/Rm³, adjusted to 11% oxygen)
- Carbon Monoxide (mg/Rm³, adjusted to 11% oxygen)
- Oxygen (% volume, dry)
- Total Hydrocarbons (mg/Rm³, adjusted to 11% oxygen)

DYEC provided 1-hour average concentrations for each clock hour using the 1-minute combustion gas data measured by the DYEC CEMs during each isokinetic test day at each Boiler. DYEC CEMS data was provided from May 12 to May 15, 2025 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 29.

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 Alliance and can be provided upon request.

The facility process data was also supplied by DYEC personnel for each test day. Hourly process data has been retained by Reworld 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
12-May-25	379	0	0	1234	1248	799	798	188	192	430	357	113	114	3316	3487
13-May-25	392	0	0	1244	1248	799	799	198	198	563	519	113	112	3423	3468
14-May-25	364	0	0	1247	1241	795	795	194	195	435	629	113	113	3755	3734
15-May-25	380	0	0	1214	1223	799	804	196	204	436	512	113	113	3361	3431
Average	379	0	0	1235	1240	798	799	194	197	466	504	113	113	3464	3530
10-Jul-25	364	0	0	1220	1185	809	807	191	198	410	312	113	112	3207	3496

* 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 source 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 795 tonnes of steam per day for each Boiler (approximately 98.5% 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 2024, the data recorded by the DYEC CEMS was used to assess against the in-stack emissions limits detailed in Schedule C of the ECA for hydrochloric acid, sulphur dioxide, nitrogen oxides and carbon monoxide. Note the DYEC CEMS data for the days when isokinetic testing was performed at each unit (May 12 to May 15, 2025) 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 Alliance on May 12 and May 13, 2025 at the Quench Inlet and BH Outlet sampling locations. The total hydrocarbon data measured by Alliance 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)*	-	-	-	376	-
Average Combustion Zone Temp. (°C)*	-	-	-	1232	-
Steam (tonnes/day)*	-	-	-	800	-
MSW Combusted (tonnes/day)*	-	-	-	193	-
NO _x Reagent Injection Rate (liters/day)*	-	-	-	455	-
Carbon Injection (kg/day)*	-	-	-	113	-
Lime Injection (kg/day)*	-	-	-	3412	-
Filterable Particulate (mg/Rm ³) ⁽¹⁾	<0.24	<0.34	<0.29	<0.29	9
PM ₁₀ with Condensable (mg/Rm ³) ⁽¹⁾	<3.23	<2.72	<3.69	<3.21	-
PM _{2.5} with Condensable (mg/Rm ³) ⁽¹⁾	<2.94	<2.43	<3.40	<2.92	-
Hydrogen Fluoride (mg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.12	<0.11	-
Ammonia (mg/Rm ³) ⁽¹⁾	0.59	0.58	0.49	0.55	-
Cadmium (µg/Rm ³) ⁽¹⁾	0.031	0.041	0.014	0.029	7
Lead (µg/Rm ³) ⁽¹⁾	0.32	0.28	0.19	0.26	50
Mercury (µg/Rm ³) ⁽¹⁾	<0.13	<0.12	<0.14	<0.13	15
Antimony (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Arsenic (µg/Rm ³) ⁽¹⁾	<0.12	<0.12	<0.12	<0.12	-
Barium (µg/Rm ³) ⁽¹⁾	2.41	2.39	2.43	2.41	-
Beryllium (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Chromium (µg/Rm ³) ⁽¹⁾	0.55	1.42	0.66	0.88	-
Cobalt (µg/Rm ³) ⁽¹⁾	0.029	0.044	<0.049	<0.040	-
Copper (µg/Rm ³) ⁽¹⁾	2.63	1.69	1.68	2.00	-
Molybdenum (µg/Rm ³) ⁽¹⁾	4.22	4.14	4.05	4.14	-
Nickel (µg/Rm ³) ⁽¹⁾	0.51	0.87	0.63	0.67	-
Selenium (µg/Rm ³) ⁽¹⁾	0.48	<0.24	<0.24	<0.32	-
Silver (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Thallium (µg/Rm ³) ⁽¹⁾	<0.048	<0.049	<0.049	<0.048	-
Vanadium (µg/Rm ³) ⁽¹⁾	<0.12	<0.12	<0.12	<0.12	-
Zinc (µg/Rm ³) ⁽¹⁾	4.07	4.04	4.44	4.18	-
Dioxins and Furans (pg TEQ/Rm ³) ⁽³⁾	<2.60	<2.55	<2.53	<2.56	60
Total Chlorobenzenes (ng/Rm ³) ⁽¹⁾	<350	<374	<287	<337	-
Total Chlorophenols (ng/Rm ³) ⁽¹⁾	<168	<168	<171	<169	-
Total PAHs (ng/Rm ³) ⁽¹⁾	<860	<164	<648	<557	-
VOCs (µg/Rm ³) ⁽¹⁾	<69.1	<46.4	<65.1	<60.2	-
Aldehydes (µg/Rm ³) ⁽¹⁾	<239	<138	<135	<171	-
Total VOCs (µg/Rm ³) ^{(1) (4)}	<308	<184	<200	<231	-
Quench Inlet Organic Matter (THC) (ppm, dry) ⁽²⁾	0.65	1.33	0.03	0.67	50

* based on process data provided by Reworld

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

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

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

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

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

Parameter	Test No. 1	Test No. 2	Test No. 3	Average	In-Stack Limit
Total Power Output (MWh/day)*	-	-	-	376	-
Average Combustion Zone Temp. (°C)*	-	-	-	1229	-
Steam (tonnes/day)*	-	-	-	801	-
MSW Combusted (tonnes/day)*	-	-	-	197	-
NO _x Reagent Injection Rate (liters/day)*	-	-	-	466	-
Carbon Injection (kg/day)*	-	-	-	113	-
Lime Injection (kg/day)*	-	-	-	3523	-
Filterable Particulate (mg/Rm ³) ⁽¹⁾	<0.31	<0.41	<0.31	<0.34	9
PM ₁₀ with Condensable (mg/Rm ³) ⁽¹⁾	<2.89	<4.17	<3.52	<3.53	-
PM _{2.5} with Condensable (mg/Rm ³) ⁽¹⁾	<2.61	<3.89	<3.24	<3.25	-
Hydrogen Fluoride (mg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.12	<0.11	-
Ammonia (mg/Rm ³) ⁽¹⁾	0.46	0.48	0.50	0.48	-
Cadmium (µg/Rm ³) ⁽¹⁾	<0.022	0.027	<0.022	<0.024	7
Lead (µg/Rm ³) ⁽¹⁾	0.25	0.23	0.29	0.26	50
Mercury (µg/Rm ³) ⁽¹⁾	<0.13	<0.13	<0.12	<0.13	15
Antimony (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Arsenic (µg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.11	<0.11	-
Barium (µg/Rm ³) ⁽¹⁾	1.99	2.19	2.08	2.08	-
Beryllium (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Chromium (µg/Rm ³) ⁽¹⁾	0.49	0.48	0.46	0.48	-
Cobalt (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Copper (µg/Rm ³) ⁽¹⁾	1.43	1.67	1.33	1.48	-
Molybdenum (µg/Rm ³) ⁽¹⁾	3.73	3.83	3.71	3.76	-
Nickel (µg/Rm ³) ⁽¹⁾	0.39	0.51	0.34	0.41	-
Selenium (µg/Rm ³) ⁽¹⁾	<0.22	<0.23	<0.22	<0.22	-
Silver (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Thallium (µg/Rm ³) ⁽¹⁾	<0.045	<0.046	<0.044	<0.045	-
Vanadium (µg/Rm ³) ⁽¹⁾	<0.11	<0.11	<0.11	<0.11	-
Zinc (µg/Rm ³) ⁽¹⁾	2.61	3.08	1.79	2.49	-
Dioxins and Furans (pg TEQ/Rm ³) ⁽³⁾	<2.31	<2.52	<3.00	<2.61	60
Total Chlorobenzenes (ng/Rm ³) ⁽¹⁾	<280	<307	<334	<307	-
Total Chlorophenols (ng/Rm ³) ⁽¹⁾	<161	<164	<163	<163	-
Total PAHs (ng/Rm ³) ⁽¹⁾	<800	<1028	<684	<838	-
VOCs (µg/Rm ³) ⁽¹⁾	<50.9	<69.7	<44.8	<55.1	-
Aldehydes (µg/Rm ³) ⁽¹⁾	<197	<131	<149	<159	-
Total VOCs (µg/Rm ³) ^{(1) (4)}	<248	<201	<194	<214	-
Quench Inlet Organic Matter (THC) (ppm, dry) ⁽²⁾	0.47	0	0.02	0.16	50

* based on process data provided by Reworld

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

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

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

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

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

Boiler No.	Parameter	Minimum	Average	Maximum	In-Stack Limit
Boiler No. 1	Carbon Monoxide (mg/Rm ³) ⁽¹⁾	4.8	10.6	20.5	40
	Hydrogen Chloride (mg/Rm ³) ⁽²⁾	1.2	2.1	2.6	9
	Nitrogen Oxides (mg/Rm ³) ⁽²⁾	108	109	110	121
	Sulphur Dioxide (mg/Rm ³) ⁽²⁾	0.4	2.6	5.5	35
Boiler No. 2	Carbon Monoxide (mg/Rm ³) ⁽¹⁾	8.5	13.6	24.5	40
	Hydrogen Chloride (mg/Rm ³) ⁽²⁾	2.7	3.3	3.8	9
	Nitrogen Oxides (mg/Rm ³) ⁽²⁾	107	109	110	121
	Sulphur Dioxide (mg/Rm ³) ⁽²⁾	3.8	5.2	6.6	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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1
Isokinetic Sampling Train Test Schedules

Particulate and Metals Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 12, 2025	9:32	12:41	180
2	May 12, 2025	13:24	16:31	180
3	May 13, 2025	15:12	18:18	180

Particle Size Distribution Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 13, 2025	8:02	10:06	120
2	May 13, 2025	10:50	12:54	120
3	May 13, 2025	13:35	15:38	120

Acid Gases Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 12, 2025	9:34	10:34	60
2	May 12, 2025	11:15	12:15	60
3	May 12, 2025	13:07	14:07	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 14, 2025	8:15	12:24	240
2	May 14, 2025	13:09	17:23	240
3	May 15, 2025	7:51	11:59	240

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

TABLE 2
Reworld Durham York Renewable Energy L.P.
Boiler No. 1
Organic Compounds Test Schedules

Acrolein and Aldehydes Trains

Test Number	Test Date	Sampling Period		Sampling Time min
		Start	Finish	
1	July 10, 2025	10:30	11:30	60
2	July 10, 2025	11:51	12:51	60
3	July 10, 2025	13:14	14:14	60

Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time min
		Start	Finish	
1	May 14, 2025	8:14	10:06	112
2	May 14, 2025	10:08	12:20	132
3	May 14, 2025	14:16	16:13	117

Total Hydrocarbons Trains

Sampling Location	Test Number	Test Date	Sampling Period		Sampling Time min
			Start	Finish	
BH Outlet	1	May 12, 2025	10:55	11:55	60
BH Outlet	2	May 12, 2025	12:25	13:25	60
BH Outlet	3	May 12, 2025	13:50	14:50	60
Quench Inlet	1	May 12, 2025	10:55	11:55	60
Quench Inlet	2	May 12, 2025	12:25	13:25	60
Quench Inlet	3	May 12, 2025	13:50	14:50	60

TABLE 3
Reworld Durham York Renewable Energy L.P.
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	0.840	0.983	6.20	3.514	99.8
2	0.840	0.983	6.20	3.538	98.9
3	0.840	0.983	6.20	3.547	100.3

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	0.840	1.000	4.51	1.143	97.7
2	0.840	1.000	4.51	1.144	96.9
3	0.840	1.000	4.51	1.174	98.9

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm ³ *	Percentage of Isokineticity %
1	0.840	0.990	6.25	1.149	98.0
2	0.840	0.990	6.25	1.199	100.4
3	0.840	0.990	6.25	1.192	99.4

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	0.840	0.990	6.25	4.758	100.4
2	0.840	0.990	6.25	4.810	101.0
3	0.840	0.990	6.25	4.662	100.4

* Dry at 25°C and 1 atmosphere

TABLE 4
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Stack Gas Physical Parameters

Particulate and Metals Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	140	15.6	18.1	-2.09	99.2	10.1	9.15
2	138	15.1	18.3	-2.09	99.0	9.92	9.45
3	139	16.3	18.5	-2.37	98.3	9.82	9.40
Average	139	15.7	18.3	-2.18	98.8	9.94	9.33

Particle Size Distribution Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	142	15.1	17.4	-2.37	98.5	10.1	9.10
2	142	15.4	17.4	-2.37	98.5	10.1	9.13
3	142	17.5	17.8	-2.37	98.4	9.73	9.48
Average	142	16.0	17.5	-2.37	98.5	10.0	9.24

Acid Gases Trains **

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	142	14.5	17.6	-2.09	99.3	10.4	8.79
2	142	16.2	18.4	-2.09	99.2	9.94	9.36
3	141	15.8	18.3	-2.09	99.0	9.88	9.57
Average	142	15.5	18.1	-2.09	99.2	10.1	9.24

Semi-Volatile Organics Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	140	16.3	18.3	-2.17	98.5	10.2	9.03
2	140	16.7	18.5	-2.17	98.3	10.0	9.12
3	139	16.6	18.0	-2.27	97.9	9.96	8.98
Average	140	16.5	18.3	-2.20	98.2	10.1	9.04

Acrolein and Aldehydes Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	132	18.1	16.6	-2.35	97.8	10.3	8.95
2	134	18.1	16.3	-2.35	97.8	10.6	8.41
3	133	18.1	16.7	-2.35	97.8	10.0	9.06
Average	133	18.1	16.5	-2.35	97.8	10.3	8.81

* Dry basis, measured by the DYEC CEMS

** Sampling was conducted isokinetically on a single traverse in the duct.

TABLE 5
Reworld Durham York Renewable Energy L.P.
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	26.8	16.0	18.9	18.9
2	27.0	16.2	18.8	19.1
3	27.3	16.0	18.6	19.2
Average	27.0	16.1	18.8	19.1

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	25.8	15.3	18.2	18.0
2	25.8	15.2	18.1	18.0
3	26.2	15.1	17.4	18.3
Average	25.9	15.2	17.9	18.1

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	26.0	15.7	19.2	18.3
2	27.1	16.0	18.6	19.1
3	27.1	16.0	18.4	19.0
Average	26.7	15.9	18.7	18.8

Semi-Volatile Organics Trains

Test No.	Actual Flowrate m ³ /s	Dry Reference Flowrate Rm ³ /s *	Dry Adjusted Flowrate Rm ³ /s **	Wet Reference Flowrate Rm ³ /s*
1	27.0	15.8	19.0	18.9
2	27.3	15.9	18.9	19.1
3	26.7	15.5	18.7	18.6
Average	27.0	15.8	18.9	18.9

Acrolein and Aldehydes Trains

Test No.	Actual Flowrate m ³ /s	Dry Reference Flowrate Rm ³ /s *	Dry Adjusted Flowrate Rm ³ /s **	Wet Reference Flowrate Rm ³ /s*
1	24.6	14.3	17.3	17.4
2	24.0	13.9	17.5	17.0
3	24.7	14.3	17.1	17.5
Average	24.4	14.2	17.3	17.3

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Particulate Emission Data

Test No.	Particulate Collected			Dry Gas Volume Sampled Rm ³ *	Actual mg/m ³	Particulate Concentration			Particulate Emission Rate mg/s
	Main Filter	Probe Rinse	Total			Dry Reference	Dry Adjusted	Wet Reference	
	mg	mg	mg			mg/Rm ³ *	mg/Rm ³ **	mg/Rm ³ *	
1	<0.6	0.4	<1.0	3.514	<0.17	<0.28	<0.24	<0.24	<4.54
2	<0.6	0.8	<1.4	3.538	<0.24	<0.40	<0.34	<0.34	<6.42
3	<0.6	0.6	<1.2	3.547	<0.20	<0.34	<0.29	<0.28	<5.42
Average					<0.20	<0.34	<0.29	<0.29	<5.46
Blank	<0.6	<0.4	<1.0						

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 7
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
PM_{2.5} and PM₁₀ Emission Data

PM_{2.5}

	Total	Dry Volume	PM _{2.5} Concentration				Emission
Test	Collected	Sampled	Actual	Dry Reference	Dry Adjusted	Wet Reference	Rate
No.	mg	Rm ³ *	mg/m ³	mg/Rm ³ *	mg/Rm ³ **	mg/Rm ³ *	mg/s
1	<1.0	1.143	<0.52	<0.87	<0.73	<0.74	<13.3
2	<1.0	1.144	<0.52	<0.87	<0.74	<0.74	<13.3
3	<1.0	1.174	<0.49	<0.85	<0.74	<0.70	<12.9
Average			<0.51	<0.87	<0.74	<0.73	<13.2
Blank	<1.0						

PM₁₀

	Total	Dry Volume	PM ₁₀ Concentration				Emission
Test	Collected	Sampled	Actual	Dry Reference	Dry Adjusted	Wet Reference	Rate
No.	mg	Rm ^{3*}	mg/m ³	mg/Rm ^{3*}	mg/Rm ^{3**}	mg/Rm ^{3*}	mg/s
1	<1.4	1.143	<0.73	<1.22	<1.03	<1.04	<18.7
2	<1.4	1.144	<0.72	<1.22	<1.03	<1.04	<18.6
3	<1.4	1.174	<0.69	<1.19	<1.03	<0.98	<18.0
Average			<0.71	<1.21	<1.03	<1.02	<18.4
Blank	<1.4						

* 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
Reworld Durham York Renewable Energy L.P.
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	1.3	1.143	0.67	1.14	0.95	0.97	17.3
2	1.0	1.144	0.52	0.87	0.74	0.74	13.3
3	2.0	1.174	0.98	1.70	1.48	1.41	25.7
Average			0.72	1.24	1.06	1.04	18.8
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	1.7	1.143	0.88	1.49	1.25	1.26	22.7
2	1.3	1.144	0.67	1.14	0.96	0.96	17.3
3	1.6	1.174	0.78	1.36	1.18	1.12	20.6
Average			0.78	1.33	1.13	1.12	20.2
Blank	0.7						

* 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 9
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Halides and Ammonia Emission Data

Hydrogen Chloride

Test No.	HCl Collected	Dry Volume Sampled	Hydrogen Chloride Concentration				HCl Emission Rate
	mg	Rm ³ *	Actual mg/m ³	Dry Reference mg/Rm ³ *	Dry Adjusted mg/Rm ^{3**}	Wet Reference mg/Rm ³ *	mg/s
1	6.53	1.149	3.39	5.68	4.79	4.80	90.7
2	6.48	1.199	3.22	5.40	4.55	4.56	86.3
3	5.43	1.192	2.74	4.56	3.94	3.87	73.9
Average			3.12	5.21	4.43	4.41	83.6
Blank	<0.154						

Hydrogen Fluoride

Test No.	HF Collected	Dry Volume Sampled	Hydrogen Fluoride Concentration				HF Emission Rate
	mg	Rm ³ *	Actual mg/m ³	Dry Reference mg/Rm ³ *	Dry Adjusted mg/Rm ^{3**}	Wet Reference mg/Rm ³ *	mg/s
1	<0.155	1.149	<0.080	<0.13	<0.11	<0.11	<2.15
2	<0.153	1.199	<0.076	<0.13	<0.11	<0.11	<2.04
3	<0.160	1.192	<0.081	<0.13	<0.12	<0.11	<2.18
Average			<0.079	<0.13	<0.11	<0.11	<2.12
Blank	<0.106						

Ammonia

Test No.	Ammonia Collected	Dry Volume Sampled	Ammonia Concentration				Ammonia Emission Rate
	mg	Rm ³ *	Actual mg/m ³	Dry Reference mg/Rm ³ *	Dry Adjusted mg/Rm ^{3**}	Wet Reference mg/Rm ³ *	mg/s
1	0.799	1.149	0.41	0.70	0.59	0.59	11.1
2	0.823	1.199	0.41	0.69	0.58	0.58	11.0
3	0.669	1.192	0.34	0.56	0.49	0.48	9.10
Average			0.39	0.65	0.55	0.55	10.4
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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1
Combustion Gas Analyses

Data measured by the DYEC CEMS from May 12 to May 15, 2025

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (% , 1 hr Avg)	8.56	9.22	10.26
BH Outlet	Carbon Monoxide (mg/Rm ³ , 1 hr Avg) *	4	11	32
BH Outlet	Carbon Monoxide (mg/Rm ³ , 4 hr Avg) *	4.8	10.6	20.5
BH Outlet	Sulphur Dioxide (mg/Rm ³ , 1 hr Avg) *	0	2.2	57
BH Outlet	Sulphur Dioxide (mg/Rm ³ , 24 hr Avg) *	0.4	2.6	5.5
BH Outlet	Nitrogen Oxides (mg/Rm ³ , 1 hr Avg) *	97	109	123
BH Outlet	Nitrogen Oxides (mg/Rm ³ , 24 hr Avg) *	108	109	110
BH Outlet	Hydrogen Chloride (mg/Rm ³ , 1 hr Avg) *	0	2	6
BH Outlet	Hydrogen Chloride (mg/Rm ³ , 24 hr Avg) *	1.2	2.1	2.6
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 Alliance CEMS on May 12, 2025

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	1.20	5.24
BH Outlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.84	7.70
BH Outlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.69	4.79
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.91	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.65	7.86
Quench Inlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	1.33	24.2
Quench Inlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.03	0.35
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.67	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.68	2.10
Quench Inlet	2	Total Hydrocarbons (ppm dry, 10-min Avg)	0	1.37	5.09
Quench Inlet	3	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.02	0.20
Average		Total Hydrocarbons (ppm dry, 10-min Avg)		0.69	

* Reference conditions, dry basis adjusted to 11% oxygen

TABLE 11
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Metals Analyses Test No. 1

Metal	Probe & Filter	Impingers	Total
	Hydrofluoric Acid Digest	& Rinses	Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	10.0	<2.5	10.0
Beryllium	<0.20	<0.10	<0.20
Cadmium	0.13	<0.050	0.13
Chromium	2.30	<0.50	2.30
Cobalt	<0.20	0.12	0.12
Copper	3.00	7.92	10.9
Lead	0.61	0.70	1.31
Mercury *	<0.022	<0.532	<0.53
Molybdenum	17.5	<0.10	17.5
Nickel	1.77	0.35	2.12
Selenium	<2.0	2.00	2.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	12.2	4.70	16.9
Total			<65.6

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Metals Analyses Test No. 2

Metal	Probe & Filter	Impingers	Total
	Hydrofluoric Acid Digest	& Rinses	Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	9.80	<2.5	9.80
Beryllium	<0.20	<0.10	<0.20
Cadmium	0.17	<0.050	0.17
Chromium	5.30	0.55	5.85
Cobalt	<0.20	0.18	0.18
Copper	3.10	3.84	6.94
Lead	0.58	0.56	1.14
Mercury *	<0.022	<0.495	<0.50
Molybdenum	17.0	<0.10	17.0
Nickel	2.13	1.43	3.56
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	11.2	5.40	16.6
Total			<64.5

* Includes the permanganate impingers

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

TABLE 13
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Metals Analyses Test No. 3

Metal	Probe & Filter	Impingers	Total
	Hydrofluoric Acid Digest	& Rinses	Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	10.0	<2.5	10.0
Beryllium	<0.20	<0.10	<0.20
Cadmium	<0.10	0.057	0.057
Chromium	2.10	0.62	2.72
Cobalt	<0.20	<0.10	<0.20
Copper	3.30	3.63	6.93
Lead	<0.50	0.79	0.79
Mercury *	<0.022	<0.578	<0.58
Molybdenum	16.7	<0.10	16.7
Nickel	1.63	0.98	2.61
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	9.10	9.20	18.3
Total			<61.7

* Includes the permanganate impingers

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

TABLE 14
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 1

Metal	Total Collected μg	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Antimony	<0.20	<0.034	<0.057	<0.048	<0.048	<0.00091
Arsenic	<0.50	<0.085	<0.14	<0.12	<0.12	<0.0023
Barium	10.0	1.70	2.85	2.41	2.41	0.046
Beryllium	<0.20	<0.034	<0.057	<0.048	<0.048	<0.00091
Cadmium	0.13	0.022	0.037	0.031	0.031	0.00059
Chromium	2.30	0.39	0.65	0.55	0.55	0.010
Cobalt	0.12	0.020	0.034	0.029	0.029	0.00055
Copper	10.9	1.86	3.11	2.63	2.63	0.050
Lead	1.31	0.22	0.37	0.32	0.32	0.0060
Mercury	<0.53	<0.090	<0.15	<0.13	<0.13	<0.0024
Molybdenum	17.5	2.97	4.98	4.22	4.22	0.080
Nickel	2.12	0.36	0.60	0.51	0.51	0.0097
Selenium	2.00	0.34	0.57	0.48	0.48	0.0091
Silver	<0.20	<0.034	<0.057	<0.048	<0.048	<0.00091
Thallium	<0.20	<0.034	<0.057	<0.048	<0.048	<0.00091
Vanadium	<0.50	<0.085	<0.14	<0.12	<0.12	<0.0023
Zinc	16.9	2.87	4.81	4.07	4.07	0.077
Total	<65.6	<11.2	<18.7	<15.8	<15.8	<0.30

Dry Gas Volume Sampled (Rm^3^*) :	3.514
Actual Flowrate (m^3/s) :	26.8
Dry Reference Flowrate (Rm^3/s^*) :	16.0
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	18.9
Wet Reference Flowrate (Rm^3/s^*) :	18.9

* At 25°C and 1 atmosphere

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

TABLE 15
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 2

Metal	Total Collected μg	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Antimony	<0.20	<0.034	<0.057	<0.049	<0.048	<0.00092
Arsenic	<0.50	<0.085	<0.14	<0.12	<0.12	<0.0023
Barium	9.80	1.66	2.77	2.39	2.35	0.045
Beryllium	<0.20	<0.034	<0.057	<0.049	<0.048	<0.00092
Cadmium	0.17	0.029	0.048	0.041	0.041	0.00078
Chromium	5.85	0.99	1.65	1.42	1.40	0.027
Cobalt	0.18	0.031	0.051	0.044	0.043	0.00082
Copper	6.94	1.18	1.96	1.69	1.66	0.032
Lead	1.14	0.19	0.32	0.28	0.27	0.0052
Mercury	<0.50	<0.084	<0.14	<0.12	<0.12	<0.0023
Molybdenum	17.0	2.88	4.80	4.14	4.08	0.078
Nickel	3.56	0.60	1.01	0.87	0.85	0.016
Selenium	<1.00	<0.17	<0.28	<0.24	<0.24	<0.0046
Silver	<0.20	<0.034	<0.057	<0.049	<0.048	<0.00092
Thallium	<0.20	<0.034	<0.057	<0.049	<0.048	<0.00092
Vanadium	<0.50	<0.085	<0.14	<0.12	<0.12	<0.0023
Zinc	16.6	2.82	4.69	4.04	3.98	0.076
Total	<64.5	<10.9	<18.2	<15.7	<15.5	<0.30

Dry Gas Volume Sampled (Rm^3^*) :	3.538
Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s^*) :	16.2
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	18.8
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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Metals Emission Data Test No. 3

Metal	Total Collected μg	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Antimony	<0.20	<0.033	<0.056	<0.049	<0.047	<0.00090
Arsenic	<0.50	<0.083	<0.14	<0.12	<0.12	<0.0023
Barium	10.0	1.65	2.82	2.43	2.35	0.045
Beryllium	<0.20	<0.033	<0.056	<0.049	<0.047	<0.00090
Cadmium	0.057	0.0094	0.016	0.014	0.013	0.00026
Chromium	2.72	0.45	0.77	0.66	0.64	0.012
Cobalt	<0.20	<0.033	<0.056	<0.049	<0.047	<0.00090
Copper	6.93	1.15	1.95	1.68	1.63	0.031
Lead	0.79	0.13	0.22	0.19	0.19	0.0036
Mercury	<0.58	<0.096	<0.16	<0.14	<0.14	<0.0026
Molybdenum	16.7	2.76	4.71	4.05	3.92	0.075
Nickel	2.61	0.43	0.74	0.63	0.61	0.012
Selenium	<1.00	<0.17	<0.28	<0.24	<0.23	<0.0045
Silver	<0.20	<0.033	<0.056	<0.049	<0.047	<0.00090
Thallium	<0.20	<0.033	<0.056	<0.049	<0.047	<0.00090
Vanadium	<0.50	<0.083	<0.14	<0.12	<0.12	<0.0023
Zinc	18.3	3.02	5.16	4.44	4.30	0.083
Total	<61.7	<10.2	<17.4	<15.0	<14.5	<0.28

Dry Gas Volume Sampled (Rm^3^*) :	3.547
Actual Flowrate (m^3/s) :	27.3
Dry Reference Flowrate (Rm^3/s^*) :	16.0
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	18.6
Wet Reference Flowrate (Rm^3/s^*) :	19.2

* At 25°C and 1 atmosphere

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

TABLE 17
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Metal Actual Concentrations

Metal	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	µg/m ³	µg/m ³	µg/m ³	µg/m ³	%
Antimony	<0.034	<0.034	<0.033	<0.034	1.6
Arsenic	<0.085	<0.085	<0.083	<0.084	1.6
Barium	1.70	1.66	1.65	1.67	1.5
Beryllium	<0.034	<0.034	<0.033	<0.034	1.6
Cadmium	0.022	0.029	0.0094	0.020	49.0
Chromium	0.39	0.99	0.45	0.61	54.3
Cobalt	0.020	0.031	<0.033	<0.028	23.9
Copper	1.86	1.18	1.15	1.39	28.8
Lead	0.22	0.19	0.13	0.18	25.8
Mercury	<0.090	<0.084	<0.096	<0.090	6.4
Molybdenum	2.97	2.88	2.76	2.87	3.7
Nickel	0.36	0.60	0.43	0.47	26.9
Selenium	0.34	<0.17	<0.17	<0.22	44.3
Silver	<0.034	<0.034	<0.033	<0.034	1.6
Thallium	<0.034	<0.034	<0.033	<0.034	1.6
Vanadium	<0.085	<0.085	<0.083	<0.084	1.6
Zinc	2.87	2.82	3.02	2.90	3.7
Total	<11.2	<10.9	<10.2	<10.8	4.7

TABLE 18
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	µg/Rm ³ *	µg/Rm ³ *	µg/Rm ³ *	
Antimony	<0.057	<0.057	<0.056	<0.057	0.5
Arsenic	<0.14	<0.14	<0.14	<0.14	0.5
Barium	2.85	2.77	2.82	2.81	1.4
Beryllium	<0.057	<0.057	<0.056	<0.057	0.5
Cadmium	0.037	0.048	0.016	0.034	48.2
Chromium	0.65	1.65	0.77	1.02	53.4
Cobalt	0.034	0.051	<0.056	<0.047	24.6
Copper	3.11	1.96	1.95	2.34	28.4
Lead	0.37	0.32	0.22	0.31	25.0
Mercury	<0.15	<0.14	<0.16	<0.15	7.6
Molybdenum	4.98	4.80	4.71	4.83	2.9
Nickel	0.60	1.01	0.74	0.78	26.3
Selenium	0.57	<0.28	<0.28	<0.38	43.8
Silver	<0.057	<0.057	<0.056	<0.057	0.5
Thallium	<0.057	<0.057	<0.056	<0.057	0.5
Vanadium	<0.14	<0.14	<0.14	<0.14	0.5
Zinc	4.81	4.69	5.16	4.89	5.0
Total	<18.7	<18.2	<17.4	<18.1	3.6

* At 25°C and 1 atmosphere

TABLE 19
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Metal Dry Adjusted Concentrations

Metal	Dry Adjusted Concentration				Coefficient of Variation %
	Test No. 1 $\mu\text{g/Rm}^{3**}$	Test No. 2 $\mu\text{g/Rm}^{3**}$	Test No. 3 $\mu\text{g/Rm}^{3**}$	Average $\mu\text{g/Rm}^{3**}$	
Antimony	<0.048	<0.049	<0.049	<0.048	0.6
Arsenic	<0.12	<0.12	<0.12	<0.12	0.6
Barium	2.41	2.39	2.43	2.41	0.8
Beryllium	<0.048	<0.049	<0.049	<0.048	0.6
Cadmium	0.031	0.041	0.014	0.029	48.4
Chromium	0.55	1.42	0.66	0.88	54.0
Cobalt	0.029	0.044	<0.049	<0.040	25.3
Copper	2.63	1.69	1.68	2.00	27.3
Lead	0.32	0.28	0.19	0.26	24.3
Mercury	<0.13	<0.12	<0.14	<0.13	7.6
Molybdenum	4.22	4.14	4.05	4.14	2.0
Nickel	0.51	0.87	0.63	0.67	27.0
Selenium	0.48	<0.24	<0.24	<0.32	42.7
Silver	<0.048	<0.049	<0.049	<0.048	0.6
Thallium	<0.048	<0.049	<0.049	<0.048	0.6
Vanadium	<0.12	<0.12	<0.12	<0.12	0.6
Zinc	4.07	4.04	4.44	4.18	5.3
Total	<15.8	<15.7	<15.0	<15.5	3.0

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

TABLE 20
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Metal Wet Reference Concentrations

Metal	Wet Reference Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	µg/Rm ³ *	µg/Rm ³ *	µg/Rm ³ *	µg/Rm ³ *	%
Antimony	<0.048	<0.048	<0.047	<0.048	1.3
Arsenic	<0.12	<0.12	<0.12	<0.12	1.3
Barium	2.41	2.35	2.35	2.37	1.5
Beryllium	<0.048	<0.048	<0.047	<0.048	1.3
Cadmium	0.031	0.041	0.013	0.028	48.8
Chromium	0.55	1.40	0.64	0.87	54.0
Cobalt	0.029	0.043	<0.047	<0.040	24.0
Copper	2.63	1.66	1.63	1.97	28.8
Lead	0.32	0.27	0.19	0.26	25.7
Mercury	<0.13	<0.12	<0.14	<0.13	6.7
Molybdenum	4.22	4.08	3.92	4.07	3.6
Nickel	0.51	0.85	0.61	0.66	26.7
Selenium	0.48	<0.24	<0.23	<0.32	44.3
Silver	<0.048	<0.048	<0.047	<0.048	1.3
Thallium	<0.048	<0.048	<0.047	<0.048	1.3
Vanadium	<0.12	<0.12	<0.12	<0.12	1.3
Zinc	4.07	3.98	4.30	4.12	4.0
Total	<15.8	<15.5	<14.5	<15.3	4.5

* At 25°C and 1 atmosphere

TABLE 21
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Metal Emission Rates

Metal	Emission Rate				Coefficient of Variation %
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	
Antimony	<0.00091	<0.00092	<0.00090	<0.00091	0.8
Arsenic	<0.0023	<0.0023	<0.0023	<0.0023	0.8
Barium	0.046	0.045	0.045	0.045	0.7
Beryllium	<0.00091	<0.00092	<0.00090	<0.00091	0.8
Cadmium	0.00059	0.00078	0.00026	0.00054	48.7
Chromium	0.010	0.027	0.012	0.017	54.2
Cobalt	0.00055	0.00082	<0.00090	<0.00076	24.7
Copper	0.050	0.032	0.031	0.038	28.0
Lead	0.0060	0.0052	0.0036	0.0049	25.0
Mercury	<0.0024	<0.0023	<0.0026	<0.0024	7.0
Molybdenum	0.080	0.078	0.075	0.078	2.8
Nickel	0.0097	0.016	0.012	0.013	27.0
Selenium	0.0091	<0.0046	<0.0045	<0.0061	43.4
Silver	<0.00091	<0.00092	<0.00090	<0.00091	0.8
Thallium	<0.00091	<0.00092	<0.00090	<0.00091	0.8
Vanadium	<0.0023	<0.0023	<0.0023	<0.0023	0.8
Zinc	0.077	0.076	0.083	0.079	4.5
Total	<0.30	<0.30	<0.28	<0.29	3.8

TABLE 22
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Metal Emission Data

Metal	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^{3*}$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^{3**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^{3*}$	Emission Rate mg/s
Antimony	<0.034	<0.057	<0.048	<0.048	<0.00091
Arsenic	<0.084	<0.14	<0.12	<0.12	<0.0023
Barium	1.67	2.81	2.41	2.37	0.045
Beryllium	<0.034	<0.057	<0.048	<0.048	<0.00091
Cadmium	0.020	0.034	0.029	0.028	0.00054
Chromium	0.61	1.02	0.88	0.87	0.017
Cobalt	<0.028	<0.047	<0.040	<0.040	<0.00076
Copper	1.39	2.34	2.00	1.97	0.038
Lead	0.18	0.31	0.26	0.26	0.0049
Mercury	<0.090	<0.15	<0.13	<0.13	<0.0024
Molybdenum	2.87	4.83	4.14	4.07	0.078
Nickel	0.47	0.78	0.67	0.66	0.013
Selenium	<0.22	<0.38	<0.32	<0.32	<0.0061
Silver	<0.034	<0.057	<0.048	<0.048	<0.00091
Thallium	<0.034	<0.057	<0.048	<0.048	<0.00091
Vanadium	<0.084	<0.14	<0.12	<0.12	<0.0023
Zinc	2.90	4.89	4.18	4.12	0.079
Total	<10.8	<18.1	<15.5	<15.3	<0.29

* At 25°C and 1 atmosphere

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

TABLE 23
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Blank Train Metal Analyses

Metal	Probe & Filter	Impingers	Total
	Hydrofluoric Acid Digest	& Rinses	Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	8.1	<2.5	8.1
Beryllium	<0.20	<0.10	<0.20
Cadmium	<0.10	<0.050	<0.10
Chromium	1.90	<0.50	1.90
Cobalt	<0.20	<0.10	<0.20
Copper	3.50	2.63	6.13
Lead	<0.50	0.29	0.29
Mercury *	<0.022	<0.225	<0.23
Molybdenum	15.9	<0.10	15.9
Nickel	1.07	0.10	1.17
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	<6.0	<3.0	<6.00
Total			<42.8

* 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	ng/s
Tetrachlorodibenzo-p-dioxins	<4.2	<0.00052	<0.00088	<0.00073	<0.00074	<0.014
Pentachlorodibenzo-p-dioxins	<6.6	<0.00081	<0.0014	<0.0012	<0.0012	<0.022
Hexachlorodibenzo-p-dioxins	<8.5	<0.0010	<0.0018	<0.0015	<0.0015	<0.028
Heptachlorodibenzo-p-dioxins	<8.3	<0.0010	<0.0017	<0.0015	<0.0015	<0.028
Octachlorodibenzo-p-dioxin	<33	<0.0041	<0.0069	<0.0058	<0.0058	<0.11
Total	<60.6	<0.0075	<0.013	<0.011	<0.011	<0.20

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	ng/s
Tetrachlorodibenzofurans	<5.1	<0.00063	<0.0011	<0.00089	<0.00090	<0.017
Pentachlorodibenzofurans	<5.0	<0.00061	<0.0011	<0.00087	<0.00088	<0.017
Hexachlorodibenzofurans	6.34	0.00078	0.0013	0.0011	0.0011	0.021
Heptachlorodibenzofurans	<7.0	<0.00086	<0.0015	<0.0012	<0.0012	<0.023
Octachlorodibenzofuran	<23	<0.0028	<0.0049	<0.0040	<0.0041	<0.077
Total	<46.5	<0.0057	<0.0098	<0.0081	<0.0082	<0.15

Dry Gas Volume Sampled (Rm ^{3*}) :	4.758
Actual Flowrate (m ³ /s) :	27.0
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	19.0
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 25
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	ng/s
Tetrachlorodibenzo-p-dioxins	13.4	0.0016	0.0028	0.0023	0.0023	0.044
Pentachlorodibenzo-p-dioxins	<6.0	<0.00073	<0.0012	<0.0010	<0.0010	<0.020
Hexachlorodibenzo-p-dioxins	24.3	0.0029	0.0051	0.0043	0.0042	0.080
Heptachlorodibenzo-p-dioxins	14.6	0.0018	0.0030	0.0026	0.0025	0.048
Octachlorodibenzo-p-dioxin	41.3	0.0050	0.0086	0.0072	0.0071	0.14
Total	<99.6	<0.012	<0.021	<0.017	<0.017	<0.33

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	ng/s
Tetrachlorodibenzofurans	<4.6	<0.00056	<0.00096	<0.00080	<0.00080	<0.015
Pentachlorodibenzofurans	<6.2	<0.00075	<0.0013	<0.0011	<0.0011	<0.020
Hexachlorodibenzofurans	<3.3	<0.00040	<0.00069	<0.00058	<0.00057	<0.011
Heptachlorodibenzofurans	7.94	0.00096	0.0017	0.0014	0.0014	0.026
Octachlorodibenzofuran	17.7	0.0021	0.0037	0.0031	0.0031	0.059
Total	<39.7	<0.0048	<0.0083	<0.0070	<0.0069	<0.13

Dry Gas Volume Sampled (Rm ^{3*}) :	4.810
Actual Flowrate (m ³ /s) :	27.3
Dry Reference Flowrate (Rm ³ /s*) :	15.9
Dry Adjusted Flowrate (Rm ³ /s**) :	18.9
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

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

TABLE 26
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	ng/s
Tetrachlorodibenzo-p-dioxins	<4.1	<0.00051	<0.00088	<0.00073	<0.00073	<0.014
Pentachlorodibenzo-p-dioxins	12.1	0.0015	0.0026	0.0022	0.0022	0.040
Hexachlorodibenzo-p-dioxins	<5.8	<0.00072	<0.0012	<0.0010	<0.0010	<0.019
Heptachlorodibenzo-p-dioxins	14.8	0.0018	0.0032	0.0026	0.0026	0.049
Octachlorodibenzo-p-dioxin	<37	<0.0046	<0.0079	<0.0066	<0.0066	<0.12
Total	<73.8	<0.0092	<0.016	<0.013	<0.013	<0.245

Furans

Congener Group	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	pg	ng/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	ng/s
Tetrachlorodibenzofurans	11.4	0.0014	0.0024	0.0020	0.0020	0.038
Pentachlorodibenzofurans	<4.5	<0.00056	<0.00097	<0.00080	<0.00080	<0.015
Hexachlorodibenzofurans	<4.4	<0.00055	<0.00094	<0.00078	<0.00079	<0.015
Heptachlorodibenzofurans	<8.1	<0.0010	<0.0017	<0.0014	<0.0014	<0.027
Octachlorodibenzofuran	<13	<0.0016	<0.0028	<0.0023	<0.0023	<0.043
Total	<41.4	<0.0052	<0.0089	<0.0074	<0.0074	<0.14

Dry Gas Volume Sampled (Rm ^{3*}) :	4.662
Actual Flowrate (m ³ /s) :	26.7
Dry Reference Flowrate (Rm ³ /s*) :	15.5
Dry Adjusted Flowrate (Rm ³ /s**) :	18.7
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

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

TABLE 27
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Test No. 1	Actual Concentration			Coefficient of Variation
	ng/m ³	Test No. 2 ng/m ³	Test No. 3 ng/m ³	Average ng/m ³	
Tetrachlorodibenzo-p-dioxins	<0.00052	0.0016	<0.00051	<0.00088	72.5
Pentachlorodibenzo-p-dioxins	<0.00081	<0.00073	0.0015	<0.0010	42.2
Hexachlorodibenzo-p-dioxins	<0.0010	0.0029	<0.00072	<0.0016	76.4
Heptachlorodibenzo-p-dioxins	<0.0010	0.0018	0.0018	<0.0015	29.4
Octachlorodibenzo-p-dioxin	<0.0041	0.0050	<0.0046	<0.0046	10.4
Total	<0.0075	<0.012	<0.0092	<0.0096	24.3

Furans

Congener Group	Test No. 1	Actual Concentration			Coefficient of Variation
	ng/m ³	Test No. 2 ng/m ³	Test No. 3 ng/m ³	Average ng/m ³	
Tetrachlorodibenzofurans	<0.00063	<0.00056	0.0014	<0.00087	55.2
Pentachlorodibenzofurans	<0.00061	<0.00075	<0.00056	<0.00064	15.3
Hexachlorodibenzofurans	0.00078	<0.00040	<0.00055	<0.00058	33.3
Heptachlorodibenzofurans	<0.00086	0.00096	<0.0010	<0.00094	8.0
Octachlorodibenzofuran	<0.0028	0.0021	<0.0016	<0.0022	27.9
Total	<0.0057	<0.0048	<0.0052	<0.0052	8.8

TABLE 28
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Dry Reference Concentrations

Dioxins

Congener Group	Test No. 1	Dry Reference Concentration			Coefficient of Variation
	ng/Rm ^{3*}	Test No. 2 ng/Rm ^{3*}	Test No. 3 ng/Rm ^{3*}	Average ng/Rm ^{3*}	%
Tetrachlorodibenzo-p-dioxins	<0.00088	0.0028	<0.00088	<0.0015	72.5
Pentachlorodibenzo-p-dioxins	<0.0014	<0.0012	0.0026	<0.0017	42.5
Hexachlorodibenzo-p-dioxins	<0.0018	0.0051	<0.0012	<0.0027	76.5
Heptachlorodibenzo-p-dioxins	<0.0017	0.0030	0.0032	<0.0027	29.7
Octachlorodibenzo-p-dioxin	<0.0069	0.0086	<0.0079	<0.0078	10.6
Total	<0.013	<0.021	<0.016	<0.016	24.5

Furans

Congener Group	Test No. 1	Dry Reference Concentration			Coefficient of Variation
	ng/Rm ^{3*}	Test No. 2 ng/Rm ^{3*}	Test No. 3 ng/Rm ^{3*}	Average ng/Rm ^{3*}	%
Tetrachlorodibenzofurans	<0.0011	<0.00096	0.0024	<0.0015	55.5
Pentachlorodibenzofurans	<0.0011	<0.0013	<0.00097	<0.0011	15.2
Hexachlorodibenzofurans	0.0013	<0.00069	<0.00094	<0.00099	33.0
Heptachlorodibenzofurans	<0.0015	0.0017	<0.0017	<0.0016	8.4
Octachlorodibenzofuran	<0.0049	0.0037	<0.0028	<0.0038	27.5
Total	<0.0098	<0.0083	<0.0089	<0.0090	8.5

* At 25°C and 1 atmosphere

TABLE 29
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration			Average ng/Rm ³ *	Coefficient of Variation %
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *		
Tetrachlorodibenzo-p-dioxins	<0.00073	0.0023	<0.00073	<0.0013	73.4
Pentachlorodibenzo-p-dioxins	<0.0012	<0.0010	0.0022	<0.0015	41.9
Hexachlorodibenzo-p-dioxins	<0.0015	0.0043	<0.0010	<0.0023	77.2
Heptachlorodibenzo-p-dioxins	<0.0015	0.0026	0.0026	<0.0022	29.9
Octachlorodibenzo-p-dioxin	<0.0058	0.0072	<0.0066	<0.0065	11.2
Total	<0.011	<0.017	<0.013	<0.014	25.2

Furans

Congener Group	Dry Adjusted Concentration			Average ng/Rm ³ *	Coefficient of Variation %
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *		
Tetrachlorodibenzofurans	<0.00089	<0.00080	0.0020	<0.0012	55.0
Pentachlorodibenzofurans	<0.00087	<0.0011	<0.00080	<0.00092	16.0
Hexachlorodibenzofurans	0.0011	<0.00058	<0.00078	<0.00082	32.5
Heptachlorodibenzofurans	<0.0012	0.0014	<0.0014	<0.0014	8.4
Octachlorodibenzofuran	<0.0040	0.0031	<0.0023	<0.0031	27.5
Total	<0.0081	<0.0070	<0.0074	<0.0075	8.0

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

TABLE 30
Reworld Durham York Renewable Energy L.P.
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/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	%
Tetrachlorodibenzo-p-dioxins	<0.00074	0.0023	<0.00073	<0.0013	72.4
Pentachlorodibenzo-p-dioxins	<0.0012	<0.0010	0.0022	<0.0015	42.5
Hexachlorodibenzo-p-dioxins	<0.0015	0.0042	<0.0010	<0.0022	76.3
Heptachlorodibenzo-p-dioxins	<0.0015	0.0025	0.0026	<0.0022	29.6
Octachlorodibenzo-p-dioxin	<0.0058	0.0071	<0.0066	<0.0065	10.4
Total	<0.011	<0.017	<0.013	<0.014	24.3

Furans

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	%
Tetrachlorodibenzofurans	<0.00090	<0.00080	0.0020	<0.0012	55.5
Pentachlorodibenzofurans	<0.00088	<0.0011	<0.00080	<0.00092	15.1
Hexachlorodibenzofurans	0.0011	<0.00057	<0.00079	<0.00082	33.2
Heptachlorodibenzofurans	<0.0012	0.0014	<0.0014	<0.00135	8.2
Octachlorodibenzofuran	<0.0041	0.0031	<0.0023	<0.0031	27.7
Total	<0.0082	<0.0069	<0.0074	<0.0075	8.7

* At 25°C and 1 atmosphere

TABLE 31
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate			Average ng/s	Coefficient of Variation %
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s		
Tetrachlorodibenzo-p-dioxins	<0.014	0.044	<0.014	<0.024	73.5
Pentachlorodibenzo-p-dioxins	<0.022	<0.020	0.040	<0.027	41.1
Hexachlorodibenzo-p-dioxins	<0.028	0.080	<0.019	<0.043	77.4
Heptachlorodibenzo-p-dioxins	<0.028	0.048	0.049	<0.042	29.4
Octachlorodibenzo-p-dioxin	<0.11	0.14	<0.12	<0.12	10.9
Total	<0.20	<0.33	<0.25	<0.26	25.1

Furans

Congener Group	Emission Rate			Average ng/s	Coefficient of Variation %
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s		
Tetrachlorodibenzofurans	<0.017	<0.015	0.038	<0.023	54.1
Pentachlorodibenzofurans	<0.017	<0.020	<0.015	<0.017	16.4
Hexachlorodibenzofurans	0.021	<0.011	<0.015	<0.016	33.0
Heptachlorodibenzofurans	<0.023	0.026	<0.027	<0.025	7.7
Octachlorodibenzofuran	<0.077	0.059	<0.043	<0.059	28.2
Total	<0.15	<0.13	<0.14	<0.14	8.5

TABLE 32
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<0.00088	<0.0015	<0.0013	<0.0013	<0.024
Pentachlorodibenzo-p-dioxins	<0.0010	<0.0017	<0.0015	<0.0015	<0.027
Hexachlorodibenzo-p-dioxins	<0.0016	<0.0027	<0.0023	<0.0022	<0.043
Heptachlorodibenzo-p-dioxins	<0.0015	<0.0027	<0.0022	<0.0022	<0.042
Octachlorodibenzo-p-dioxin	<0.0046	<0.0078	<0.0065	<0.0065	<0.12
Total	<0.0096	<0.016	<0.014	<0.014	<0.26

Furans

Congener Group	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzofurans	<0.00087	<0.0015	<0.0012	<0.0012	<0.023
Pentachlorodibenzofurans	<0.00064	<0.0011	<0.00092	<0.00092	<0.017
Hexachlorodibenzofurans	<0.00058	<0.00099	<0.00082	<0.00082	<0.016
Heptachlorodibenzofurans	<0.00094	<0.0016	<0.0014	<0.0014	<0.025
Octachlorodibenzofuran	<0.0022	<0.0038	<0.0031	<0.0031	<0.059
Total	<0.0052	<0.0090	<0.0075	<0.0075	<0.14

* At 25°C and 1 atmosphere

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

TABLE 33
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Blank Dioxin and Furan Congener Group Analyses

Dioxins

Congener Group	Blank Train pg	Method Blank pg
Tetrachlorodibenzo-p-dioxins	<5.0	<3.8
Pentachlorodibenzo-p-dioxins	<4.3	<6.3
Hexachlorodibenzo-p-dioxins	<5.4	10.8
Heptachlorodibenzo-p-dioxins	<7.1	<5.7
Octachlorodibenzo-p-dioxin	<22	<29
Total	<43.8	<55.6

Furans

Congener Group	Blank Train pg	Method Blank pg
Tetrachlorodibenzofurans	<3.3	<5.0
Pentachlorodibenzofurans	<5.0	<4.6
Hexachlorodibenzofurans	<2.9	<6.7
Heptachlorodibenzofurans	<3.6	6.28
Octachlorodibenzofuran	<25	26.1
Total	<39.8	<48.7

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	Total Collected pg	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ^{3*}	Dry Adjusted Concentration pg/Rm ^{3**}	Wet Reference Concentration pg/Rm ^{3*}	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<4.2	<0.52	<0.88	<0.73	<0.74	<0.014
12378-pentachlorodibenzo-p-dioxin	<6.6	<0.81	<1.39	<1.15	<1.16	<0.022
123478-hexachlorodibenzo-p-dioxin	<8.5	<1.05	<1.79	<1.49	<1.49	<0.028
123678-hexachlorodibenzo-p-dioxin	<8.0	<0.98	<1.68	<1.40	<1.41	<0.027
123789-hexachlorodibenzo-p-dioxin	<8.0	<0.98	<1.68	<1.40	<1.41	<0.027
1234678-heptachlorodibenzo-p-dioxin	<16	<1.97	<3.36	<2.80	<2.81	<0.053
Octachlorodibenzo-p-dioxin	<33	<4.06	<6.94	<5.77	<5.80	<0.11
2378-tetrachlorodibenzofuran	<5.1	<0.63	<1.07	<0.89	<0.90	<0.017
12378-pentachlorodibenzofuran	<5.0	<0.61	<1.05	<0.87	<0.88	<0.017
23478-pentachlorodibenzofuran	<4.5	<0.55	<0.95	<0.79	<0.79	<0.015
123478-hexachlorodibenzofuran	<2.9	<0.36	<0.61	<0.51	<0.51	<0.0096
123678-hexachlorodibenzofuran	6.34	0.78	1.33	1.11	1.11	0.021
234678-hexachlorodibenzofuran	<2.8	<0.34	<0.59	<0.49	<0.49	<0.0093
123789-hexachlorodibenzofuran	<3.3	<0.41	<0.69	<0.58	<0.58	<0.011
1234678-heptachlorodibenzofuran	<10	<1.23	<2.10	<1.75	<1.76	<0.033
1234789-heptachlorodibenzofuran	<7.0	<0.86	<1.47	<1.22	<1.23	<0.023
Octachlorodibenzofuran	23.1	2.84	4.85	4.04	4.06	0.077
PCB 81	42.8	5.26	9.00	7.48	7.52	0.14
PCB 77	683	84.0	144	119	120	2.27
PCB 123	192	23.6	40.4	33.6	33.7	0.64
PCB 118	10400	1279	2186	1818	1827	34.5
PCB 114	255	31.4	53.6	44.6	44.8	0.85
PCB 105	2970	365	624	519	522	9.86
PCB 126	<21	<2.58	<4.41	<3.67	<3.69	<0.070
PCB 167	65.0	7.99	13.7	11.4	11.4	0.22
PCB 156/157	159	19.6	33.4	27.8	27.9	0.53
PCB 169	<8.5	<1.05	<1.79	<1.49	<1.49	<0.028
PCB 189	<8.2	<1.01	<1.72	<1.43	<1.44	<0.027
Total Dioxins & Furans Only	<154	<19.0	<32.4	<27.0	<27.1	<0.51
Total PCBs Only	<14805	<1821	<3111	<2587	<2601	<49.2
Total Dioxins & Furans and PCBs	<14959	<1840	<3144	<2614	<2628	<49.7

Dry Gas Volume Sampled (Rm ^{3*}) :	4.758
Actual Flowrate (m ³ /s) :	27.0
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	19.0
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 35
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	Total Collected pg	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ^{3*}	Dry Adjusted Concentration pg/Rm ^{3**}	Wet Reference Concentration pg/Rm ^{3*}	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<4.7	<0.57	<0.98	<0.82	<0.81	<0.016
12378-pentachlorodibenzo-p-dioxin	<6.0	<0.73	<1.25	<1.05	<1.04	<0.020
123478-hexachlorodibenzo-p-dioxin	<6.3	<0.76	<1.31	<1.10	<1.09	<0.021
123678-hexachlorodibenzo-p-dioxin	<5.9	<0.71	<1.23	<1.03	<1.02	<0.020
123789-hexachlorodibenzo-p-dioxin	<5.9	<0.71	<1.23	<1.03	<1.02	<0.020
1234678-heptachlorodibenzo-p-dioxin	<13	<1.57	<2.70	<2.27	<2.25	<0.043
Octachlorodibenzo-p-dioxin	41.3	5.00	8.59	7.22	7.15	0.14
2378-tetrachlorodibenzofuran	<4.6	<0.56	<0.96	<0.80	<0.80	<0.015
12378-pentachlorodibenzofuran	<6.2	<0.75	<1.29	<1.08	<1.07	<0.020
23478-pentachlorodibenzofuran	<5.6	<0.68	<1.16	<0.98	<0.97	<0.019
123478-hexachlorodibenzofuran	<2.9	<0.35	<0.60	<0.51	<0.50	<0.0096
123678-hexachlorodibenzofuran	<2.8	<0.34	<0.58	<0.49	<0.48	<0.0093
234678-hexachlorodibenzofuran	<2.8	<0.34	<0.58	<0.49	<0.48	<0.0093
123789-hexachlorodibenzofuran	<3.3	<0.40	<0.69	<0.58	<0.57	<0.011
1234678-heptachlorodibenzofuran	7.94	0.96	1.65	1.39	1.37	0.026
1234789-heptachlorodibenzofuran	<5.2	<0.63	<1.08	<0.91	<0.90	<0.017
Octachlorodibenzofuran	17.7	2.14	3.68	3.10	3.06	0.059
PCB 81	<13	<1.57	<2.70	<2.27	<2.25	<0.043
PCB 77	161	19.5	33.5	28.2	27.9	0.53
PCB 123	56.4	6.83	11.7	9.86	9.76	0.19
PCB 118	3260	395	678	570	564	10.8
PCB 114	73.9	8.95	15.4	12.9	12.8	0.24
PCB 105	1310	159	272	229	227	4.33
PCB 126	<16	<1.94	<3.33	<2.80	<2.77	<0.053
PCB 167	39.9	4.83	8.30	6.98	6.91	0.13
PCB 156/157	115	13.9	23.9	20.1	19.9	0.38
PCB 169	<4.4	<0.53	<0.91	<0.77	<0.76	<0.015
PCB 189	<4.4	<0.53	<0.91	<0.77	<0.76	<0.015
Total Dioxins & Furans Only	<142	<17.2	<29.6	<24.9	<24.6	<0.47
Total PCBs Only	<5054	<612	<1051	<884	<875	<16.7
Total Dioxins & Furans and PCBs	<5196	<629	<1080	<909	<899	<17.2

Dry Gas Volume Sampled (Rm ^{3*}) :	4.810
Actual Flowrate (m ³ /s) :	27.3
Dry Reference Flowrate (Rm ³ /s*) :	15.9
Dry Adjusted Flowrate (Rm ³ /s**) :	18.9
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

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

TABLE 36
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	Total Collected pg	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ³ *	Dry Adjusted Concentration pg/Rm ³ **	Wet Reference Concentration pg/Rm ³ *	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<4.1	<0.51	<0.88	<0.73	<0.73	<0.014
12378-pentachlorodibenzo-p-dioxin	<7.8	<0.97	<1.67	<1.39	<1.39	<0.026
123478-hexachlorodibenzo-p-dioxin	<5.8	<0.72	<1.24	<1.03	<1.04	<0.019
123678-hexachlorodibenzo-p-dioxin	<5.5	<0.68	<1.18	<0.98	<0.98	<0.018
123789-hexachlorodibenzo-p-dioxin	<5.5	<0.68	<1.18	<0.98	<0.98	<0.018
1234678-heptachlorodibenzo-p-dioxin	<15	<1.87	<3.22	<2.67	<2.68	<0.050
Octachlorodibenzo-p-dioxin	<37	<4.61	<7.94	<6.58	<6.61	<0.12
2378-tetrachlorodibenzofuran	<4.0	<0.50	<0.86	<0.71	<0.72	<0.013
12378-pentachlorodibenzofuran	<4.5	<0.56	<0.97	<0.80	<0.80	<0.015
23478-pentachlorodibenzofuran	<4.0	<0.50	<0.86	<0.71	<0.72	<0.013
123478-hexachlorodibenzofuran	<3.8	<0.47	<0.82	<0.68	<0.68	<0.013
123678-hexachlorodibenzofuran	<3.6	<0.45	<0.77	<0.64	<0.64	<0.012
234678-hexachlorodibenzofuran	<3.7	<0.46	<0.79	<0.66	<0.66	<0.012
123789-hexachlorodibenzofuran	<4.4	<0.55	<0.94	<0.78	<0.79	<0.015
1234678-heptachlorodibenzofuran	<6.9	<0.86	<1.48	<1.23	<1.23	<0.023
1234789-heptachlorodibenzofuran	<8.1	<1.01	<1.74	<1.44	<1.45	<0.027
Octachlorodibenzofuran	<13	<1.62	<2.79	<2.31	<2.32	<0.043
PCB 81	<12	<1.49	<2.57	<2.13	<2.15	<0.040
PCB 77	67.2	8.37	14.4	11.9	12.0	0.22
PCB 123	<20	<2.49	<4.29	<3.56	<3.58	<0.066
PCB 118	958	119	205	170	171	3.19
PCB 114	<27	<3.36	<5.79	<4.80	<4.83	<0.090
PCB 105	299	37.2	64.1	53.2	53.4	0.99
PCB 126	<15	<1.87	<3.22	<2.67	<2.68	<0.050
PCB 167	8.31	1.03	1.78	1.48	1.49	0.028
PCB 156/157	<22	<2.74	<4.72	<3.91	<3.93	<0.073
PCB 169	<3.3	<0.41	<0.71	<0.59	<0.59	<0.011
PCB 189	<6.4	<0.80	<1.37	<1.14	<1.14	<0.021
Total Dioxins & Furans Only	<137	<17.0	<29.3	<24.3	<24.4	<0.45
Total PCBs Only	<1438	<179	<308	<256	<257	<4.78
Total Dioxins & Furans and PCBs	<1575	<196	<338	<280	<282	<5.24

Dry Gas Volume Sampled (Rm ³ *) :	4.662
Actual Flowrate (m ³ /s) :	26.7
Dry Reference Flowrate (Rm ³ /s*) :	15.5
Dry Adjusted Flowrate (Rm ³ /s**) :	18.7
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

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

TABLE 37
Reworld Durham York Renewable Energy L.P.
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/m ³	pg/m ³	pg/m ³	pg/m ³	%
2378-tetrachlorodibenzo-p-dioxin	<0.52	<0.57	<0.51	<0.53	6.1
12378-pentachlorodibenzo-p-dioxin	<0.81	<0.73	<0.97	<0.84	14.9
123478-hexachlorodibenzo-p-dioxin	<1.05	<0.76	<0.72	<0.84	20.9
123678-hexachlorodibenzo-p-dioxin	<0.98	<0.71	<0.68	<0.79	20.7
123789-hexachlorodibenzo-p-dioxin	<0.98	<0.71	<0.68	<0.79	20.7
1234678-heptachlorodibenzo-p-dioxin	<1.97	<1.57	<1.87	<1.80	11.3
Octachlorodibenzo-p-dioxin	<4.06	5.00	<4.61	<4.56	10.4
2378-tetrachlorodibenzofuran	<0.63	<0.56	<0.50	<0.56	11.5
12378-pentachlorodibenzofuran	<0.61	<0.75	<0.56	<0.64	15.3
23478-pentachlorodibenzofuran	<0.55	<0.68	<0.50	<0.58	16.0
123478-hexachlorodibenzofuran	<0.36	<0.35	<0.47	<0.39	17.5
123678-hexachlorodibenzofuran	0.78	<0.34	<0.45	<0.52	43.9
234678-hexachlorodibenzofuran	<0.34	<0.34	<0.46	<0.38	18.0
123789-hexachlorodibenzofuran	<0.41	<0.40	<0.55	<0.45	18.6
1234678-heptachlorodibenzofuran	<1.23	0.96	<0.86	<1.02	18.8
1234789-heptachlorodibenzofuran	<0.86	<0.63	<1.01	<0.83	22.9
Octachlorodibenzofuran	2.84	2.14	<1.62	<2.20	27.9
PCB 81	5.26	<1.57	<1.49	<2.78	77.5
PCB 77	84.0	19.5	8.37	37.3	110
PCB 123	23.6	6.83	<2.49	<11.0	102
PCB 118	1279	395	119	598	101
PCB 114	31.4	8.95	<3.36	<14.6	102
PCB 105	365	159	37.2	187	88.7
PCB 126	<2.58	<1.94	<1.87	<2.13	18.5
PCB 167	7.99	4.83	1.03	4.62	75.4
PCB 156/157	19.6	13.9	<2.74	<12.1	70.9
PCB 169	<1.05	<0.53	<0.41	<0.66	50.8
PCB 189	<1.01	<0.53	<0.80	<0.78	30.6
Total Dioxins & Furans Only	<19.0	<17.2	<17.0	<17.7	6.1
Total PCBs Only	<1821	<612	<179	<871	97.7
Total Dioxins & Furans and PCBs	<1840	<629	<196	<888	95.9

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

TABLE 38
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	%
2378-tetrachlorodibenzo-p-dioxin	<0.88	<0.98	<0.88	<0.91	6.1
12378-pentachlorodibenzo-p-dioxin	<1.39	<1.25	<1.67	<1.44	15.1
123478-hexachlorodibenzo-p-dioxin	<1.79	<1.31	<1.24	<1.45	20.5
123678-hexachlorodibenzo-p-dioxin	<1.68	<1.23	<1.18	<1.36	20.3
123789-hexachlorodibenzo-p-dioxin	<1.68	<1.23	<1.18	<1.36	20.3
1234678-heptachlorodibenzo-p-dioxin	<3.36	<2.70	<3.22	<3.09	11.2
Octachlorodibenzo-p-dioxin	<6.94	8.59	<7.94	<7.82	10.6
2378-tetrachlorodibenzofuran	<1.07	<0.96	<0.86	<0.96	11.1
12378-pentachlorodibenzofuran	<1.05	<1.29	<0.97	<1.10	15.2
23478-pentachlorodibenzofuran	<0.95	<1.16	<0.86	<0.99	15.9
123478-hexachlorodibenzofuran	<0.61	<0.60	<0.82	<0.68	17.9
123678-hexachlorodibenzofuran	1.33	<0.58	<0.77	<0.90	43.6
234678-hexachlorodibenzofuran	<0.59	<0.58	<0.79	<0.65	18.4
123789-hexachlorodibenzofuran	<0.69	<0.69	<0.94	<0.77	18.9
1234678-heptachlorodibenzofuran	<2.10	1.65	<1.48	<1.74	18.4
1234789-heptachlorodibenzofuran	<1.47	<1.08	<1.74	<1.43	23.1
Octachlorodibenzofuran	4.85	3.68	<2.79	<3.77	27.5
PCB 81	9.00	<2.70	<2.57	<4.76	77.2
PCB 77	144	33.5	14.4	63.8	109
PCB 123	40.4	11.7	<4.29	<18.8	101
PCB 118	2186	678	205	1023	101
PCB 114	53.6	15.4	<5.79	<24.9	102
PCB 105	624	272	64.1	320	88.4
PCB 126	<4.41	<3.33	<3.22	<3.65	18.1
PCB 167	13.7	8.30	1.78	7.91	75.2
PCB 156/157	33.4	23.9	<4.72	<20.7	70.7
PCB 169	<1.79	<0.91	<0.71	<1.14	50.4
PCB 189	<1.72	<0.91	<1.37	<1.34	30.3
Total Dioxins & Furans Only	<32.4	<29.6	<29.3	<30.4	5.7
Total PCBs Only	<3111	<1051	<308	<1490	97.5
Total Dioxins & Furans and PCBs	<3144	<1080	<338	<1521	95.6

* At 25°C and 1 atmosphere

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

TABLE 39
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Specific Isomer Dry Adjusted Concentrations

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation
	Test No. 1 pg/Rm ³ *	Test No. 2 pg/Rm ³ *	Test No. 3 pg/Rm ³ *	Average pg/Rm ³ *	
2378-tetrachlorodibenzo-p-dioxin	<0.73	<0.82	<0.73	<0.76	6.9
12378-pentachlorodibenzo-p-dioxin	<1.15	<1.05	<1.39	<1.20	14.4
123478-hexachlorodibenzo-p-dioxin	<1.49	<1.10	<1.03	<1.21	20.3
123678-hexachlorodibenzo-p-dioxin	<1.40	<1.03	<0.98	<1.14	20.1
123789-hexachlorodibenzo-p-dioxin	<1.40	<1.03	<0.98	<1.14	20.1
1234678-heptachlorodibenzo-p-dioxin	<2.80	<2.27	<2.67	<2.58	10.6
Octachlorodibenzo-p-dioxin	<5.77	7.22	<6.58	<6.52	11.2
2378-tetrachlorodibenzofuran	<0.89	<0.80	<0.71	<0.80	11.2
12378-pentachlorodibenzofuran	<0.87	<1.08	<0.80	<0.92	16.0
23478-pentachlorodibenzofuran	<0.79	<0.98	<0.71	<0.83	16.8
123478-hexachlorodibenzofuran	<0.51	<0.51	<0.68	<0.56	17.3
123678-hexachlorodibenzofuran	1.11	<0.49	<0.64	<0.75	43.2
234678-hexachlorodibenzofuran	<0.49	<0.49	<0.66	<0.55	17.8
123789-hexachlorodibenzofuran	<0.58	<0.58	<0.78	<0.65	18.4
1234678-heptachlorodibenzofuran	<1.75	1.39	<1.23	<1.45	18.3
1234789-heptachlorodibenzofuran	<1.22	<0.91	<1.44	<1.19	22.4
Octachlorodibenzofuran	4.04	3.10	<2.31	<3.15	27.5
PCB 81	7.48	<2.27	<2.13	<3.96	76.9
PCB 77	119	28.2	11.9	53.2	109
PCB 123	33.6	9.86	<3.56	<15.7	101
PCB 118	1818	570	170	853	101
PCB 114	44.6	12.9	<4.80	<20.8	101
PCB 105	519	229	53.2	267	88.1
PCB 126	<3.67	<2.80	<2.67	<3.05	17.9
PCB 167	11.4	6.98	1.48	6.61	75.0
PCB 156/157	27.8	20.1	<3.91	<17.3	70.6
PCB 169	<1.49	<0.77	<0.59	<0.95	50.1
PCB 189	<1.43	<0.77	<1.14	<1.11	29.9
Total Dioxins & Furans Only	<27.0	<24.9	<24.3	<25.4	5.6
Total PCBs Only	<2587	<884	<256	<1242	97.1
Total Dioxins & Furans and PCBs	<2614	<909	<280	<1268	95.3

* 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
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	
2378-tetrachlorodibenzo-p-dioxin	<0.74	<0.81	<0.73	<0.76	5.9
12378-pentachlorodibenzo-p-dioxin	<1.16	<1.04	<1.39	<1.20	15.1
123478-hexachlorodibenzo-p-dioxin	<1.49	<1.09	<1.04	<1.21	20.7
123678-hexachlorodibenzo-p-dioxin	<1.41	<1.02	<0.98	<1.14	20.6
123789-hexachlorodibenzo-p-dioxin	<1.41	<1.02	<0.98	<1.14	20.6
1234678-heptachlorodibenzo-p-dioxin	<2.81	<2.25	<2.68	<2.58	11.4
Octachlorodibenzo-p-dioxin	<5.80	7.15	<6.61	<6.52	10.4
2378-tetrachlorodibenzofuran	<0.90	<0.80	<0.72	<0.80	11.3
12378-pentachlorodibenzofuran	<0.88	<1.07	<0.80	<0.92	15.1
23478-pentachlorodibenzofuran	<0.79	<0.97	<0.72	<0.82	15.8
123478-hexachlorodibenzofuran	<0.51	<0.50	<0.68	<0.56	17.8
123678-hexachlorodibenzofuran	1.11	<0.48	<0.64	<0.75	43.8
234678-hexachlorodibenzofuran	<0.49	<0.48	<0.66	<0.55	18.3
123789-hexachlorodibenzofuran	<0.58	<0.57	<0.79	<0.65	18.9
1234678-heptachlorodibenzofuran	<1.76	1.37	<1.23	<1.45	18.6
1234789-heptachlorodibenzofuran	<1.23	<0.90	<1.45	<1.19	23.1
Octachlorodibenzofuran	4.06	3.06	<2.32	<3.15	27.7
PCB 81	7.52	<2.25	<2.15	<3.97	77.4
PCB 77	120	27.9	12.0	53.3	109
PCB 123	33.7	9.76	<3.58	<15.7	102
PCB 118	1827	564	171	854	101
PCB 114	44.8	12.8	<4.83	<20.8	102
PCB 105	522	227	53.4	267	88.6
PCB 126	<3.69	<2.77	<2.68	<3.05	18.3
PCB 167	11.4	6.91	1.49	6.60	75.3
PCB 156/157	27.9	19.9	<3.93	<17.3	70.8
PCB 169	<1.49	<0.76	<0.59	<0.95	50.6
PCB 189	<1.44	<0.76	<1.14	<1.12	30.5
Total Dioxins & Furans Only	<27.1	<24.6	<24.4	<25.4	5.9
Total PCBs Only	<2601	<875	<257	<1244	97.6
Total Dioxins & Furans and PCBs	<2628	<899	<282	<1270	95.8

* At 25°C and 1 atmosphere

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

TABLE 41
Reworld Durham York Renewable Energy L.P.
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	<0.014	<0.016	<0.014	<0.014	7.1
12378-pentachlorodibenzo-p-dioxin	<0.022	<0.020	<0.026	<0.023	13.7
123478-hexachlorodibenzo-p-dioxin	<0.028	<0.021	<0.019	<0.023	21.0
123678-hexachlorodibenzo-p-dioxin	<0.027	<0.020	<0.018	<0.021	20.8
123789-hexachlorodibenzo-p-dioxin	<0.027	<0.020	<0.018	<0.021	20.8
1234678-heptachlorodibenzo-p-dioxin	<0.053	<0.043	<0.050	<0.049	10.7
Octachlorodibenzo-p-dioxin	<0.11	0.14	<0.12	<0.12	10.9
2378-tetrachlorodibenzofuran	<0.017	<0.015	<0.013	<0.015	12.0
12378-pentachlorodibenzofuran	<0.017	<0.020	<0.015	<0.017	16.4
23478-pentachlorodibenzofuran	<0.015	<0.019	<0.013	<0.016	17.1
123478-hexachlorodibenzofuran	<0.0096	<0.0096	<0.013	<0.011	16.5
123678-hexachlorodibenzofuran	0.021	<0.0093	<0.012	<0.014	43.8
234678-hexachlorodibenzofuran	<0.0093	<0.0093	<0.012	<0.010	17.0
123789-hexachlorodibenzofuran	<0.011	<0.011	<0.015	<0.012	17.5
1234678-heptachlorodibenzofuran	<0.033	0.026	<0.023	<0.027	19.1
1234789-heptachlorodibenzofuran	<0.023	<0.017	<0.027	<0.022	21.9
Octachlorodibenzofuran	0.077	0.059	<0.043	<0.059	28.2
PCB 81	0.14	<0.043	<0.040	<0.075	77.5
PCB 77	2.27	0.53	0.22	1.01	109
PCB 123	0.64	0.19	<0.066	<0.30	101
PCB 118	34.5	10.8	3.19	16.2	101
PCB 114	0.85	0.24	<0.090	<0.39	102
PCB 105	9.86	4.33	0.99	5.06	88.5
PCB 126	<0.070	<0.053	<0.050	<0.057	18.6
PCB 167	0.22	0.13	0.028	0.13	75.4
PCB 156/157	0.53	0.38	<0.073	<0.33	70.9
PCB 169	<0.028	<0.015	<0.011	<0.018	50.8
PCB 189	<0.027	<0.015	<0.021	<0.021	30.2
Total Dioxins & Furans Only	<0.51	<0.47	<0.45	<0.48	6.3
Total PCBs Only	<49.2	<16.7	<4.78	<23.5	97.5
Total Dioxins & Furans and PCBs	<49.7	<17.2	<5.24	<24.0	95.7

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

TABLE 42
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ^{3*}	Dry Adjusted Concentration pg/Rm ^{3**}	Wet Reference Concentration pg/Rm ^{3*}	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<0.53	<0.91	<0.76	<0.76	<0.014
12378-pentachlorodibenzo-p-dioxin	<0.84	<1.44	<1.20	<1.20	<0.023
123478-hexachlorodibenzo-p-dioxin	<0.84	<1.45	<1.21	<1.21	<0.023
123678-hexachlorodibenzo-p-dioxin	<0.79	<1.36	<1.14	<1.14	<0.021
123789-hexachlorodibenzo-p-dioxin	<0.79	<1.36	<1.14	<1.14	<0.021
1234678-heptachlorodibenzo-p-dioxin	<1.80	<3.09	<2.58	<2.58	<0.049
Octachlorodibenzo-p-dioxin	<4.56	<7.82	<6.52	<6.52	<0.12
2378-tetrachlorodibenzofuran	<0.56	<0.96	<0.80	<0.80	<0.015
12378-pentachlorodibenzofuran	<0.64	<1.10	<0.92	<0.92	<0.017
23478-pentachlorodibenzofuran	<0.58	<0.99	<0.83	<0.82	<0.016
123478-hexachlorodibenzofuran	<0.39	<0.68	<0.56	<0.56	<0.011
123678-hexachlorodibenzofuran	<0.52	<0.90	<0.75	<0.75	<0.014
234678-hexachlorodibenzofuran	<0.38	<0.65	<0.55	<0.55	<0.010
123789-hexachlorodibenzofuran	<0.45	<0.77	<0.65	<0.65	<0.012
1234678-heptachlorodibenzofuran	<1.02	<1.74	<1.45	<1.45	<0.027
1234789-heptachlorodibenzofuran	<0.83	<1.43	<1.19	<1.19	<0.022
Octachlorodibenzofuran	<2.20	<3.77	<3.15	<3.15	<0.059
PCB 81	<2.78	<4.76	<3.96	<3.97	<0.075
PCB 77	37.3	63.8	53.2	53.3	1.01
PCB 123	<11.0	<18.8	<15.7	<15.7	<0.30
PCB 118	598	1023	853	854	16.2
PCB 114	<14.6	<24.9	<20.8	<20.8	<0.39
PCB 105	187	320	267	267	5.06
PCB 126	<2.13	<3.65	<3.05	<3.05	<0.057
PCB 167	4.62	7.91	6.61	6.60	0.13
PCB 156/157	<12.1	<20.7	<17.3	<17.3	<0.33
PCB 169	<0.66	<1.14	<0.95	<0.95	<0.018
PCB 189	<0.78	<1.34	<1.11	<1.12	<0.021
Total Dioxins & Furans Only	<17.7	<30.4	<25.4	<25.4	<0.48
Total PCBs Only	<871	<1490	<1242	<1244	<23.5
Total Dioxins & Furans and PCBs	<888	<1521	<1268	<1270	<24.0

* At 25°C and 1 atmosphere

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

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

TABLE 43
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Blank Dioxin and Furan Specific Isomer Analyses

Specific Isomer	Blank Train pg	Method Blank pg
2378-tetrachlorodibenzo-p-dioxin	<5.0	<3.8
12378-pentachlorodibenzo-p-dioxin	<4.3	<6.3
123478-hexachlorodibenzo-p-dioxin	<5.4	<5.5
123678-hexachlorodibenzo-p-dioxin	<5.1	<5.2
123789-hexachlorodibenzo-p-dioxin	<5.1	7.70
1234678-heptachlorodibenzo-p-dioxin	<7.1	<5.7
Octachlorodibenzo-p-dioxin	<22	<29
2378-tetrachlorodibenzofuran	<3.3	<5.0
12378-pentachlorodibenzofuran	<5.0	<4.6
23478-pentachlorodibenzofuran	<4.5	<4.2
123478-hexachlorodibenzofuran	<2.5	<5.8
123678-hexachlorodibenzofuran	<2.5	<5.5
234678-hexachlorodibenzofuran	<2.5	6.22
123789-hexachlorodibenzofuran	<2.9	<6.7
1234678-heptachlorodibenzofuran	<3.1	<5.2
1234789-heptachlorodibenzofuran	<3.6	6.28
Octachlorodibenzofuran	<25	26.1
PCB 81	<7.3	<8.9
PCB 77	<7.7	<9.1
PCB 123	<4.6	<4.5
PCB 118	<22	<3.9
PCB 114	<4.5	<4.5
PCB 105	<6.3	<4.2
PCB 126	<4.3	<4.2
PCB 167	<3.5	<4.2
PCB 156/157	<4.5	<5.2
PCB 169	<3.6	<4.2
PCB 189	<3.4	<4.7
Total Dioxins & Furans Only	<109	<139
Total PCBs Only	<71.7	<57.6
Total Dioxins & Furans and PCBs	<181	<196

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Test No. 1 pg TEQ/m ³	Actual Concentration			Average pg TEQ/m ³
			Test No. 2 pg TEQ/m ³	Test No. 3 pg TEQ/m ³		
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.52	<0.57	<0.51		<0.53
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.81	<0.73	<0.97		<0.84
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.10	<0.076	<0.072		<0.084
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.098	<0.071	<0.068		<0.079
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.098	<0.071	<0.068		<0.079
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.020	<0.016	<0.019		<0.018
Octachlorodibenzo-p-dioxin	0.00030	<0.0012	0.0015	<0.0014		<0.0014
2378-tetrachlorodibenzofuran	0.10000	<0.063	<0.056	<0.050		<0.056
12378-pentachlorodibenzofuran	0.03000	<0.018	<0.023	<0.017		<0.019
23478-pentachlorodibenzofuran	0.30000	<0.17	<0.20	<0.15		<0.17
123478-hexachlorodibenzofuran	0.10000	<0.036	<0.035	<0.047		<0.039
123678-hexachlorodibenzofuran	0.10000	0.078	<0.034	<0.045		<0.052
234678-hexachlorodibenzofuran	0.10000	<0.034	<0.034	<0.046		<0.038
123789-hexachlorodibenzofuran	0.10000	<0.041	<0.040	<0.055		<0.045
1234678-heptachlorodibenzofuran	0.01000	<0.012	0.0096	<0.0086		<0.010
1234789-heptachlorodibenzofuran	0.01000	<0.0086	<0.0063	<0.010		<0.0083
Octachlorodibenzofuran	0.00030	0.00085	0.00064	<0.00049		<0.00066
PCB 81	0.00030	0.0016	<0.00047	<0.00045		<0.00083
PCB 77	0.00010	0.0084	0.0019	0.00084		0.0037
PCB 123	0.00003	0.00071	0.00020	<0.000075		<0.00033
PCB 118	0.00003	0.038	0.012	0.0036		0.018
PCB 114	0.00003	0.00094	0.00027	<0.00010		<0.00044
PCB 105	0.00003	0.011	0.0048	0.0011		0.0056
PCB 126	0.10000	<0.26	<0.19	<0.19		<0.21
PCB 167	0.00003	0.00024	0.00014	0.000031		0.00014
PCB 156/157	0.00003	0.00059	0.00042	<0.000082		<0.00036
PCB 169	0.03000	<0.031	<0.016	<0.012		<0.020
PCB 189	0.00003	<0.000030	<0.000016	<0.000024		<0.000023
Total Dioxins & Furans Only		<2.11	<1.97	<2.14		<2.07
Total PCBs Only		<0.35	<0.23	<0.21		<0.26
Total Dioxins & Furans and PCBs		<2.46	<2.20	<2.34		<2.34

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

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

TABLE 45
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Test No. 1 pg TEQ/Rm ^{3*}	Dry Reference Concentration		
			Test No. 2 pg TEQ/Rm ^{3*}	Test No. 3 pg TEQ/Rm ^{3*}	Average pg TEQ/Rm ^{3*}
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.88	<0.98	<0.88	<0.91
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.39	<1.25	<1.67	<1.44
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.18	<0.13	<0.12	<0.14
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.17	<0.12	<0.12	<0.14
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.17	<0.12	<0.12	<0.136
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.034	<0.027	<0.032	<0.031
Octachlorodibenzo-p-dioxin	0.00030	<0.0021	0.0026	<0.0024	<0.0023
2378-tetrachlorodibenzofuran	0.10000	<0.11	<0.096	<0.086	<0.096
12378-pentachlorodibenzofuran	0.03000	<0.032	<0.039	<0.029	<0.033
23478-pentachlorodibenzofuran	0.30000	<0.28	<0.35	<0.26	<0.30
123478-hexachlorodibenzofuran	0.10000	<0.061	<0.060	<0.082	<0.068
123678-hexachlorodibenzofuran	0.10000	0.13	<0.058	<0.077	<0.090
234678-hexachlorodibenzofuran	0.10000	<0.059	<0.058	<0.079	<0.065
123789-hexachlorodibenzofuran	0.10000	<0.069	<0.069	<0.094	<0.077
1234678-heptachlorodibenzofuran	0.01000	<0.021	0.017	<0.015	<0.017
1234789-heptachlorodibenzofuran	0.01000	<0.015	<0.011	<0.017	<0.014
Octachlorodibenzofuran	0.00030	0.0015	0.0011	<0.00084	<0.0011
PCB 81	0.00030	0.0027	<0.00081	<0.00077	<0.0014
PCB 77	0.00010	0.014	0.0033	0.0014	0.0064
PCB 123	0.00003	0.0012	0.00035	<0.00013	<0.00056
PCB 118	0.00003	0.066	0.020	0.0062	0.031
PCB 114	0.00003	0.0016	0.00046	<0.00017	<0.00075
PCB 105	0.00003	0.019	0.0082	0.0019	0.0096
PCB 126	0.10000	<0.44	<0.33	<0.32	<0.37
PCB 167	0.00003	0.00041	0.00025	0.000053	0.00024
PCB 156/157	0.00003	0.0010	0.00072	<0.00014	<0.00062
PCB 169	0.03000	<0.054	<0.027	<0.021	<0.034
PCB 189	0.00003	<0.000052	<0.000027	<0.000041	<0.000040
Total Dioxins & Furans Only		<3.60	<3.39	<3.69	<3.56
Total PCBs Only		<0.60	<0.39	<0.35	<0.45
Total Dioxins & Furans and PCBs		<4.20	<3.78	<4.04	<4.01

* 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
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Average pg TEQ/Rm ³ *
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.73	<0.82	<0.73	<0.76
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.15	<1.05	<1.39	<1.20
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.15	<0.11	<0.10	<0.12
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.14	<0.10	<0.098	<0.11
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.14	<0.10	<0.098	<0.11
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.028	<0.023	<0.027	<0.026
Octachlorodibenzo-p-dioxin	0.00030	<0.0017	0.0022	<0.0020	<0.0020
2378-tetrachlorodibenzofuran	0.10000	<0.089	<0.080	<0.071	<0.080
12378-pentachlorodibenzofuran	0.03000	<0.026	<0.033	<0.024	<0.028
23478-pentachlorodibenzofuran	0.30000	<0.24	<0.29	<0.21	<0.25
123478-hexachlorodibenzofuran	0.10000	<0.051	<0.051	<0.068	<0.056
123678-hexachlorodibenzofuran	0.10000	0.11	<0.049	<0.064	<0.075
234678-hexachlorodibenzofuran	0.10000	<0.049	<0.049	<0.066	<0.055
123789-hexachlorodibenzofuran	0.10000	<0.058	<0.058	<0.078	<0.065
1234678-heptachlorodibenzofuran	0.01000	<0.017	0.014	<0.012	<0.015
1234789-heptachlorodibenzofuran	0.01000	<0.012	<0.0091	<0.014	<0.012
Octachlorodibenzofuran	0.00030	0.0012	0.00093	<0.00069	<0.00094
PCB 81	0.00030	0.0022	<0.00068	<0.00064	<0.0012
PCB 77	0.00010	0.012	0.0028	0.0012	0.0053
PCB 123	0.00003	0.0010	0.00030	<0.00011	<0.00047
PCB 118	0.00003	0.055	0.017	0.0051	0.026
PCB 114	0.00003	0.0013	0.00039	<0.00014	<0.00062
PCB 105	0.00003	0.016	0.0069	0.0016	0.0080
PCB 126	0.10000	<0.37	<0.28	<0.27	<0.30
PCB 167	0.00003	0.00034	0.00021	0.000044	0.00020
PCB 156/157	0.00003	0.00083	0.00060	<0.00012	<0.00052
PCB 169	0.03000	<0.045	<0.023	<0.018	<0.028
PCB 189	0.00003	<0.000043	<0.000023	<0.000034	<0.000033
Total Dioxins & Furans Only		<3.00	<2.85	<3.05	<2.97
Total PCBs Only		<0.50	<0.33	<0.29	<0.37
Total Dioxins & Furans and PCBs		<3.50	<3.18	<3.35	<3.34

* 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
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Average pg TEQ/Rm ³ *
2378-tetrachlorodibenzo-p-dioxin	1.00000	0.37	0.41	0.36	0.38
12378-pentachlorodibenzo-p-dioxin	1.00000	0.58	0.52	0.69	0.60
123478-hexachlorodibenzo-p-dioxin	0.10000	0.074	0.055	0.052	0.060
123678-hexachlorodibenzo-p-dioxin	0.10000	0.070	0.052	0.049	0.057
123789-hexachlorodibenzo-p-dioxin	0.10000	0.070	0.052	0.049	0.057
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.014	0.011	0.013	0.013
Octachlorodibenzo-p-dioxin	0.00030	0.00087	0.0022	0.00099	0.0013
2378-tetrachlorodibenzofuran	0.10000	0.045	0.040	0.036	0.040
12378-pentachlorodibenzofuran	0.03000	0.013	0.016	0.012	0.014
23478-pentachlorodibenzofuran	0.30000	0.12	0.15	0.11	0.12
123478-hexachlorodibenzofuran	0.10000	0.025	0.025	0.034	0.028
123678-hexachlorodibenzofuran	0.10000	0.11	0.024	0.032	0.056
234678-hexachlorodibenzofuran	0.10000	0.024	0.024	0.033	0.027
123789-hexachlorodibenzofuran	0.10000	0.029	0.029	0.039	0.032
1234678-heptachlorodibenzofuran	0.01000	0.0087	0.014	0.0061	0.0096
1234789-heptachlorodibenzofuran	0.01000	0.0061	0.0045	0.0072	0.0060
Octachlorodibenzofuran	0.00030	0.0012	0.00093	0.00035	0.00083
PCB 81	0.00030	0.0022	0.00034	0.00032	0.00097
PCB 77	0.00010	0.012	0.0028	0.0012	0.0053
PCB 123	0.00003	0.0010	0.00030	0.000053	0.00045
PCB 118	0.00003	0.055	0.017	0.0051	0.026
PCB 114	0.00003	0.0013	0.00039	0.000072	0.00060
PCB 105	0.00003	0.016	0.0069	0.0016	0.0080
PCB 126	0.10000	0.18	0.14	0.13	0.15
PCB 167	0.00003	0.00034	0.00021	0.000044	0.00020
PCB 156/157	0.00003	0.00083	0.00060	0.000059	0.00050
PCB 169	0.03000	0.022	0.012	0.0088	0.014
PCB 189	0.00003	0.000021	0.000012	0.000017	0.000017
Total Dioxins & Furans Only		1.55	1.43	1.53	1.50
Total PCBs Only		0.29	0.18	0.15	0.21
Total Dioxins & Furans and PCBs		1.85	1.61	1.68	1.71

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Test No. 1	Dry Adjusted Concentration			Average
		pg TEQ/Rm ³ *	pg TEQ/Rm ³ *	pg TEQ/Rm ³ *	pg TEQ/Rm ³ *	
2378-tetrachlorodibenzo-p-dioxin	1.00	<0.73	<0.82	<0.73	<0.76	
12378-pentachlorodibenzo-p-dioxin	0.50	<0.58	<0.52	<0.69	<0.60	
123478-hexachlorodibenzo-p-dioxin	0.10	<0.15	<0.11	<0.10	<0.12	
123678-hexachlorodibenzo-p-dioxin	0.10	<0.14	<0.10	<0.098	<0.11	
123789-hexachlorodibenzo-p-dioxin	0.10	<0.14	<0.10	<0.098	<0.11	
1234678-heptachlorodibenzo-p-dioxin	0.010	<0.028	<0.023	<0.027	<0.026	
Octachlorodibenzo-p-dioxin	0.0010	<0.0058	0.0072	<0.0066	<0.0065	
2378-tetrachlorodibenzofuran	0.10	<0.089	<0.080	<0.071	<0.080	
12378-pentachlorodibenzofuran	0.05	<0.044	<0.054	<0.040	<0.046	
23478-pentachlorodibenzofuran	0.50	<0.39	<0.49	<0.36	<0.41	
123478-hexachlorodibenzofuran	0.10	<0.051	<0.051	<0.068	<0.056	
123678-hexachlorodibenzofuran	0.10	0.11	<0.049	<0.064	<0.075	
234678-hexachlorodibenzofuran	0.10	<0.049	<0.049	<0.066	<0.055	
123789-hexachlorodibenzofuran	0.10	<0.058	<0.058	<0.078	<0.065	
1234678-heptachlorodibenzofuran	0.010	<0.017	0.014	<0.012	<0.015	
1234789-heptachlorodibenzofuran	0.010	<0.012	<0.0091	<0.014	<0.012	
Octachlorodibenzofuran	0.0010	0.0040	0.0031	<0.0023	<0.0031	
Total Dioxins & Furans		<2.60	<2.55	<2.53	<2.56	
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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Test No. 1 pg TEQ/Rm ³ *	Wet Reference Concentration		
			Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Average pg TEQ/Rm ³ *
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.74	<0.81	<0.73	<0.76
12378-pentachlorodibenzo-p-dioxin	1.00000	<1.16	<1.04	<1.39	<1.20
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.15	<0.11	<0.10	<0.12
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.14	<0.10	<0.098	<0.11
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.14	<0.10	<0.098	<0.11
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.028	<0.022	<0.027	<0.026
Octachlorodibenzo-p-dioxin	0.00030	<0.0017	0.0021	<0.0020	<0.0020
2378-tetrachlorodibenzofuran	0.10000	<0.090	<0.080	<0.072	<0.080
12378-pentachlorodibenzofuran	0.03000	<0.026	<0.032	<0.024	<0.028
23478-pentachlorodibenzofuran	0.30000	<0.24	<0.29	<0.21	<0.25
123478-hexachlorodibenzofuran	0.10000	<0.051	<0.050	<0.068	<0.056
123678-hexachlorodibenzofuran	0.10000	0.11	<0.048	<0.064	<0.075
234678-hexachlorodibenzofuran	0.10000	<0.049	<0.048	<0.066	<0.055
123789-hexachlorodibenzofuran	0.10000	<0.058	<0.057	<0.079	<0.065
1234678-heptachlorodibenzofuran	0.01000	<0.018	0.014	<0.012	<0.015
1234789-heptachlorodibenzofuran	0.01000	<0.012	<0.0090	<0.014	<0.012
Octachlorodibenzofuran	0.00030	0.0012	0.00092	<0.00070	<0.00094
PCB 81	0.00030	0.0023	<0.00067	<0.00064	<0.0012
PCB 77	0.00010	0.012	0.0028	0.0012	0.0053
PCB 123	0.00003	0.0010	0.00029	<0.00011	<0.00047
PCB 118	0.00003	0.055	0.017	0.0051	0.026
PCB 114	0.00003	0.0013	0.00038	<0.00014	<0.00062
PCB 105	0.00003	0.016	0.0068	0.0016	0.0080
PCB 126	0.10000	<0.37	<0.28	<0.27	<0.30
PCB 167	0.00003	0.00034	0.00021	0.000045	0.00020
PCB 156/157	0.00003	0.00084	0.00060	<0.00012	<0.00052
PCB 169	0.03000	<0.045	<0.023	<0.018	<0.028
PCB 189	0.00003	<0.000043	<0.000023	<0.000034	<0.000033
Total Dioxins & Furans Only		<3.01	<2.82	<3.07	<2.97
Total PCBs Only		<0.50	<0.33	<0.29	<0.38
Total Dioxins & Furans and PCBs		<3.51	<3.15	<3.37	<3.34

* 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
Reworld Durham York Renewable Energy L.P.
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	<0.014	<0.016	<0.014	<0.014
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.022	<0.020	<0.026	<0.023
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.0028	<0.0021	<0.0019	<0.0023
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.0027	<0.0020	<0.0018	<0.0021
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.0027	<0.0020	<0.0018	<0.0021
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.00053	<0.00043	<0.00050	<0.00049
Octachlorodibenzo-p-dioxin	0.00030	<0.000033	0.000041	<0.000037	<0.000037
2378-tetrachlorodibenzofuran	0.10000	<0.0017	<0.0015	<0.0013	<0.0015
12378-pentachlorodibenzofuran	0.03000	<0.00050	<0.00061	<0.00045	<0.00052
23478-pentachlorodibenzofuran	0.30000	<0.0045	<0.0056	<0.0040	<0.0047
123478-hexachlorodibenzofuran	0.10000	<0.00096	<0.00096	<0.0013	<0.0011
123678-hexachlorodibenzofuran	0.10000	0.0021	<0.00093	<0.0012	<0.0014
234678-hexachlorodibenzofuran	0.10000	<0.00093	<0.00093	<0.0012	<0.0010
123789-hexachlorodibenzofuran	0.10000	<0.0011	<0.0011	<0.0015	<0.0012
1234678-heptachlorodibenzofuran	0.01000	<0.00033	0.00026	<0.00023	<0.00027
1234789-heptachlorodibenzofuran	0.01000	<0.00023	<0.00017	<0.00027	<0.00022
Octachlorodibenzofuran	0.00030	0.000023	0.000018	<0.000013	<0.000018
PCB 81	0.00030	0.000043	<0.000013	<0.000012	<0.000022
PCB 77	0.00010	0.00023	0.000053	0.000022	0.00010
PCB 123	0.00003	0.000019	0.0000056	<0.0000020	<0.0000089
PCB 118	0.00003	0.0010	0.00032	0.000096	0.00048
PCB 114	0.00003	0.000025	0.0000073	<0.0000027	<0.000012
PCB 105	0.00003	0.00030	0.00013	0.000030	0.00015
PCB 126	0.10000	<0.0070	<0.0053	<0.0050	<0.0057
PCB 167	0.00003	0.0000065	0.0000040	0.00000083	0.0000038
PCB 156/157	0.00003	0.000016	0.000011	<0.0000022	<0.0000098
PCB 169	0.03000	<0.00085	<0.00044	<0.00033	<0.00054
PCB 189	0.00003	<0.00000082	<0.00000044	<0.00000064	<0.00000063
Total Dioxins & Furans Only		<0.057	<0.054	<0.057	<0.056
Total PCBs Only		<0.0095	<0.0063	<0.0055	<0.0071
Total Dioxins & Furans and PCBs		<0.066	<0.060	<0.063	<0.063

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
Reworld Durham York Renewable Energy L.P.
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	<0.53	<0.91	<0.76	<0.76	<0.014
12378-pentachlorodibenzo-p-dioxin	<0.84	<1.44	<1.20	<1.20	<0.023
123478-hexachlorodibenzo-p-dioxin	<0.084	<0.14	<0.12	<0.12	<0.0023
123678-hexachlorodibenzo-p-dioxin	<0.079	<0.14	<0.11	<0.11	<0.0021
123789-hexachlorodibenzo-p-dioxin	<0.079	<0.14	<0.11	<0.11	<0.0021
1234678-heptachlorodibenzo-p-dioxin	<0.018	<0.031	<0.026	<0.026	<0.00049
Octachlorodibenzo-p-dioxin	<0.0014	<0.0023	<0.0020	<0.0020	<0.000037
2378-tetrachlorodibenzofuran	<0.056	<0.096	<0.080	<0.080	<0.0015
12378-pentachlorodibenzofuran	<0.019	<0.033	<0.028	<0.028	<0.00052
23478-pentachlorodibenzofuran	<0.17	<0.30	<0.25	<0.25	<0.0047
123478-hexachlorodibenzofuran	<0.039	<0.068	<0.056	<0.056	<0.0011
123678-hexachlorodibenzofuran	<0.052	<0.090	<0.075	<0.075	<0.0014
234678-hexachlorodibenzofuran	<0.038	<0.065	<0.055	<0.055	<0.0010
123789-hexachlorodibenzofuran	<0.045	<0.077	<0.065	<0.065	<0.0012
1234678-heptachlorodibenzofuran	<0.010	<0.017	<0.015	<0.015	<0.00027
1234789-heptachlorodibenzofuran	<0.0083	<0.014	<0.012	<0.012	<0.00022
Octachlorodibenzofuran	<0.00066	<0.0011	<0.00094	<0.00094	<0.000018
PCB 81	<0.00083	<0.0014	<0.0012	<0.0012	<0.000022
PCB 77	0.0037	0.0064	0.0053	0.0053	0.00010
PCB 123	<0.00033	<0.00056	<0.00047	<0.00047	<0.0000089
PCB 118	0.018	0.031	0.026	0.026	0.00048
PCB 114	<0.00044	<0.00075	<0.00062	<0.00062	<0.000012
PCB 105	0.0056	0.0096	0.0080	0.0080	0.00015
PCB 126	<0.21	<0.37	<0.30	<0.30	<0.0057
PCB 167	0.00014	0.00024	0.00020	0.00020	0.0000038
PCB 156/157	<0.00036	<0.00062	<0.00052	<0.00052	<0.0000098
PCB 169	<0.020	<0.034	<0.028	<0.028	<0.00054
PCB 189	<0.000023	<0.000040	<0.000033	<0.000033	<0.00000063
Total Dioxins & Furans Only	<2.07	<3.56	<2.97	<2.97	<0.056
Total PCBs Only	<0.26	<0.45	<0.37	<0.38	<0.0071
Total Dioxins & Furans and PCBs	<2.34	<4.01	<3.34	<3.34	<0.063

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using Half the Detection Limit

Specific Isomer	Actual Concentration pg TEQ/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	0.27	0.46	0.381	0.38	0.0072
12378-pentachlorodibenzo-p-dioxin	0.42	0.72	0.60	0.60	0.011
123478-hexachlorodibenzo-p-dioxin	0.042	0.072	0.060	0.060	0.0011
123678-hexachlorodibenzo-p-dioxin	0.040	0.068	0.057	0.057	0.0011
123789-hexachlorodibenzo-p-dioxin	0.040	0.068	0.057	0.057	0.0011
1234678-heptachlorodibenzo-p-dioxin	0.0090	0.015	0.013	0.013	0.00024
Octachlorodibenzo-p-dioxin	0.00093	0.0016	0.0013	0.0013	0.000025
2378-tetrachlorodibenzofuran	0.028	0.048	0.040	0.040	0.00076
12378-pentachlorodibenzofuran	0.0096	0.017	0.014	0.014	0.00026
23478-pentachlorodibenzofuran	0.086	0.15	0.12	0.12	0.0023
123478-hexachlorodibenzofuran	0.020	0.034	0.028	0.028	0.00053
123678-hexachlorodibenzofuran	0.039	0.067	0.056	0.056	0.0011
234678-hexachlorodibenzofuran	0.019	0.033	0.027	0.027	0.00051
123789-hexachlorodibenzofuran	0.023	0.039	0.032	0.032	0.00061
1234678-heptachlorodibenzofuran	0.0067	0.011	0.0096	0.0096	0.00018
1234789-heptachlorodibenzofuran	0.0042	0.0071	0.0060	0.0060	0.00011
Octachlorodibenzofuran	0.00058	0.00099	0.00083	0.00083	0.000016
PCB 81	0.00068	0.0012	0.00097	0.00097	0.000018
PCB 77	0.0037	0.0064	0.0053	0.0053	0.00010
PCB 123	0.00032	0.00054	0.00045	0.00045	0.0000086
PCB 118	0.018	0.031	0.026	0.026	0.00048
PCB 114	0.00042	0.00072	0.00060	0.00060	0.000011
PCB 105	0.0056	0.0096	0.0080	0.0080	0.00015
PCB 126	0.11	0.18	0.15	0.15	0.0029
PCB 167	0.00014	0.00024	0.00020	0.00020	0.0000038
PCB 156/157	0.00035	0.00060	0.00050	0.00050	0.0000094
PCB 169	0.0099	0.017	0.014	0.014	0.00027
PCB 189	0.000012	0.000020	0.000017	0.000017	0.00000032
Total Dioxins & Furans Only	1.05	1.81	1.50	1.51	0.028
Total PCBs Only	0.15	0.25	0.21	0.21	0.0039
Total Dioxins & Furans and PCBs	1.20	2.05	1.71	1.71	0.032

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Emission Data for Chlorobenzenes
Test No. 1

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	1250	154	263	218	220	4.15
1,3-Dichlorobenzene	261	32.1	54.9	45.6	45.9	0.87
1,4-Dichlorobenzene	162	19.9	34.0	28.3	28.5	0.54
1,2-Dichlorobenzene	188	23.1	39.5	32.9	33.0	0.62
Total Dichlorobenzene	611	75.1	128	107	107	2.03
1,3,5-trichlorobenzene	26.7	3.28	5.61	4.67	4.69	0.089
1,2,4-trichlorobenzene	48.2	5.93	10.1	8.42	8.47	0.16
1,2,3-trichlorobenzene	19.4	2.39	4.08	3.39	3.41	0.064
Total Trichlorobenzene	94.3	11.6	19.8	16.5	16.6	0.31
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	12.3	1.51	2.59	2.15	2.16	0.041
1,2,3,4-tetrachlorobenzene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Total Tetrachlorobenzene	<24.3	<2.99	<5.11	<4.25	<4.27	<0.081
Pentachlorobenzene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Hexachlorobenzene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Total Chlorobenzenes	<2004	<246	<421	<350	<352	<6.65

Dry Gas Volume Sampled (Rm ^{3*}) :	4.758
Actual Flowrate (m ³ /s) :	27.0
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	19.0
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 52
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Emission Data for Chlorobenzenes
Test No. 2

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	1430	173	297	250	247	4.73
1,3-Dichlorobenzene	251	30.4	52.2	43.9	43.4	0.83
1,4-Dichlorobenzene	146	17.7	30.4	25.5	25.3	0.48
1,2-Dichlorobenzene	179	21.7	37.2	31.3	31.0	0.59
Total Dichlorobenzene	576	69.7	120	101	99.7	1.90
1,3,5-trichlorobenzene	22.1	2.68	4.59	3.87	3.82	0.073
1,2,4-trichlorobenzene	47.9	5.80	9.96	8.38	8.29	0.16
1,2,3-trichlorobenzene	16.8	2.03	3.49	2.94	2.91	0.056
Total Trichlorobenzene	86.8	10.5	18.0	15.2	15.0	0.29
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.45	<2.49	<2.10	<2.08	<0.040
1,2,3,4-tetrachlorobenzene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Total Tetrachlorobenzene	<24.0	<2.91	<4.99	<4.20	<4.15	<0.079
Pentachlorobenzene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Hexachlorobenzene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Total Chlorobenzenes	<2141	<259	<445	<374	<371	<7.08

Dry Gas Volume Sampled (Rm ^{3*}) :	4.810
Actual Flowrate (m ³ /s) :	27.3
Dry Reference Flowrate (Rm ³ /s*) :	15.9
Dry Adjusted Flowrate (Rm ³ /s**) :	18.9
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

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

TABLE 53
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Emission Data for Chlorobenzenes
Test No. 3

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	1020	127	219	181	182	3.39
1,3-Dichlorobenzene	207	25.8	44.4	36.8	37.0	0.69
1,4-Dichlorobenzene	130	16.2	27.9	23.1	23.2	0.43
1,2-Dichlorobenzene	139	17.3	29.8	24.7	24.8	0.46
Total Dichlorobenzene	476	59.3	102	84.6	85.1	1.58
1,3,5-trichlorobenzene	20.3	2.53	4.35	3.61	3.63	0.067
1,2,4-trichlorobenzene	38.6	4.81	8.28	6.86	6.90	0.13
1,2,3-trichlorobenzene	14.0	1.74	3.00	2.49	2.50	0.047
Total Trichlorobenzene	72.9	9.08	15.6	13.0	13.0	0.24
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.49	<2.57	<2.13	<2.15	<0.040
1,2,3,4-tetrachlorobenzene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Total Tetrachlorobenzene	<24.0	<2.99	<5.15	<4.27	<4.29	<0.080
Pentachlorobenzene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Hexachlorobenzene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Total Chlorobenzenes	<1617	<201	<347	<287	<289	<5.38

Dry Gas Volume Sampled (Rm ^{3*}) :	4.662
Actual Flowrate (m ³ /s) :	26.7
Dry Reference Flowrate (Rm ³ /s*) :	15.5
Dry Adjusted Flowrate (Rm ³ /s**) :	18.7
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

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

TABLE 54
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Actual Concentrations for Chlorobenzenes

Specific Isomer	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
Monochlorobenzene	154	173	127	151	15.3
1,3-Dichlorobenzene	32.1	30.4	25.8	29.4	11.1
1,4-Dichlorobenzene	19.9	17.7	16.2	17.9	10.5
1,2-Dichlorobenzene	23.1	21.7	17.3	20.7	14.6
Total Dichlorobenzene	75.1	69.7	59.3	68.1	11.9
1,3,5-trichlorobenzene	3.28	2.68	2.53	2.83	14.2
1,2,4-trichlorobenzene	5.93	5.80	4.81	5.51	11.1
1,2,3-trichlorobenzene	2.39	2.03	1.74	2.05	15.7
Total Trichlorobenzene	11.6	10.5	9.08	10.4	12.2
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	1.51	<1.45	<1.49	<1.49	2.1
1,2,3,4-tetrachlorobenzene	<1.48	<1.45	<1.49	<1.47	1.4
Total Tetrachlorobenzene	<2.99	<2.91	<2.99	<2.96	1.6
Pentachlorobenzene	<1.48	<1.45	<1.49	<1.47	1.4
Hexachlorobenzene	<1.48	<1.45	<1.49	<1.47	1.4
Total Chlorobenzenes	<246	<259	<201	<236	12.9

TABLE 55
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Monochlorobenzene	263	297	219	260	15.2
1,3-Dichlorobenzene	54.9	52.2	44.4	50.5	10.8
1,4-Dichlorobenzene	34.0	30.4	27.9	30.8	10.1
1,2-Dichlorobenzene	39.5	37.2	29.8	35.5	14.3
Total Dichlorobenzene	128	120	102	117	11.5
1,3,5-trichlorobenzene	5.61	4.59	4.35	4.85	13.8
1,2,4-trichlorobenzene	10.1	9.96	8.28	9.46	10.8
1,2,3-trichlorobenzene	4.08	3.49	3.00	3.52	15.3
Total Trichlorobenzene	19.8	18.0	15.6	17.8	11.8
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	2.59	<2.49	<2.57	<2.55	1.9
1,2,3,4-tetrachlorobenzene	<2.52	<2.49	<2.57	<2.53	1.6
Total Tetrachlorobenzene	<5.11	<4.99	<5.15	<5.08	1.6
Pentachlorobenzene	<2.52	<2.49	<2.57	<2.53	1.6
Hexachlorobenzene	<2.52	<2.49	<2.57	<2.53	1.6
Total Chlorobenzenes	<421	<445	<347	<404	12.7

* At 25°C and 1 atmosphere

TABLE 56
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Dry Adjusted Concentrations for Chlorobenzenes

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation %
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *	Average ng/Rm ³ *	
Monochlorobenzene	218	250	181	217	15.9
1,3-Dichlorobenzene	45.6	43.9	36.8	42.1	11.1
1,4-Dichlorobenzene	28.3	25.5	23.1	25.7	10.1
1,2-Dichlorobenzene	32.9	31.3	24.7	29.6	14.6
Total Dichlorobenzene	107	101	84.6	97.4	11.8
1,3,5-trichlorobenzene	4.67	3.87	3.61	4.05	13.6
1,2,4-trichlorobenzene	8.42	8.38	6.86	7.89	11.3
1,2,3-trichlorobenzene	3.39	2.94	2.49	2.94	15.3
Total Trichlorobenzene	16.5	15.2	13.0	14.9	12.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	2.15	<2.10	<2.13	<2.13	1.2
1,2,3,4-tetrachlorobenzene	<2.10	<2.10	<2.13	<2.11	1.0
Total Tetrachlorobenzene	<4.25	<4.20	<4.27	<4.24	0.8
Pentachlorobenzene	<2.10	<2.10	<2.13	<2.11	1.0
Hexachlorobenzene	<2.10	<2.10	<2.13	<2.11	1.0
Total Chlorobenzenes	<350	<374	<287	<337	13.3

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

TABLE 57
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Monochlorobenzene	220	247	182	216	15.1
1,3-Dichlorobenzene	45.9	43.4	37.0	42.1	10.9
1,4-Dichlorobenzene	28.5	25.3	23.2	25.7	10.3
1,2-Dichlorobenzene	33.0	31.0	24.8	29.6	14.4
Total Dichlorobenzene	107	99.7	85.1	97.4	11.6
1,3,5-trichlorobenzene	4.69	3.82	3.63	4.05	14.0
1,2,4-trichlorobenzene	8.47	8.29	6.90	7.89	10.9
1,2,3-trichlorobenzene	3.41	2.91	2.50	2.94	15.4
Total Trichlorobenzene	16.6	15.0	13.0	14.9	11.9
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	2.16	<2.08	<2.15	<2.13	2.1
1,2,3,4-tetrachlorobenzene	<2.11	<2.08	<2.15	<2.11	1.6
Total Tetrachlorobenzene	<4.27	<4.15	<4.29	<4.24	1.7
Pentachlorobenzene	<2.11	<2.08	<2.15	<2.11	1.6
Hexachlorobenzene	<2.11	<2.08	<2.15	<2.11	1.6
Total Chlorobenzenes	<352	<371	<289	<337	12.7

* At 25°C and 1 atmosphere

TABLE 58
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Emission Rates for Chlorobenzenes

Specific Isomer	Emission Rate			Average µg/s	Coefficient of Variation %
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s		
Monochlorobenzene	4.15	4.73	3.39	4.09	16.4
1,3-Dichlorobenzene	0.87	0.83	0.69	0.79	11.9
1,4-Dichlorobenzene	0.54	0.48	0.43	0.48	10.9
1,2-Dichlorobenzene	0.62	0.59	0.46	0.56	15.3
Total Dichlorobenzene	2.03	1.90	1.58	1.84	12.5
1,3,5-trichlorobenzene	0.089	0.073	0.067	0.076	14.4
1,2,4-trichlorobenzene	0.16	0.16	0.13	0.15	12.0
1,2,3-trichlorobenzene	0.064	0.056	0.047	0.056	16.1
Total Trichlorobenzene	0.31	0.29	0.24	0.28	12.7
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	0.041	<0.040	<0.040	<0.040	1.6
1,2,3,4-tetrachlorobenzene	<0.040	<0.040	<0.040	<0.040	0.3
Total Tetrachlorobenzene	<0.081	<0.079	<0.080	<0.080	0.9
Pentachlorobenzene	<0.040	<0.040	<0.040	<0.040	0.3
Hexachlorobenzene	<0.040	<0.040	<0.040	<0.040	0.3
Total Chlorobenzenes	<6.65	<7.08	<5.38	<6.37	13.9

TABLE 59
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Emission Data for Chlorobenzenes

Specific Isomer	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	151	260	217	216	4.09
1,3-Dichlorobenzene	29.4	50.5	42.1	42.1	0.79
1,4-Dichlorobenzene	17.9	30.8	25.7	25.7	0.48
1,2-Dichlorobenzene	20.7	35.5	29.6	29.6	0.56
Total Dichlorobenzene	68.1	117	97.4	97.4	1.84
1,3,5-trichlorobenzene	2.83	4.85	4.05	4.05	0.076
1,2,4-trichlorobenzene	5.51	9.46	7.89	7.89	0.15
1,2,3-trichlorobenzene	2.05	3.52	2.94	2.94	0.056
Total Trichlorobenzene	10.4	17.8	14.9	14.9	0.28
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.49	<2.55	<2.13	<2.13	<0.040
1,2,3,4-tetrachlorobenzene	<1.47	<2.53	<2.11	<2.11	<0.040
Total Tetrachlorobenzene	<2.96	<5.08	<4.24	<4.24	<0.080
Pentachlorobenzene	<1.47	<2.53	<2.11	<2.11	<0.040
Hexachlorobenzene	<1.47	<2.53	<2.11	<2.11	<0.040
Total Chlorobenzenes	<236	<404	<337	<337	<6.37

* At 25°C and 1 atmosphere

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

TABLE 60
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorobenzene Blank Analyses

Isomers and Congener Group Totals	Blank Train Total ng	Method Blank Total ng
Monochlorobenzene	48.9	<12
1,3-Dichlorobenzene	<12	<12
1,4-Dichlorobenzene	14.3	<12
1,2-Dichlorobenzene	<12	<12
Total Dichlorobenzene	<38.3	<36.0
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	<171	<132

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 1

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
2-monochlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
3 & 4-monochlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
Total Monochlorophenols	<120	<14.8	<25.2	<21.0	<21.1	<0.40
2,6-dichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,4 & 2,5-dichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
3,5-dichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,3-dichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
3,4-dichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
Total Dichlorophenols	<300	<36.9	<63.1	<52.4	<52.7	<1.00
2,4,6-trichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,3,6-trichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,3,5-trichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,4,5-trichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,3,4-trichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
3,4,5-trichlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
Total Trichlorophenols	<360	<44.3	<75.7	<62.9	<63.3	<1.20
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
2,3,4,5-tetrachlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
Total Tetrachlorophenols	<120	<14.8	<25.2	<21.0	<21.1	<0.40
Pentachlorophenol	<60	<7.38	<12.6	<10.5	<10.5	<0.20
Total Chlorophenols	<960	<118	<202	<168	<169	<3.19

Dry Gas Volume Sampled (Rm ^{3*}) :	4.758
Actual Flowrate (m ³ /s) :	27.0
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	19.0
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 62
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ³ *	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
2-monochlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
3 & 4-monochlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
Total Monochlorophenols	<120	<14.5	<24.9	<21.0	<20.8	<0.40
2,6-dichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,4 & 2,5-dichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
3,5-dichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,3-dichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
3,4-dichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
Total Dichlorophenols	<300	<36.3	<62.4	<52.5	<51.9	<0.99
2,4,6-trichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,3,6-trichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,3,5-trichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,4,5-trichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,3,4-trichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
3,4,5-trichlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
Total Trichlorophenols	<360	<43.6	<74.8	<63.0	<62.3	<1.19
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
2,3,4,5-tetrachlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
Total Tetrachlorophenols	<120	<14.5	<24.9	<21.0	<20.8	<0.40
Pentachlorophenol	<60	<7.27	<12.5	<10.5	<10.4	<0.20
Total Chlorophenols	<960	<116	<200	<168	<166	<3.17

Dry Gas Volume Sampled (Rm ³ *) :	4.810
Actual Flowrate (m ³ /s) :	27.3
Dry Reference Flowrate (Rm ³ /s*) :	15.9
Dry Adjusted Flowrate (Rm ³ /s**) :	18.9
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

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

TABLE 63
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 3

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
2-monochlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
3 & 4-monochlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
Total Monochlorophenols	<120	<14.9	<25.7	<21.3	<21.5	<0.40
2,6-dichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,4 & 2,5-dichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
3,5-dichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,3-dichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
3,4-dichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
Total Dichlorophenols	<300	<37.4	<64.4	<53.3	<53.6	<1.00
2,4,6-trichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,3,6-trichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,3,5-trichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,4,5-trichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,3,4-trichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
3,4,5-trichlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
Total Trichlorophenols	<360	<44.8	<77.2	<64.0	<64.4	<1.20
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
2,3,4,5-tetrachlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
Total Tetrachlorophenols	<120	<14.9	<25.7	<21.3	<21.5	<0.40
Pentachlorophenol	<60	<7.47	<12.9	<10.7	<10.7	<0.20
Total Chlorophenols	<960	<120	<206	<171	<172	<3.19

Dry Gas Volume Sampled (Rm ^{3*}) :	4.662
Actual Flowrate (m ³ /s) :	26.7
Dry Reference Flowrate (Rm ³ /s*) :	15.5
Dry Adjusted Flowrate (Rm ³ /s**) :	18.7
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

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

TABLE 64
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Actual Concentrations

Specific Isomer	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
2-monochlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
3 & 4-monochlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
Total Monochlorophenols	<14.8	<14.5	<14.9	<14.7	1.4
2,6-dichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,4 & 2,5-dichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
3,5-dichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,3-dichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
3,4-dichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
Total Dichlorophenols	<36.9	<36.3	<37.4	<36.9	1.4
2,4,6-trichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,3,6-trichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,3,5-trichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,4,5-trichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,3,4-trichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
3,4,5-trichlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
Total Trichlorophenols	<44.3	<43.6	<44.8	<44.2	1.4
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
2,3,4,5-tetrachlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
Total Tetrachlorophenols	<14.8	<14.5	<14.9	<14.7	1.4
Pentachlorophenol	<7.38	<7.27	<7.47	<7.37	1.4
Total Chlorophenols	<118	<116	<120	<118	1.4

TABLE 65
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Dry Reference Concentrations

Specific Isomer	Dry Reference Concentration				Coefficient of Variation
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *	Average ng/Rm ³ *	
2-monochlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
3 & 4-monochlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
Total Monochlorophenols	<25.2	<24.9	<25.7	<25.3	1.6
2,6-dichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,4 & 2,5-dichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
3,5-dichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,3-dichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
3,4-dichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
Total Dichlorophenols	<63.1	<62.4	<64.4	<63.3	1.6
2,4,6-trichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,3,6-trichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,3,5-trichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,4,5-trichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,3,4-trichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
3,4,5-trichlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
Total Trichlorophenols	<75.7	<74.8	<77.2	<75.9	1.6
2,3,5,6/2,3,4,6-tetrachlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
2,3,4,5-tetrachlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
Total Tetrachlorophenols	<25.2	<24.9	<25.7	<25.3	1.6
Pentachlorophenol	<12.6	<12.5	<12.9	<12.7	1.6
Total Chlorophenols	<202	<200	<206	<202	1.6

* At 25°C and 1 atmosphere

TABLE 66
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
2-monochlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
3 & 4-monochlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
Total Monochlorophenols	<21.0	<21.0	<21.3	<21.1	1.0
2,6-dichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,4 & 2,5-dichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
3,5-dichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,3-dichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
3,4-dichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
Total Dichlorophenols	<52.4	<52.5	<53.3	<52.7	1.0
2,4,6-trichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,3,6-trichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,3,5-trichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,4,5-trichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,3,4-trichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
3,4,5-trichlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
Total Trichlorophenols	<62.9	<63.0	<64.0	<63.3	1.0
2,3,5,6/2,3,4,6-tetrachlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
2,3,4,5-tetrachlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
Total Tetrachlorophenols	<21.0	<21.0	<21.3	<21.1	1.0
Pentachlorophenol	<10.5	<10.5	<10.7	<10.5	1.0
Total Chlorophenols	<168	<168	<171	<169	1.0

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

TABLE 67
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
2-monochlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
3 & 4-monochlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
Total Monochlorophenols	<21.1	<20.8	<21.5	<21.1	1.6
2,6-dichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,4 & 2,5-dichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
3,5-dichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,3-dichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
3,4-dichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
Total Dichlorophenols	<52.7	<51.9	<53.6	<52.8	1.6
2,4,6-trichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,3,6-trichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,3,5-trichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,4,5-trichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,3,4-trichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
3,4,5-trichlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
Total Trichlorophenols	<63.3	<62.3	<64.4	<63.3	1.6
2,3,5,6/2,3,4,6-tetrachlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
2,3,4,5-tetrachlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
Total Tetrachlorophenols	<21.1	<20.8	<21.5	<21.1	1.6
Pentachlorophenol	<10.5	<10.4	<10.7	<10.6	1.6
Total Chlorophenols	<169	<166	<172	<169	1.6

* At 25°C and 1 atmosphere

TABLE 68
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorophenol Isomer and Congener Group Emission Rates

Specific Isomer	Emission Rate			Average µg/s	Coefficient of Variation %
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s		
2-monochlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
3 & 4-monochlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
Total Monochlorophenols	<0.40	<0.40	<0.40	<0.40	0.3
2,6-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,4 & 2,5-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
3,5-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,3-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
3,4-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
Total Dichlorophenols	<1.00	<0.99	<1.00	<1.00	0.3
2,4,6-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,3,6-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,3,5-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,4,5-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,3,4-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
3,4,5-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
Total Trichlorophenols	<1.20	<1.19	<1.20	<1.19	0.3
2,3,5,6/2,3,4,6-tetrachlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
2,3,4,5-tetrachlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
Total Tetrachlorophenols	<0.40	<0.40	<0.40	<0.40	0.3
Pentachlorophenol	<0.20	<0.20	<0.20	<0.20	0.3
Total Chlorophenols	<3.19	<3.17	<3.19	<3.18	0.3

TABLE 69
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Emission Data for Chlorophenol Isomer and Congener Groups

Specific Isomer	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
2-monochlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
3 & 4-monochlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
Total Monochlorophenols	<14.7	<25.3	<21.1	<21.1	<0.40
2,6-dichlorophenol	<7.4	<12.7	<10.5	<10.6	<0.20
2,4 & 2,5-dichlorophenol	<7.4	<12.7	<10.5	<10.6	<0.20
3,5-dichlorophenol	<7.4	<12.7	<10.5	<10.6	<0.20
2,3-dichlorophenol	<7.4	<12.7	<10.5	<10.6	<0.20
3,4-dichlorophenol	<7.4	<12.7	<10.5	<10.6	<0.20
Total Dichlorophenols	<36.9	<63.3	<52.7	<52.8	<1.00
2,4,6-trichlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
2,3,6-trichlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
2,3,5-trichlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
2,4,5-trichlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
2,3,4-trichlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
3,4,5-trichlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
Total Trichlorophenols	<44.2	<75.9	<63.3	<63.3	<1.19
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
2,3,4,5-tetrachlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
Total Tetrachlorophenols	<14.7	<25.3	<21.1	<21.1	<0.40
Pentachlorophenol	<7.37	<12.7	<10.5	<10.6	<0.20
Total Chlorophenols	<118	<202	<169	<169	<3.18

* At 25°C and 1 atmosphere

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

TABLE 70
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Chlorophenol Blank Analyses

Congener Group	Media Blank Total ng	Blank Train Total ng
2-monochlorophenol	<60	<60
3 & 4-monochlorophenol	<60	<60
Total Monochlorophenols	<120	<120
2,6-dichlorophenol	<60	<60
2,4 & 2,5-dichlorophenol	<60	<60
3,5-dichlorophenol	<60	<60
2,3-dichlorophenol	<60	<60
3,4-dichlorophenol	<60	<60
Total Dichlorophenols	<300	<300
2,4,6-trichlorophenol	<60	<60
2,3,6-trichlorophenol	<60	<60
2,3,5-trichlorophenol	<60	<60
2,4,5-trichlorophenol	<60	<60
2,3,4-trichlorophenol	<60	<60
3,4,5-trichlorophenol	<60	<60
Total Trichlorophenols	<360	<360
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<60
2,3,4,5-tetrachlorophenol	<60	<60
Total Tetrachlorophenols	<120	<120
Pentachlorophenol	<60	<60
Total Chlorophenols	<960	<960

"<" 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
Acenaphthene	162	19.9	34.0	28.3	28.5	0.54
Acenaphthylene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Anthracene	67.9	8.35	14.3	11.9	11.9	0.23
Benzo(a)Anthracene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Benzo(b)Fluoranthene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Benzo(k/j)Fluoranthene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Benzo(a)fluorene	21.3	2.62	4.48	3.72	3.74	0.071
Benzo(b)fluorene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Benzo(g,h,i)Perylene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Benzo(a)Pyrene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Benzo(e)Pyrene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Biphenyl	191	23.5	40.1	33.4	33.6	0.63
2-Chloronaphthalene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Chrysene/Triphenylene/Benzo(b)anthracene	21.3	2.62	4.48	3.72	3.74	0.071
Coronene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Dibenzo(a,c/a,h)Anthracene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Dibenzo(a,e)pyrene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
9,10-dimethylanthracene	42.5	5.23	8.93	7.43	7.47	0.14
7,12-Dimethylbenzo(a)anthracene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Fluoranthene	471	57.9	99.0	82.3	82.8	1.56
Fluorene	30.6	3.76	6.43	5.35	5.38	0.10
Indeno(1,2,3-cd)Pyrene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
2-methylanthracene	174	21.4	36.6	30.4	30.6	0.58
3-Methylcholanthrene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
1-Methylnaphthalene	28.6	3.52	6.01	5.00	5.03	0.095
2-Methylnaphthalene	55.1	6.78	11.6	9.63	9.68	0.18
1-Methylphenanthrene	180	22.1	37.8	31.5	31.6	0.60
9-Methylphenanthrene	403	49.6	84.7	70.4	70.8	1.34
Naphthalene	224	27.5	47.1	39.1	39.4	0.74
Perylene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Phenanthrene	2170	267	456	379	381	7.21
Picene	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Pyrene	338	41.6	71.0	59.1	59.4	1.12
Tetralin	63.6	7.82	13.4	11.1	11.2	0.21
m-terphenyl	28.1	3.46	5.91	4.91	4.94	0.093
o-Terphenyl	30.3	3.73	6.37	5.30	5.32	0.10
p-terphenyl	<12	<1.48	<2.52	<2.10	<2.11	<0.040
Total	<4918	<605	<1034	<860	<864	<16.3

Dry Gas Volume Sampled (Rm ^{3*}) :	4.758
Actual Flowrate (m ³ /s) :	27.0
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	19.0
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 72
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
Acenaphthene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Acenaphthylene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Anthracene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(a)Anthracene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(b)Fluoranthene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(k/j)Fluoranthene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(a)fluorene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(b)fluorene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(g,h,i)Perylene	15.9	1.93	3.31	2.78	2.75	0.053
Benzo(a)Pyrene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Benzo(e)Pyrene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Biphenyl	27.5	3.33	5.72	4.81	4.76	0.091
2-Chloronaphthalene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Chrysene/Triphenylene/Benzo(b)anthracene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Coronene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Dibenzo(a,c/a,h)Anthracene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Dibenzo(a,e)pyrene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
9,10-dimethylanthracene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
7,12-Dimethylbenzo(a)anthracene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Fluoranthene	36.1	4.37	7.51	6.31	6.25	0.12
Fluorene	13.8	1.67	2.87	2.41	2.39	0.046
Indeno(1,2,3-cd)Pyrene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
2-methylanthracene	12.9	1.56	2.68	2.26	2.23	0.043
3-Methylcholanthrene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
1-Methylnaphthalene	18.6	2.25	3.87	3.25	3.22	0.061
2-Methylnaphthalene	36.3	4.40	7.55	6.35	6.28	0.12
1-Methylphenanthrene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
9-Methylphenanthrene	34.5	4.18	7.17	6.03	5.97	0.11
Naphthalene	192	23.2	39.9	33.6	33.2	0.63
Perylene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Phenanthrene	153	18.5	31.8	26.8	26.5	0.51
Picene	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Pyrene	36.2	4.38	7.53	6.33	6.27	0.12
Tetralin	59.5	7.20	12.4	10.4	10.3	0.20
m-terphenyl	<12	<1.45	<2.49	<2.10	<2.08	<0.040
o-Terphenyl	<12	<1.45	<2.49	<2.10	<2.08	<0.040
p-terphenyl	<12	<1.45	<2.49	<2.10	<2.08	<0.040
Total	<936	<113	<195	<164	<162	<3.10

Dry Gas Volume Sampled (Rm ^{3*}) :	4.810
Actual Flowrate (m ³ /s) :	27.3
Dry Reference Flowrate (Rm ³ /s*) :	15.9
Dry Adjusted Flowrate (Rm ³ /s**) :	18.9
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

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

TABLE 73
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
Acenaphthene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Acenaphthylene	19.9	2.48	4.27	3.54	3.56	0.066
Anthracene	121	15.1	26.0	21.5	21.6	0.40
Benzo(a)Anthracene	35.1	4.37	7.53	6.24	6.27	0.12
Benzo(b)Fluoranthene	24.0	2.99	5.15	4.27	4.29	0.080
Benzo(k/j)Fluoranthene	22.7	2.83	4.87	4.04	4.06	0.075
Benzo(a)fluorene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Benzo(b)fluorene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Benzo(g,h,i)Perylene	21.8	2.71	4.68	3.88	3.90	0.072
Benzo(a)Pyrene	17.5	2.18	3.75	3.11	3.13	0.058
Benzo(e)Pyrene	35.4	4.41	7.59	6.29	6.33	0.12
Biphenyl	42.4	5.28	9.09	7.54	7.58	0.14
2-Chloronaphthalene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Chrysene/Triphenylene/Benzo(b)anthracene	183	22.8	39.3	32.5	32.7	0.61
Coronene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Dibenzo(a,c/a,h)Anthracene	14.1	1.76	3.02	2.51	2.52	0.047
Dibenzo(a,e)pyrene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
9,10-dimethylanthracene	12.7	1.58	2.72	2.26	2.27	0.042
7,12-Dimethylbenzo(a)anthracene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Fluoranthene	285	35.5	61.1	50.7	50.9	0.95
Fluorene	492	61.3	106	87.5	87.9	1.64
Indeno(1,2,3-cd)Pyrene	16.0	1.99	3.43	2.84	2.86	0.053
2-methylanthracene	321	40.0	68.9	57.1	57.4	1.07
3-Methylcholanthrene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
1-Methylnaphthalene	27.3	3.40	5.86	4.85	4.88	0.091
2-Methylnaphthalene	57.7	7.18	12.4	10.3	10.3	0.19
1-Methylphenanthrene	75.3	9.38	16.2	13.4	13.5	0.25
9-Methylphenanthrene	301	37.5	64.6	53.5	53.8	1.00
Naphthalene	183	22.8	39.3	32.5	32.7	0.61
Perylene	13.8	1.72	2.96	2.45	2.47	0.046
Phenanthrene	885	110	190	157	158	2.94
Picene	<12	<1.49	<2.57	<2.13	<2.15	<0.040
Pyrene	164	20.4	35.2	29.2	29.3	0.55
Tetralin	47.3	5.89	10.1	8.41	8.45	0.16
m-terphenyl	90.0	11.2	19.3	16.0	16.1	0.30
o-Terphenyl	<12	<1.49	<2.57	<2.13	<2.15	<0.040
p-terphenyl	15.5	1.93	3.32	2.76	2.77	0.052
Total	<3644	<454	<782	<648	<651	<12.1

Dry Gas Volume Sampled (Rm ^{3*}) :	4.662
Actual Flowrate (m ³ /s) :	26.7
Dry Reference Flowrate (Rm ³ /s*) :	15.5
Dry Adjusted Flowrate (Rm ³ /s**) :	18.7
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

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

TABLE 74
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Actual Concentrations

Compound	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
Acenaphthene	19.9	<1.45	<1.49	<7.62	140
Acenaphthylene	<1.48	<1.45	2.48	<1.80	32.5
Anthracene	8.35	<1.45	15.1	<8.29	82.1
Benzo(a)Anthracene	<1.48	<1.45	4.37	<2.43	69.0
Benzo(b)Fluoranthene	<1.48	<1.45	2.99	<1.97	44.6
Benzo(k/j)Fluoranthene	<1.48	<1.45	2.83	<1.92	41.0
Benzo(a)fluorene	2.62	<1.45	<1.49	<1.86	35.7
Benzo(b)fluorene	<1.48	<1.45	<1.49	<1.47	1.4
Benzo(g,h,i)Perylene	<1.48	1.93	2.71	<2.04	30.8
Benzo(a)Pyrene	<1.48	<1.45	2.18	<1.70	24.2
Benzo(e)Pyrene	<1.48	<1.45	4.41	<2.45	69.5
Biphenyl	23.5	3.33	5.28	10.7	104
2-Chloronaphthalene	<1.48	<1.45	<1.49	<1.47	1.4
Chrysene/Triphenylene/Benzo(b)anthracene	2.62	<1.45	22.8	<8.95	134
Coronene	<1.48	<1.45	<1.49	<1.47	1.4
Dibenzo(a,c/a,h)Anthracene	<1.48	<1.45	1.76	<1.56	10.8
Dibenzo(a,e)pyrene	<1.48	<1.45	<1.49	<1.47	1.4
9,10-dimethylanthracene	5.23	<1.45	1.58	<2.75	77.8
7,12-Dimethylbenzo(a)anthracene	<1.48	<1.45	<1.49	<1.47	1.4
Fluoranthene	57.9	4.37	35.5	32.6	82.5
Fluorene	3.76	1.67	61.3	22.2	152
Indeno(1,2,3-cd)Pyrene	<1.48	<1.45	1.99	<1.64	18.6
2-methylanthracene	21.4	1.56	40.0	21.0	91.6
3-Methylcholanthrene	<1.48	<1.45	<1.49	<1.47	1.4
1-Methylnaphthalene	3.52	2.25	3.40	3.06	22.9
2-Methylnaphthalene	6.78	4.40	7.18	6.12	24.6
1-Methylphenanthrene	22.1	<1.45	9.38	<11.0	95.0
9-Methylphenanthrene	49.6	4.18	37.5	30.4	77.3
Naphthalene	27.5	23.2	22.8	24.5	10.7
Perylene	<1.48	<1.45	1.72	<1.55	9.5
Phenanthrene	267	18.5	110	132	95.2
Picene	<1.48	<1.45	<1.49	<1.47	1.4
Pyrene	41.6	4.38	20.4	22.1	84.3
Tetralin	7.82	7.20	5.89	6.97	14.2
m-terphenyl	3.46	<1.45	11.2	<5.37	95.9
o-Terphenyl	3.73	<1.45	<1.49	<2.22	58.5
p-terphenyl	<1.48	<1.45	1.93	<1.62	16.6
Total	<605	<113	<454	<391	64.4

TABLE 75
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Reference Concentrations

Compound	Dry Reference Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Acenaphthene	34.0	<2.49	<2.57	<13.0	140
Acenaphthylene	<2.52	<2.49	4.27	<3.10	32.8
Anthracene	14.3	<2.49	26.0	<14.2	82.4
Benzo(a)Anthracene	<2.52	<2.49	7.53	<4.18	69.3
Benzo(b)Fluoranthene	<2.52	<2.49	5.15	<3.39	45.0
Benzo(k/j)Fluoranthene	<2.52	<2.49	4.87	<3.30	41.4
Benzo(a)fluorene	4.48	<2.49	<2.57	<3.18	35.3
Benzo(b)fluorene	<2.52	<2.49	<2.57	<2.53	1.6
Benzo(g,h,i)Perylene	<2.52	3.31	4.68	<3.50	31.1
Benzo(a)Pyrene	<2.52	<2.49	3.75	<2.92	24.6
Benzo(e)Pyrene	<2.52	<2.49	7.59	<4.20	69.8
Biphenyl	40.1	5.72	9.09	18.3	104
2-Chloronaphthalene	<2.52	<2.49	<2.57	<2.53	1.6
Chrysene/Triphenylene/Benzo(b)anthracene	4.48	<2.49	39.3	<15.4	134
Coronene	<2.52	<2.49	<2.57	<2.53	1.6
Dibenzo(a,c/a,h)Anthracene	<2.52	<2.49	3.02	<2.68	11.1
Dibenzo(a,e)pyrene	<2.52	<2.49	<2.57	<2.53	1.6
9,10-dimethylanthracene	8.93	<2.49	2.72	<4.72	77.4
7,12-Dimethylbenzo(a)anthracene	<2.52	<2.49	<2.57	<2.53	1.6
Fluoranthene	99.0	7.51	61.1	55.9	82.3
Fluorene	6.43	2.87	106	38.3	152
Indeno(1,2,3-cd)Pyrene	<2.52	<2.49	3.43	<2.82	18.9
2-methylanthracene	36.6	2.68	68.9	36.0	91.8
3-Methylcholanthrene	<2.52	<2.49	<2.57	<2.53	1.6
1-Methylnaphthalene	6.01	3.87	5.86	5.24	22.8
2-Methylnaphthalene	11.6	7.55	12.4	10.5	24.7
1-Methylphenanthrene	37.8	<2.49	16.2	<18.8	94.7
9-Methylphenanthrene	84.7	7.17	64.6	52.1	77.1
Naphthalene	47.1	39.9	39.3	42.1	10.3
Perylene	<2.52	<2.49	2.96	<2.66	9.8
Phenanthrene	456	31.8	190	226	94.9
Picene	<2.52	<2.49	<2.57	<2.53	1.6
Pyrene	71.0	7.53	35.2	37.9	84.0
Tetralin	13.4	12.4	10.1	12.0	13.8
m-terphenyl	5.91	<2.49	19.3	<9.24	96.2
o-Terphenyl	6.37	<2.49	<2.57	<3.81	58.1
p-terphenyl	<2.52	<2.49	3.32	<2.78	17.0
Total	<1034	<195	<782	<670	64.3

* At 25°C and 1 atmosphere

TABLE 76
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	%
Acenaphthene	28.3	<2.10	<2.13	<10.8	139
Acenaphthylene	<2.10	<2.10	3.54	<2.58	32.2
Anthracene	11.9	<2.10	21.5	<11.8	82.1
Benzo(a)Anthracene	<2.10	<2.10	6.24	<3.48	68.7
Benzo(b)Fluoranthene	<2.10	<2.10	4.27	<2.82	44.4
Benzo(k/j)Fluoranthene	<2.10	<2.10	4.04	<2.74	40.8
Benzo(a)fluorene	3.72	<2.10	<2.13	<2.65	35.0
Benzo(b)fluorene	<2.10	<2.10	<2.13	<2.11	1.0
Benzo(g,h,i)Perylene	<2.10	2.78	3.88	<2.92	30.7
Benzo(a)Pyrene	<2.10	<2.10	3.11	<2.44	24.0
Benzo(e)Pyrene	<2.10	<2.10	6.29	<3.50	69.3
Biphenyl	33.4	4.81	7.54	15.2	103
2-Chloronaphthalene	<2.10	<2.10	<2.13	<2.11	1.0
Chrysene/Triphenylene/Benzo(b)anthracene	3.72	<2.10	32.5	<12.8	134
Coronene	<2.10	<2.10	<2.13	<2.11	1.0
Dibenzo(a,c/a,h)Anthracene	<2.10	<2.10	2.51	<2.23	10.6
Dibenzo(a,e)pyrene	<2.10	<2.10	<2.13	<2.11	1.0
9,10-dimethylanthracene	7.43	<2.10	2.26	<3.93	77.2
7,12-Dimethylbenzo(a)anthracene	<2.10	<2.10	<2.13	<2.11	1.0
Fluoranthene	82.3	6.31	50.7	46.4	82.2
Fluorene	5.35	2.41	87.5	31.7	152
Indeno(1,2,3-cd)Pyrene	<2.10	<2.10	2.84	<2.35	18.4
2-methylanthracene	30.4	2.26	57.1	29.9	91.6
3-Methylcholanthrene	<2.10	<2.10	<2.13	<2.11	1.0
1-Methylnaphthalene	5.00	3.25	4.85	4.37	22.2
2-Methylnaphthalene	9.63	6.35	10.3	8.75	24.0
1-Methylphenanthrene	31.5	<2.10	13.4	<15.6	94.6
9-Methylphenanthrene	70.4	6.03	53.5	43.3	77.1
Naphthalene	39.1	33.6	32.5	35.1	10.1
Perylene	<2.10	<2.10	2.45	<2.22	9.3
Phenanthrene	379	26.8	157	188	94.9
Picene	<2.10	<2.10	<2.13	<2.11	1.0
Pyrene	59.1	6.33	29.2	31.5	83.9
Tetralin	11.1	10.4	8.41	9.98	14.1
m-terphenyl	4.91	<2.10	16.0	<7.67	95.8
o-Terphenyl	5.30	<2.10	<2.13	<3.18	57.8
p-terphenyl	<2.10	<2.10	2.76	<2.32	16.4
Total	<860	<164	<648	<557	64.0

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

TABLE 77
Reworld Durham York Renewable Energy L.P.
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/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	%
Acenaphthene	28.5	<2.08	<2.15	<10.9	140
Acenaphthylene	<2.11	<2.08	3.56	<2.58	32.8
Anthracene	11.9	<2.08	21.6	<11.9	82.3
Benzo(a)Anthracene	<2.11	<2.08	6.27	<3.49	69.2
Benzo(b)Fluoranthene	<2.11	<2.08	4.29	<2.83	44.9
Benzo(k/j)Fluoranthene	<2.11	<2.08	4.06	<2.75	41.3
Benzo(a)fluorene	3.74	<2.08	<2.15	<2.65	35.5
Benzo(b)fluorene	<2.11	<2.08	<2.15	<2.11	1.6
Benzo(g,h,i)Perylene	<2.11	2.75	3.90	<2.92	31.0
Benzo(a)Pyrene	<2.11	<2.08	3.13	<2.44	24.5
Benzo(e)Pyrene	<2.11	<2.08	6.33	<3.50	69.8
Biphenyl	33.6	4.76	7.58	15.3	104
2-Chloronaphthalene	<2.11	<2.08	<2.15	<2.11	1.6
Chrysene/Triphenylene/Benzo(b)anthracene	3.74	<2.08	32.7	<12.8	134
Coronene	<2.11	<2.08	<2.15	<2.11	1.6
Dibenzo(a,c/a,h)Anthracene	<2.11	<2.08	2.52	<2.24	11.1
Dibenzo(a,e)pyrene	<2.11	<2.08	<2.15	<2.11	1.6
9,10-dimethylanthracene	7.47	<2.08	2.27	<3.94	77.6
7,12-Dimethylbenzo(a)anthracene	<2.11	<2.08	<2.15	<2.11	1.6
Fluoranthene	82.8	6.25	50.9	46.6	82.4
Fluorene	5.38	2.39	87.9	31.9	152
Indeno(1,2,3-cd)Pyrene	<2.11	<2.08	2.86	<2.35	18.9
2-methylanthracene	30.6	2.23	57.4	30.1	91.7
3-Methylcholanthrene	<2.11	<2.08	<2.15	<2.11	1.6
1-Methylnaphthalene	5.03	3.22	4.88	4.37	22.9
2-Methylnaphthalene	9.68	6.28	10.3	8.76	24.8
1-Methylphenanthrene	31.6	<2.08	13.5	<15.7	94.8
9-Methylphenanthrene	70.8	5.97	53.8	43.5	77.2
Naphthalene	39.4	33.2	32.7	35.1	10.5
Perylene	<2.11	<2.08	2.47	<2.22	9.8
Phenanthrene	381	26.5	158	189	95.1
Picene	<2.11	<2.08	<2.15	<2.11	1.6
Pyrene	59.4	6.27	29.3	31.7	84.1
Tetralin	11.2	10.3	8.45	9.98	13.9
m-terphenyl	4.94	<2.08	16.1	<7.70	96.1
o-Terphenyl	5.32	<2.08	<2.15	<3.18	58.3
p-terphenyl	<2.11	<2.08	2.77	<2.32	16.9
Total	<864	<162	<651	<559	64.4

* At 25°C and 1 atmosphere

TABLE 78
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Rates

Compound	Emission Rate			Average µg/s	Coefficient of Variation %
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s		
Acenaphthene	0.54	<0.040	<0.040	<0.21	140
Acenaphthylene	<0.040	<0.040	0.066	<0.049	31.4
Anthracene	0.23	<0.040	0.40	<0.22	81.5
Benzo(a)Anthracene	<0.040	<0.040	0.12	<0.065	67.9
Benzo(b)Fluoranthene	<0.040	<0.040	0.080	<0.053	43.5
Benzo(k/j)Fluoranthene	<0.040	<0.040	0.075	<0.052	39.9
Benzo(a)fluorene	0.071	<0.040	<0.040	<0.050	35.7
Benzo(b)fluorene	<0.040	<0.040	<0.040	<0.040	0.3
Benzo(g,h,i)Perylene	<0.040	0.053	0.072	<0.055	29.9
Benzo(a)Pyrene	<0.040	<0.040	0.058	<0.046	23.2
Benzo(e)Pyrene	<0.040	<0.040	0.12	<0.066	68.5
Biphenyl	0.63	0.091	0.14	0.29	104
2-Chloronaphthalene	<0.040	<0.040	<0.040	<0.040	0.3
Chrysene/Triphenylene/Benzo(b)anthracene	0.071	<0.040	0.61	<0.24	133
Coronene	<0.040	<0.040	<0.040	<0.040	0.3
Dibenzo(a,c/a,h)Anthracene	<0.040	<0.040	0.047	<0.042	9.8
Dibenzo(a,e)pyrene	<0.040	<0.040	<0.040	<0.040	0.3
9,10-dimethylantracene	0.14	<0.040	0.042	<0.074	77.8
7,12-Dimethylbenzo(a)anthracene	<0.040	<0.040	<0.040	<0.040	0.3
Fluoranthene	1.56	0.12	0.95	0.88	82.7
Fluorene	0.10	0.046	1.64	0.59	152
Indeno(1,2,3-cd)Pyrene	<0.040	<0.040	0.053	<0.044	17.5
2-methylantracene	0.58	0.043	1.07	0.56	91.1
3-Methylcholanthrene	<0.040	<0.040	<0.040	<0.040	0.3
1-Methylnaphthalene	0.095	0.061	0.091	0.082	22.1
2-Methylnaphthalene	0.18	0.12	0.19	0.16	23.7
1-Methylphenanthrene	0.60	<0.040	0.25	<0.30	95.2
9-Methylphenanthrene	1.34	0.11	1.00	0.82	77.3
Naphthalene	0.74	0.63	0.61	0.66	10.8
Perylene	<0.040	<0.040	0.046	<0.042	8.5
Phenanthrene	7.21	0.51	2.94	3.55	95.5
Picene	<0.040	<0.040	<0.040	<0.040	0.3
Pyrene	1.12	0.12	0.55	0.60	84.5
Tetralin	0.21	0.20	0.16	0.19	14.8
m-terphenyl	0.093	<0.040	0.30	<0.14	95.1
o-Terphenyl	0.10	<0.040	<0.040	<0.060	58.5
p-terphenyl	<0.040	<0.040	0.052	<0.044	15.6
Total	<16.3	<3.10	<12.1	<10.5	64.3

TABLE 79
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Polycyclic Aromatic Hydrocarbon Emission Data

Compound	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Acenaphthene	<7.62	<13.0	<10.8	<10.9	<0.21
Acenaphthylene	<1.80	<3.10	<2.58	<2.58	<0.049
Anthracene	<8.29	<14.2	<11.8	<11.9	<0.22
Benzo(a)Anthracene	<2.43	<4.18	<3.48	<3.49	<0.065
Benzo(b)Fluoranthene	<1.97	<3.39	<2.82	<2.83	<0.053
Benzo(k/j)Fluoranthene	<1.92	<3.30	<2.74	<2.75	<0.052
Benzo(a)fluorene	<1.86	<3.18	<2.65	<2.65	<0.050
Benzo(b)fluorene	<1.47	<2.53	<2.11	<2.11	<0.040
Benzo(g,h,i)Perylene	<2.04	<3.50	<2.92	<2.92	<0.055
Benzo(a)Pyrene	<1.70	<2.92	<2.44	<2.44	<0.046
Benzo(e)Pyrene	<2.45	<4.20	<3.50	<3.50	<0.066
Biphenyl	10.7	18.3	15.2	15.3	0.29
2-Chloronaphthalene	<1.47	<2.53	<2.11	<2.11	<0.040
Chrysene/Triphenylene/Benzo(b)anthracene	<8.95	<15.4	<12.8	<12.8	<0.24
Coronene	<1.47	<2.53	<2.11	<2.11	<0.040
Dibenzo(a,c/a,h)Anthracene	<1.56	<2.68	<2.23	<2.24	<0.042
Dibenzo(a,e)pyrene	<1.47	<2.53	<2.11	<2.11	<0.040
9,10-dimethylanthracene	<2.75	<4.72	<3.93	<3.94	<0.074
7,12-Dimethylbenzo(a)anthracene	<1.47	<2.53	<2.11	<2.11	<0.040
Fluoranthene	32.6	55.9	46.4	46.6	0.88
Fluorene	22.2	38.3	31.7	31.9	0.59
Indeno(1,2,3-cd)Pyrene	<1.64	<2.82	<2.35	<2.35	<0.044
2-methylanthracene	21.0	36.0	29.9	30.1	0.56
3-Methylcholanthrene	<1.47	<2.53	<2.11	<2.11	<0.040
1-Methylnaphthalene	3.06	5.24	4.37	4.37	0.082
2-Methylnaphthalene	6.12	10.5	8.75	8.76	0.16
1-Methylphenanthrene	<11.0	<18.8	<15.6	<15.7	<0.30
9-Methylphenanthrene	30.4	52.1	43.3	43.5	0.82
Naphthalene	24.5	42.1	35.1	35.1	0.66
Perylene	<1.55	<2.66	<2.22	<2.22	<0.042
Phenanthrene	132	226	188	189	3.55
Picene	<1.47	<2.53	<2.11	<2.11	<0.040
Pyrene	22.1	37.9	31.5	31.7	0.60
Tetralin	6.97	12.0	9.98	9.98	0.19
m-terphenyl	<5.37	<9.24	<7.67	<7.70	<0.14
o-Terphenyl	<2.22	<3.81	<3.18	<3.18	<0.060
p-terphenyl	<1.62	<2.78	<2.32	<2.32	<0.044
Total	<391	<670	<557	<559	<10.5

* At 25°C and 1 atmosphere

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

TABLE 80
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Blank Polycyclic Aromatic Hydrocarbon Analyses

Compound	Blank Train	Method Blank
	ng	ng
Acenaphthene	<12	<12
Acenaphthylene	<12	<12
Anthracene	<12	<12
Benzo(a)Anthracene	<12	<12
Benzo(b)Fluoranthene	<12	<12
Benzo(k/j)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	14.9
2-Chloronaphthalene	<12	<12
Chrysene/Triphenylene/Benzo(b)anthracene	<12	<12
Coronene	<12	<12
Dibenzo(a,c/a,h)Anthracene	<12	<12
Dibenzo(a,e)pyrene	<12	<12
9,10-dimethylanthracene	43.2	<12
7,12-Dimethylbenzo(a)anthracene	<12	<2
Fluoranthene	<12	<12
Fluorene	<12	<12
Indeno(1,2,3-cd)Pyrene	<12	<12
2-methylanthracene	<12	<12
3-Methylcholanthrene	<12	<12
1-Methylnaphthalene	<12	<12
2-Methylnaphthalene	13.2	<12
1-Methylphenanthrene	<12	<12
9-Methylphenanthrene	<12	<12
Naphthalene	121	68.1
Perylene	<12	<12
Phenanthrene	13.6	19.7
Picene	<12	<12
Pyrene	<12	<12
Tetralin	50.9	19.7
m-terphenyl	<12	<12
o-Terphenyl	<12	<12
p-terphenyl	<12	<12
Total	<626	<508

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Acetaldehyde, Formaldehyde and Acrolein Emission Data

Acetaldehyde

Test No.	Total Collected μg	Dry Volume Sampled Rm^3 *	Actual $\mu\text{g}/\text{m}^3$	Acetaldehyde Concentration		Wet Reference $\mu\text{g}/\text{Rm}^3$ *	Acetaldehyde Emission Rate mg/s
				Dry Reference $\mu\text{g}/\text{Rm}^3$ *	Dry Adjusted $\mu\text{g}/\text{Rm}^3$ **		
1	2.48	0.0294	49.0	84.4	69.9	69.3	1.21
2	2.54	0.0293	50.2	86.7	68.7	70.9	1.20
3	2.17	0.0295	42.6	73.6	61.5	60.1	1.05
Average			47.3	81.5	66.7	66.8	1.15
Blank Train	3.25						
Field Blank	7.63						

Formaldehyde

Test No.	Total Collected μg	Dry Volume Sampled Rm^3 *	Actual $\mu\text{g}/\text{m}^3$	Formaldehyde Concentration		Wet Reference $\mu\text{g}/\text{Rm}^3$ *	Formaldehyde Emission Rate mg/s
				Dry Reference $\mu\text{g}/\text{Rm}^3$ *	Dry Adjusted $\mu\text{g}/\text{Rm}^3$ **		
1	5.49	0.0294	109	187	155	153	2.67
2	2.06	0.0293	40.7	70.3	55.7	57.5	0.98
3	2.10	0.0295	41.2	71.2	59.5	58.2	1.02
Average			63.5	109	90.0	89.7	1.56
Blank Train	1.12						
Field Blank	1.73						

Acrolein

Test No.	Total Collected μg	Dry Volume Sampled Rm^3 *	Actual $\mu\text{g}/\text{m}^3$	Acrolein Concentration		Wet Reference $\mu\text{g}/\text{Rm}^3$ *	Acrolein Emission Rate mg/s
				Dry Reference $\mu\text{g}/\text{Rm}^3$ *	Dry Adjusted $\mu\text{g}/\text{Rm}^3$ **		
1	<0.50	0.0294	<9.89	<17.0	<14.1	<14.0	<0.24
2	<0.50	0.0293	<9.88	<17.1	<13.5	<14.0	<0.24
3	<0.50	0.0295	<9.81	<16.9	<14.2	<13.8	<0.24
Average			<9.86	<17.0	<13.9	<13.9	<0.24
Blank Train	<0.50						
Field Blank	<0.50						

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 flow 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 1

Compound	Total Collected ppb	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^{3**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Emission Rate mg/s
Acetone	14.4	20.0	34.2	28.4	28.6	0.54
Benzene	0.60	1.12	1.92	1.60	1.61	0.030
Bromodichloromethane	<0.20	<0.76	<1.30	<1.08	<1.09	<0.021
Bromoform	<0.20	<1.23	<2.10	<1.75	<1.76	<0.033
Bromomethane	0.58	1.32	2.25	1.87	1.88	0.036
1,3-Butadiene	<0.20	<0.26	<0.44	<0.37	<0.37	<0.0070
2-Butanone	1.52	2.62	4.48	3.73	3.75	0.071
Carbon Tetrachloride	<0.20	<0.74	<1.26	<1.05	<1.05	<0.020
Chloroform	0.21	0.60	1.02	0.85	0.85	0.016
Cumene (Isopropylbenzene)	<0.20	<0.59	<1.00	<0.83	<0.84	<0.016
Dibromochloromethane	<0.20	<0.99	<1.70	<1.41	<1.42	<0.027
Dichlorodifluoromethane	<0.20	<0.59	<1.00	<0.83	<0.84	<0.016
1,2-Dichloroethane	<0.20	<0.47	<0.81	<0.67	<0.68	<0.013
trans,1,2-Dichloroethene	<0.20	<0.46	<0.79	<0.66	<0.66	<0.012
1,1-Dichloroethene	<0.20	<0.46	<0.79	<0.66	<0.66	<0.012
1,2-Dichloropropane	<0.20	<0.53	<0.90	<0.75	<0.75	<0.014
Ethylbenzene	0.35	0.89	1.52	1.26	1.27	0.024
Ethylene Dibromide	<0.20	<0.88	<1.50	<1.25	<1.25	<0.024
Mesitylene (1,3,5-Trimethylbenzene)	<0.20	<0.59	<1.00	<0.83	<0.84	<0.016
Methylene Chloride	<0.20	<0.40	<0.69	<0.57	<0.58	<0.011
Styrene	<0.20	<0.50	<0.85	<0.71	<0.71	<0.013
Tetrachloroethene	0.26	1.05	1.80	1.50	1.50	0.028
Toluene	3.31	7.31	12.5	10.4	10.4	0.20
1,1,1-Trichloroethane	<0.20	<0.64	<1.10	<0.91	<0.92	<0.017
Trichloroethene/1,1,2-Trichloroethene	<0.20	<0.64	<1.10	<0.91	<0.92	<0.017
Trichlorotrifluoroethane	<0.20	<0.88	<1.50	<1.25	<1.25	<0.024
Trichlorofluoromethane	<0.20	<0.64	<1.10	<0.91	<0.92	<0.017
M&P-Xylene	0.32	0.81	1.39	1.16	1.16	0.022
O-Xylene	0.14	0.36	0.61	0.51	0.51	0.0096
Vinyl Chloride	<0.20	<0.30	<0.51	<0.42	<0.43	<0.0081
Total	<25.7	<48.6	<83.1	<69.1	<69.5	<1.31

Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s^*) :	15.8
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	19.0
Wet Reference Flowrate (Rm^3/s^*) :	18.9

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 83
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Volatile Organic Emission Data
Test No. 2

Compound	Total Collected ppb	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^{3**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Emission Rate mg/s
Acetone	8.10	11.2	19.2	16.0	16.1	0.30
Benzene	0.73	1.36	2.33	1.94	1.95	0.037
Bromodichloromethane	<0.20	<0.76	<1.30	<1.08	<1.09	<0.021
Bromoform	<0.20	<1.23	<2.10	<1.75	<1.76	<0.033
Bromomethane	0.73	1.66	2.83	2.35	2.37	0.045
1,3-Butadiene	<0.20	<0.26	<0.44	<0.37	<0.37	<0.0070
2-Butanone	0.88	1.52	2.60	2.16	2.17	0.041
Carbon Tetrachloride	<0.20	<0.74	<1.26	<1.05	<1.05	<0.020
Chloroform	<0.20	<0.57	<0.98	<0.81	<0.82	<0.015
Cumene (Isopropylbenzene)	<0.20	<0.59	<1.00	<0.83	<0.84	<0.016
Dibromochloromethane	<0.20	<0.99	<1.70	<1.41	<1.42	<0.027
Dichlorodifluoromethane	<0.20	<0.59	<1.00	<0.83	<0.84	<0.016
1,2-Dichloroethane	<0.20	<0.47	<0.81	<0.67	<0.68	<0.013
trans,1,2-Dichloroethene	<0.20	<0.46	<0.79	<0.66	<0.66	<0.012
1,1-Dichloroethene	<0.20	<0.46	<0.79	<0.66	<0.66	<0.012
1,2-Dichloropropane	<0.20	<0.53	<0.90	<0.75	<0.75	<0.014
Ethylbenzene	<0.10	<0.25	<0.43	<0.36	<0.36	<0.0068
Ethylene Dibromide	<0.20	<0.88	<1.50	<1.25	<1.25	<0.024
Mesitylene (1,3,5-Trimethylbenzene)	<0.20	<0.59	<1.00	<0.83	<0.84	<0.016
Methylene Chloride	<0.20	<0.40	<0.69	<0.57	<0.58	<0.011
Styrene	<0.20	<0.50	<0.85	<0.71	<0.71	<0.013
Tetrachloroethene	<0.20	<0.82	<1.40	<1.16	<1.17	<0.022
Toluene	0.87	1.92	3.28	2.73	2.74	0.052
1,1,1-Trichloroethane	<0.20	<0.64	<1.10	<0.91	<0.92	<0.017
Trichloroethene/1,1,2-Trichloroethene	<0.20	<0.64	<1.10	<0.91	<0.92	<0.017
Trichlorotrifluoroethane	<0.20	<0.88	<1.50	<1.25	<1.25	<0.024
Trichlorofluoromethane	<0.20	<0.64	<1.10	<0.91	<0.92	<0.017
M&P-Xylene	0.21	0.53	0.91	0.76	0.76	0.014
O-Xylene	<0.10	<0.25	<0.43	<0.36	<0.36	<0.0068
Vinyl Chloride	<0.20	<0.30	<0.51	<0.42	<0.43	<0.0081
Total	<16.1	<32.7	<55.8	<46.4	<46.7	<0.88

Actual Flowrate (m^3/s) :	27.0
Dry Reference Flowrate (Rm^3/s^*) :	15.8
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	19.0
Wet Reference Flowrate (Rm^3/s^*) :	18.9

* At 25°C and 1 atmosphere

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

Note: "<" indicates that the analyte was not detected. Any analyte that was not detected was assigned a value equal to the detection limit for calculation purposes.

TABLE 84
Reworld Durham York Renewable Energy L.P.
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
	ppb	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{Rm}^3*$	$\mu\text{g}/\text{Rm}^{3**}$	$\mu\text{g}/\text{Rm}^3*$	mg/s
Acetone	16.5	22.8	39.2	33.0	32.6	0.62
Benzene	0.86	1.60	2.75	2.31	2.29	0.044
Bromodichloromethane	<0.20	<0.76	<1.30	<1.09	<1.08	<0.021
Bromoform	<0.20	<1.22	<2.10	<1.77	<1.75	<0.033
Bromomethane	0.66	1.49	2.56	2.15	2.13	0.041
1,3-Butadiene	<0.20	<0.26	<0.44	<0.37	<0.37	<0.0070
2-Butanone	0.72	1.23	2.12	1.78	1.76	0.034
Carbon Tetrachloride	<0.20	<0.73	<1.26	<1.06	<1.05	<0.020
Chloroform	0.26	0.74	1.27	1.07	1.06	0.020
Cumene (Isopropylbenzene)	<0.20	<0.58	<1.00	<0.84	<0.83	<0.016
Dibromochloromethane	<0.20	<0.99	<1.70	<1.43	<1.42	<0.027
Dichlorodifluoromethane	<0.20	<0.58	<1.00	<0.84	<0.83	<0.016
1,2-Dichloroethane	<0.20	<0.47	<0.81	<0.68	<0.67	<0.013
trans,1,2-Dichloroethene	<0.20	<0.46	<0.79	<0.66	<0.66	<0.013
1,1-Dichloroethene	<0.20	<0.46	<0.79	<0.66	<0.66	<0.013
1,2-Dichloropropane	<0.20	<0.52	<0.90	<0.76	<0.75	<0.014
Ethylbenzene	<0.10	<0.25	<0.43	<0.36	<0.36	<0.0068
Ethylene Dibromide	<0.20	<0.87	<1.50	<1.26	<1.25	<0.024
Mesitylene (1,3,5-Trimethylbenzene)	<0.20	<0.58	<1.00	<0.84	<0.83	<0.016
Methylene Chloride	<0.20	<0.40	<0.69	<0.58	<0.57	<0.011
Styrene	<0.20	<0.50	<0.85	<0.72	<0.71	<0.014
Tetrachloroethene	<0.20	<0.82	<1.40	<1.18	<1.17	<0.022
Toluene	1.31	2.88	4.94	4.16	4.11	0.079
1,1,1-Trichloroethane	<0.20	<0.64	<1.10	<0.93	<0.92	<0.017
Trichloroethene/1,1,2-Trichloroethene	<0.20	<0.64	<1.10	<0.93	<0.92	<0.017
Trichlorotrifluoroethane	<0.20	<0.87	<1.50	<1.26	<1.25	<0.024
Trichlorofluoromethane	<0.20	<0.64	<1.10	<0.93	<0.92	<0.017
M&P-Xylene	<0.20	<0.51	<0.87	<0.73	<0.72	<0.014
O-Xylene	<0.10	<0.25	<0.43	<0.36	<0.36	<0.0068
Vinyl Chloride	<0.20	<0.30	<0.51	<0.43	<0.42	<0.0081
Total	<24.9	<45.1	<77.4	<65.1	<64.4	<1.23

Actual Flowrate (m^3/s) :	27.3
Dry Reference Flowrate (Rm^3/s^*) :	15.9
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	18.9
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

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
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Volatile Organic Actual Concentrations

Compound	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	%
Acetone	20.0	11.2	22.8	18.0	33.5
Benzene	1.12	1.36	1.60	1.36	17.5
Bromodichloromethane	<0.76	<0.76	<0.76	<0.76	0.3
Bromoform	<1.23	<1.23	<1.22	<1.23	0.3
Bromomethane	1.32	1.66	1.49	1.49	11.4
1,3-Butadiene	<0.26	<0.26	<0.26	<0.26	0.3
2-Butanone	2.62	1.52	1.23	1.79	40.8
Carbon Tetrachloride	<0.74	<0.74	<0.73	<0.74	0.3
Chloroform	0.60	<0.57	0.74	<0.64	14.1
Cumene (Isopropylbenzene)	<0.59	<0.59	<0.58	<0.58	0.3
Dibromochloromethane	<0.99	<0.99	<0.99	<0.99	0.3
Dichlorodifluoromethane	<0.59	<0.59	<0.58	<0.58	0.3
1,2-Dichloroethane	<0.47	<0.47	<0.47	<0.47	0.3
trans,1,2-Dichloroethene	<0.46	<0.46	<0.46	<0.46	0.3
1,1-Dichloroethene	<0.46	<0.46	<0.46	<0.46	0.3
1,2-Dichloropropane	<0.53	<0.53	<0.52	<0.53	0.3
Ethylbenzene	0.89	<0.25	<0.25	<0.46	79.5
Ethylene Dibromide	<0.88	<0.88	<0.87	<0.88	0.3
Mesitylene (1,3,5-Trimethylbenzene)	<0.59	<0.59	<0.58	<0.58	0.3
Methylene Chloride	<0.40	<0.40	<0.40	<0.40	0.3
Styrene	<0.50	<0.50	<0.50	<0.50	0.3
Tetrachloroethene	1.05	<0.82	<0.82	<0.90	15.2
Toluene	7.31	1.92	2.88	4.04	71.3
1,1,1-Trichloroethane	<0.64	<0.64	<0.64	<0.64	0.3
Trichloroethene/1,1,2-Trichloroethene	<0.64	<0.64	<0.64	<0.64	0.3
Trichlorotrifluoroethane	<0.88	<0.88	<0.87	<0.88	0.3
Trichlorofluoromethane	<0.64	<0.64	<0.64	<0.64	0.3
M&P-Xylene	0.81	0.53	<0.51	<0.62	27.5
O-Xylene	0.36	<0.25	<0.25	<0.29	21.4
Vinyl Chloride	<0.30	<0.30	<0.30	<0.30	0.3
Total	<48.6	<32.7	<45.1	<42.1	19.9

TABLE 86
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Volatile Organic Dry Reference Concentrations

Compound	Dry Reference Concentration				Coefficient of Variation
	Test No. 1 $\mu\text{g}/\text{Rm}^3^*$	Test No. 2 $\mu\text{g}/\text{Rm}^3^*$	Test No. 3 $\mu\text{g}/\text{Rm}^3^*$	Average $\mu\text{g}/\text{Rm}^3^*$	
Acetone	34.2	19.2	39.2	30.9	33.7
Benzene	1.92	2.33	2.75	2.33	17.8
Bromodichloromethane	<1.30	<1.30	<1.30	<1.30	0.0
Bromoform	<2.10	<2.10	<2.10	<2.10	0.0
Bromomethane	2.25	2.83	2.56	2.55	11.4
1,3-Butadiene	<0.44	<0.44	<0.44	<0.44	0.0
2-Butanone	4.48	2.60	2.12	3.07	40.7
Carbon Tetrachloride	<1.26	<1.26	<1.26	<1.26	0.0
Chloroform	1.02	<0.98	1.27	<1.09	14.4
Cumene (Isopropylbenzene)	<1.00	<1.00	<1.00	<1.00	0.0
Dibromochloromethane	<1.70	<1.70	<1.70	<1.70	0.0
Dichlorodifluoromethane	<1.00	<1.00	<1.00	<1.00	0.0
1,2-Dichloroethane	<0.81	<0.81	<0.81	<0.81	0.0
trans,1,2-Dichloroethene	<0.79	<0.79	<0.79	<0.79	0.0
1,1-Dichloroethene	<0.79	<0.79	<0.79	<0.79	0.0
1,2-Dichloropropane	<0.90	<0.90	<0.90	<0.90	0.0
Ethylbenzene	1.52	<0.43	<0.43	<0.79	79.3
Ethylene Dibromide	<1.50	<1.50	<1.50	<1.50	0.0
Mesitylene (1,3,5-Trimethylbenzene)	<1.00	<1.00	<1.00	<1.00	0.0
Methylene Chloride	<0.69	<0.69	<0.69	<0.69	0.0
Styrene	<0.85	<0.85	<0.85	<0.85	0.0
Tetrachloroethene	1.80	<1.40	<1.40	<1.53	15.1
Toluene	12.5	3.28	4.94	6.91	71.2
1,1,1-Trichloroethane	<1.10	<1.10	<1.10	<1.10	0.0
Trichloroethene/1,1,2-Trichloroethene	<1.10	<1.10	<1.10	<1.10	0.0
Trichlorotrifluoroethane	<1.50	<1.50	<1.50	<1.50	0.0
Trichlorofluoromethane	<1.10	<1.10	<1.10	<1.10	0.0
M&P-Xylene	1.39	0.91	<0.87	<1.06	27.4
O-Xylene	0.61	<0.43	<0.43	<0.49	21.2
Vinyl Chloride	<0.51	<0.51	<0.51	<0.51	0.0
Total	<83.1	<55.8	<77.4	<72.1	20.0

* At 25°C and 1 atmosphere

TABLE 87
Reworld Durham York Renewable Energy L.P.
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	28.4	16.0	33.0	25.8	34.1
Benzene	1.60	1.94	2.31	1.95	18.4
Bromodichloromethane	<1.08	<1.08	<1.09	<1.09	0.7
Bromoform	<1.75	<1.75	<1.77	<1.75	0.7
Bromomethane	1.87	2.35	2.15	2.13	11.4
1,3-Butadiene	<0.37	<0.37	<0.37	<0.37	0.7
2-Butanone	3.73	2.16	1.78	2.56	40.3
Carbon Tetrachloride	<1.05	<1.05	<1.06	<1.05	0.7
Chloroform	0.85	<0.81	1.07	<0.91	15.1
Cumene (Isopropylbenzene)	<0.83	<0.83	<0.84	<0.83	0.7
Dibromochloromethane	<1.41	<1.41	<1.43	<1.42	0.7
Dichlorodifluoromethane	<0.83	<0.83	<0.84	<0.83	0.7
1,2-Dichloroethane	<0.67	<0.67	<0.68	<0.68	0.7
trans,1,2-Dichloroethene	<0.66	<0.66	<0.66	<0.66	0.7
1,1-Dichloroethene	<0.66	<0.66	<0.66	<0.66	0.7
1,2-Dichloropropane	<0.75	<0.75	<0.76	<0.75	0.7
Ethylbenzene	1.26	<0.36	<0.36	<0.66	79.0
Ethylene Dibromide	<1.25	<1.25	<1.26	<1.25	0.7
Mesitylene (1,3,5-Trimethylbenzene)	<0.83	<0.83	<0.84	<0.83	0.7
Methylene Chloride	<0.57	<0.57	<0.58	<0.58	0.7
Styrene	<0.71	<0.71	<0.72	<0.71	0.7
Tetrachloroethene	1.50	<1.16	<1.18	<1.28	14.7
Toluene	10.4	2.73	4.16	5.76	70.8
1,1,1-Trichloroethane	<0.91	<0.91	<0.93	<0.92	0.7
Trichloroethene/1,1,2-Trichloroethene	<0.91	<0.91	<0.93	<0.92	0.7
Trichlorotrifluoroethane	<1.25	<1.25	<1.26	<1.25	0.7
Trichlorofluoromethane	<0.91	<0.91	<0.93	<0.92	0.7
M&P-Xylene	1.16	0.76	<0.73	<0.88	27.0
O-Xylene	0.51	<0.36	<0.36	<0.41	20.8
Vinyl Chloride	<0.42	<0.42	<0.43	<0.43	0.7
Total	<69.1	<46.4	<65.1	<60.2	20.1

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

TABLE 88
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Volatile Organic Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 1 $\mu\text{g}/\text{Rm}^3*$	Test No. 2 $\mu\text{g}/\text{Rm}^3*$	Test No. 3 $\mu\text{g}/\text{Rm}^3*$	Average $\mu\text{g}/\text{Rm}^3*$	
Acetone	28.6	16.1	32.6	25.8	33.6
Benzene	1.61	1.95	2.29	1.95	17.6
Bromodichloromethane	<1.09	<1.09	<1.08	<1.09	0.2
Bromoform	<1.76	<1.76	<1.75	<1.75	0.2
Bromomethane	1.88	2.37	2.13	2.13	11.4
1,3-Butadiene	<0.37	<0.37	<0.37	<0.37	0.2
2-Butanone	3.75	2.17	1.76	2.56	40.8
Carbon Tetrachloride	<1.05	<1.05	<1.05	<1.05	0.2
Chloroform	0.85	<0.82	1.06	<0.91	14.2
Cumene (Isopropylbenzene)	<0.84	<0.84	<0.83	<0.83	0.2
Dibromochloromethane	<1.42	<1.42	<1.42	<1.42	0.2
Dichlorodifluoromethane	<0.84	<0.84	<0.83	<0.83	0.2
1,2-Dichloroethane	<0.68	<0.68	<0.67	<0.68	0.2
trans,1,2-Dichloroethene	<0.66	<0.66	<0.66	<0.66	0.2
1,1-Dichloroethene	<0.66	<0.66	<0.66	<0.66	0.2
1,2-Dichloropropane	<0.75	<0.75	<0.75	<0.75	0.2
Ethylbenzene	1.27	<0.36	<0.36	<0.66	79.5
Ethylene Dibromide	<1.25	<1.25	<1.25	<1.25	0.2
Mesitylene (1,3,5-Trimethylbenzene)	<0.84	<0.84	<0.83	<0.83	0.2
Methylene Chloride	<0.58	<0.58	<0.57	<0.58	0.2
Styrene	<0.71	<0.71	<0.71	<0.71	0.2
Tetrachloroethene	1.50	<1.17	<1.17	<1.28	15.2
Toluene	10.4	2.74	4.11	5.77	71.3
1,1,1-Trichloroethane	<0.92	<0.92	<0.92	<0.92	0.2
Trichloroethene/1,1,2-Trichloroethene	<0.92	<0.92	<0.92	<0.92	0.2
Trichlorotrifluoroethane	<1.25	<1.25	<1.25	<1.25	0.2
Trichlorofluoromethane	<0.92	<0.92	<0.92	<0.92	0.2
M&P-Xylene	1.16	0.76	<0.72	<0.88	27.5
O-Xylene	0.51	<0.36	<0.36	<0.41	21.3
Vinyl Chloride	<0.43	<0.43	<0.42	<0.43	0.2
Total	<69.5	<46.7	<64.4	<60.2	19.9

* At 25°C and 1 atmosphere

TABLE 89
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Volatile Organic Emission Rates

Compound	Emission Rate			Average mg/s	Coefficient of Variation %
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s		
Acetone	0.54	0.30	0.62	0.49	34.0
Benzene	0.030	0.037	0.044	0.037	18.1
Bromodichloromethane	<0.021	<0.021	<0.021	<0.021	0.4
Bromoform	<0.033	<0.033	<0.033	<0.033	0.4
Bromomethane	0.036	0.045	0.041	0.040	11.4
1,3-Butadiene	<0.0070	<0.0070	<0.0070	<0.0070	0.4
2-Butanone	0.071	0.041	0.034	0.049	40.4
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.4
Chloroform	0.016	<0.015	0.020	<0.017	14.8
Cumene (Isopropylbenzene)	<0.016	<0.016	<0.016	<0.016	0.4
Dibromochloromethane	<0.027	<0.027	<0.027	<0.027	0.4
Dichlorodifluoromethane	<0.016	<0.016	<0.016	<0.016	0.4
1,2-Dichloroethane	<0.013	<0.013	<0.013	<0.013	0.4
trans,1,2-Dichloroethene	<0.012	<0.012	<0.013	<0.013	0.4
1,1-Dichloroethene	<0.012	<0.012	<0.013	<0.013	0.4
1,2-Dichloropropane	<0.014	<0.014	<0.014	<0.014	0.4
Ethylbenzene	0.024	<0.0068	<0.0068	<0.0125	79.1
Ethylene Dibromide	<0.024	<0.024	<0.024	<0.024	0.4
Mesitylene (1,3,5-Trimethylbenzene)	<0.016	<0.016	<0.016	<0.016	0.4
Methylene Chloride	<0.011	<0.011	<0.011	<0.011	0.4
Styrene	<0.013	<0.013	<0.014	<0.013	0.4
Tetrachloroethene	0.028	<0.022	<0.022	<0.024	14.9
Toluene	0.20	0.052	0.079	0.109	71.0
1,1,1-Trichloroethane	<0.017	<0.017	<0.017	<0.017	0.4
Trichloroethene/1,1,2-Trichloroethene	<0.017	<0.017	<0.017	<0.017	0.4
Trichlorotrifluoroethane	<0.024	<0.024	<0.024	<0.024	0.4
Trichlorofluoromethane	<0.017	<0.017	<0.017	<0.017	0.4
M&P-Xylene	0.022	0.014	<0.014	<0.017	27.2
O-Xylene	0.0096	<0.0068	<0.0068	<0.0078	21.0
Vinyl Chloride	<0.0081	<0.0081	<0.0081	<0.0081	0.4
Total	<1.31	<0.88	<1.23	<1.14	20.0

TABLE 90
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Summary of Volatile Organic Emission Data

Compound	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3*$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Emission Rate mg/s
Acetone	18.0	30.9	25.8	25.8	0.49
Benzene	1.36	2.33	1.95	1.95	0.037
Bromodichloromethane	<0.76	<1.30	<1.09	<1.09	<0.021
Bromoform	<1.23	<2.10	<1.75	<1.75	<0.033
Bromomethane	1.49	2.55	2.13	2.13	0.040
1,3-Butadiene	<0.26	<0.44	<0.37	<0.37	<0.0070
2-Butanone	1.79	3.07	2.56	2.56	0.049
Carbon Tetrachloride	<0.74	<1.26	<1.05	<1.05	<0.020
Chloroform	<0.64	<1.09	<0.91	<0.91	<0.017
Cumene (Isopropylbenzene)	<0.58	<1.00	<0.83	<0.83	<0.016
Dibromochloromethane	<0.99	<1.70	<1.42	<1.42	<0.027
Dichlorodifluoromethane	<0.58	<1.00	<0.83	<0.83	<0.016
1,2-Dichloroethane	<0.47	<0.81	<0.68	<0.68	<0.013
trans,1,2-Dichloroethene	<0.46	<0.79	<0.66	<0.66	<0.013
1,1-Dichloroethene	<0.46	<0.79	<0.66	<0.66	<0.013
1,2-Dichloropropane	<0.53	<0.90	<0.75	<0.75	<0.014
Ethylbenzene	<0.46	<0.79	<0.66	<0.66	<0.0125
Ethylene Dibromide	<0.88	<1.50	<1.25	<1.25	<0.024
Mesitylene (1,3,5-Trimethylbenzene)	<0.58	<1.00	<0.83	<0.83	<0.016
Methylene Chloride	<0.40	<0.69	<0.58	<0.58	<0.011
Styrene	<0.50	<0.85	<0.71	<0.71	<0.013
Tetrachloroethene	<0.90	<1.53	<1.28	<1.28	<0.024
Toluene	4.04	6.91	5.76	5.77	0.109
1,1,1-Trichloroethane	<0.64	<1.10	<0.92	<0.92	<0.017
Trichloroethene/1,1,2-Trichloroethene	<0.64	<1.10	<0.92	<0.92	<0.017
Trichlorotrifluoroethane	<0.88	<1.50	<1.25	<1.25	<0.024
Trichlorofluoromethane	<0.64	<1.10	<0.92	<0.92	<0.017
M&P-Xylene	<0.62	<1.06	<0.88	<0.88	<0.017
O-Xylene	<0.29	<0.49	<0.41	<0.41	<0.0078
Vinyl Chloride	<0.30	<0.51	<0.43	<0.43	<0.0081
Total	<42.1	<72.1	<60.2	<60.2	<1.14

* At 25°C and 1 atmosphere

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

TABLE 91
Reworld Durham York Renewable Energy L.P.
Boiler No. 1 BH Outlet
Blank Volatile Organic Analyses

Compound	Field Blank ppb
Acetone	29.2
Benzene	<0.10
Bromodichloromethane	<0.20
Bromoform	<0.20
Bromomethane	<0.20
1,3-Butadiene	<0.20
2-Butanone	<0.20
Carbon Tetrachloride	<0.20
Chloroform	<0.20
Cumene (Isopropylbenzene)	<0.20
Dibromochloromethane	<0.20
Dichlorodifluoromethane	<0.20
1,2-Dichloroethane	<0.20
trans,1,2-Dichloroethene	<0.20
1,1-Dichloroethene	<0.20
1,2-Dichloropropane	<0.20
Ethylbenzene	<0.10
Ethylene Dibromide	<0.20
Mesitylene (1,3,5-Trimethylbenzene)	<0.20
Methylene Chloride	<0.20
Styrene	<0.20
Tetrachloroethene	<0.20
Toluene	0.31
1,1,1-Trichloroethane	<0.20
Trichloroethene/1,1,2-Trichloroethene	<0.20
Trichlorotrifluoroethane	<0.20
Trichlorofluoromethane	<0.20
M&P-Xylene	<0.20
O-Xylene	<0.10
Vinyl Chloride	<0.20
Total	<29.5

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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2
Isokinetic Sampling Train Test Schedules

Particulate and Metals Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 12, 2025	16:39	19:47	180
2	May 13, 2025	7:56	11:06	180
3	May 13, 2025	11:46	14:53	180

Particle Size Distribution Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 12, 2025	9:40	11:41	120
2	May 12, 2025	12:30	14:33	120
3	May 12, 2025	15:10	17:10	120

Acid Gases Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 13, 2025	7:57	8:57	60
2	May 13, 2025	9:38	10:38	60
3	May 13, 2025	10:51	11:51	60

Semi-Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time* min
		Start	Finish	
1	May 14, 2025	8:10	12:20	240
2	May 14, 2025	13:04	17:17	240
3	May 15, 2025	7:46	11:55	240

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

TABLE 2
Reworld Durham York Renewable Energy L.P.
Boiler No. 2
Organic Compounds Test Schedules

Acrolein and Aldehydes Trains

Test Number	Test Date	Sampling Period		Sampling Time min
		Start	Finish	
1	July 10, 2025	10:29	11:29	60
2	July 10, 2025	11:51	12:51	60
3	July 10, 2025	13:17	14:17	60

Volatile Organic Compounds Trains

Test Number	Test Date	Sampling Period		Sampling Time min
		Start	Finish	
1	May 14, 2025	8:12	10:20	128
2	May 14, 2025	10:45	13:06	141
3	May 14, 2025	13:07	16:14	187

Total Hydrocarbons Trains

Sampling Location	Test Number	Test Date	Sampling Period		Sampling Time min
			Start	Finish	
BH Outlet	1	May 13, 2025	8:05	9:05	60
BH Outlet	2	May 13, 2025	9:20	10:20	60
BH Outlet	3	May 13, 2025	10:40	11:40	60
Quench Inlet	1	May 13, 2025	8:05	9:05	60
Quench Inlet	2	May 13, 2025	9:20	10:20	60
Quench Inlet	3	May 13, 2025	10:40	11:40	60

TABLE 3
Reworld Durham York Renewable Energy L.P.
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	0.840	0.990	6.25	3.491	100.4
2	0.840	0.990	6.25	3.466	100.4
3	0.840	0.990	6.25	3.566	101.8

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	0.840	1.000	4.51	1.130	90.8
2	0.840	1.000	4.51	1.153	91.8
3	0.840	1.000	4.51	1.128	93.2

Acid Gases Trains

Test No.	Pitot Tube Coefficient	Dry Gas Meter Factor	Nozzle Diameter mm	Gas Volume Sampled Rm ³ *	Percentage of Isokineticity %
1	0.840	0.983	6.20	1.119	99.8
2	0.840	0.983	6.20	1.101	100.0
3	0.840	0.983	6.20	1.077	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	0.840	0.983	6.20	4.811	100.7
2	0.840	0.983	6.20	4.866	100.3
3	0.840	0.983	6.20	4.643	100.2

* Dry at 25°C and 1 atmosphere

TABLE 4
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Stack Gas Physical Parameters

Particulate and Metals Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	138	16.5	17.8	-2.37	98.5	10.7	8.17
2	138	15.6	17.5	-2.27	98.6	10.5	8.37
3	139	16.6	18.0	-2.27	98.5	10.5	8.36
Average	139	16.2	17.8	-2.30	98.5	10.6	8.30

Particle Size Distribution Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	138	15.8	18.3	-2.37	99.0	10.3	8.46
2	139	15.2	18.3	-2.37	98.8	10.4	8.55
3	140	15.7	18.1	-2.37	98.6	10.5	8.43
Average	139	15.6	18.3	-2.37	98.8	10.4	8.48

Acid Gases Trains **

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	138	15.8	17.4	-2.27	98.6	10.6	8.39
2	137	16.0	17.1	-2.27	98.6	10.5	8.38
3	137	16.4	16.8	-2.27	98.6	10.7	8.30
Average	138	16.1	17.1	-2.27	98.6	10.6	8.36

Semi-Volatile Organics Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	136	16.8	18.7	-2.12	98.5	10.4	8.59
2	135	16.3	18.8	-2.12	98.3	10.0	9.00
3	136	16.6	18.2	-2.29	97.8	10.4	8.25
Average	136	16.6	18.6	-2.17	98.2	10.3	8.61

Acrolein and Aldehydes Trains

Test No.	Gas Temp. °C	Moisture by Volume %	Gas Velocity m/s	Static Pressure kPa	Absolute Pressure kPa	Carbon Dioxide by Volume % *	Oxygen by Volume % *
1	130	15.1	17.9	-2.17	97.9	9.89	9.49
2	132	15.1	17.7	-2.17	97.9	10.8	8.44
3	135	15.1	16.7	-2.17	97.9	10.4	8.74
Average	132	15.1	17.4	-2.17	97.9	10.3	8.89

* Dry basis, measured by the DYEC CEMS

** Sampling was conducted isokinetically on a single traverse in the duct.

TABLE 5
Reworld Durham York Renewable Energy L.P.
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	26.3	15.5	19.9	18.6
2	25.9	15.4	19.5	18.2
3	26.7	15.6	19.8	18.7
Average	26.3	15.5	19.7	18.5

Particle Size Distribution Trains

Test No.	Actual Flowrate m ³ /s	Dry Reference Flowrate Rm ³ /s *	Dry Adjusted Flowrate Rm ³ /s **	Wet Reference Flowrate Rm ³ /s*
1	27.1	16.2	20.3	19.2
2	27.1	16.2	20.2	19.1
3	26.8	15.8	20.0	18.8
Average	27.0	16.1	20.1	19.0

Acid Gases Trains ***

Test No.	Actual Flowrate m ³ /s	Dry Reference Flowrate Rm ³ /s *	Dry Adjusted Flowrate Rm ³ /s **	Wet Reference Flowrate Rm ³ /s*
1	25.7	15.2	19.3	18.1
2	25.2	15.0	18.9	17.8
3	24.8	14.6	18.6	17.5
Average	25.2	14.9	18.9	17.8

Semi-Volatile Organics Trains

Test No.	Actual Flowrate m ³ /s	Dry Reference Flowrate Rm ³ /s *	Dry Adjusted Flowrate Rm ³ /s **	Wet Reference Flowrate Rm ³ /s*
1	27.6	16.3	20.2	19.5
2	27.8	16.5	19.8	19.7
3	26.9	15.8	20.1	18.9
Average	27.4	16.2	20.1	19.4

Acrolein and Aldehydes 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	26.5	16.1	18.6	19.0
2	26.1	15.8	19.9	18.6
3	24.7	14.8	18.2	17.4
Average	25.8	15.6	18.9	18.3

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Particulate Emission Data

Test No.	Particulate Collected			Dry Gas		Particulate Concentration			Particulate Emission Rate mg/s
	Main Filter	Probe Rinse	Total	Volume Sampled	Actual	Dry Reference	Dry Adjusted	Wet Reference	
	mg	mg	mg	Rm ³ *	mg/m ³	mg/Rm ³ *	mg/Rm ³ **	mg/Rm ³ *	
1	<0.6	0.8	<1.4	3.491	<0.24	<0.40	<0.31	<0.34	<6.22
2	<0.6	1.2	<1.8	3.466	<0.31	<0.52	<0.41	<0.44	<7.99
3	<0.6	0.8	<1.4	3.566	<0.23	<0.39	<0.31	<0.33	<6.13
Average					<0.26	<0.44	<0.34	<0.37	<6.78
Blank	<0.6	<0.4	<1.0						

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 7
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
PM_{2.5} and PM₁₀ Emission Data

PM_{2.5}

Test No.	Total Collected mg	Dry Volume Sampled Rm ^{3*}	PM _{2.5} 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	<1.0	1.130	<0.53	<0.88	<0.70	<0.75	<14.3
2	<1.0	1.153	<0.52	<0.87	<0.70	<0.74	<14.0
3	<1.0	1.128	<0.52	<0.89	<0.70	<0.75	<14.0
Average			<0.52	<0.88	<0.70	<0.74	<14.1
Blank	<1.0						

PM₁₀

Test No.	Total Collected mg	Dry Volume Sampled Rm ^{3*}	PM ₁₀ 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	<1.4	1.130	<0.74	<1.24	<0.99	<1.04	<20.0
2	<1.4	1.153	<0.73	<1.21	<0.97	<1.03	<19.7
3	<1.4	1.128	<0.73	<1.24	<0.99	<1.05	<19.7
Average			<0.73	<1.23	<0.98	<1.04	<19.8
Blank	<1.4						

* At 25 °C and 1 atmosphere

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

TABLE 8
Reworld Durham York Renewable Energy L.P.
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	1.4	1.130	0.74	1.24	0.99	1.04	20.0
2	1.8	1.153	0.93	1.56	1.25	1.32	25.3
3	2.3	1.128	1.21	2.04	1.62	1.72	32.3
Average			0.96	1.61	1.29	1.36	25.9
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	1.3	1.130	0.69	1.15	0.92	0.97	18.6
2	2.8	1.153	1.45	2.43	1.95	2.06	39.3
3	1.3	1.128	0.68	1.15	0.91	0.97	18.3
Average			0.94	1.58	1.26	1.33	25.4
Blank	0.7						

* At 25 °C and 1 atmosphere

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

TABLE 9
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Halides and Ammonia Emission Data

Hydrogen Chloride

Test No.	HCl Collected	Dry Volume Sampled	Hydrogen Chloride Concentration				HCl Emission Rate
	mg	Rm ³ *	Actual mg/m ³	Dry Reference mg/Rm ³ *	Dry Adjusted mg/Rm ³ **	Wet Reference mg/Rm ³ *	mg/s
1	5.34	1.119	2.84	4.77	3.77	4.03	73.4
2	3.82	1.101	2.06	3.47	2.74	2.93	53.4
3	4.04	1.077	2.23	3.75	2.96	3.17	57.7
Average			2.38	4.00	3.16	3.37	61.5
Blank	<0.154						

Hydrogen Fluoride

Test No.	HF Collected	Dry Volume Sampled	Hydrogen Fluoride Concentration				HF Emission Rate
	mg	Rm ³ *	Actual mg/m ³	Dry Reference mg/Rm ³ *	Dry Adjusted mg/Rm ³ **	Wet Reference mg/Rm ³ *	mg/s
1	<0.162	1.119	<0.086	<0.14	<0.11	<0.12	<2.23
2	<0.152	1.101	<0.082	<0.14	<0.11	<0.12	<2.12
3	<0.158	1.077	<0.087	<0.15	<0.12	<0.12	<2.26
Average			<0.085	<0.14	<0.11	<0.12	<2.20
Blank	<0.106						

Ammonia

Test No.	Ammonia Collected	Dry Volume Sampled	Ammonia Concentration				Ammonia Emission Rate
	mg	Rm ³ *	Actual mg/m ³	Dry Reference mg/Rm ³ *	Dry Adjusted mg/Rm ³ **	Wet Reference mg/Rm ³ *	mg/s
1	0.657	1.119	0.35	0.59	0.46	0.50	9.04
2	0.672	1.101	0.36	0.61	0.48	0.52	9.39
3	0.686	1.077	0.38	0.64	0.50	0.54	9.80
Average			0.36	0.61	0.48	0.52	9.41
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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2
Combustion Gas Analyses

Data measured by the DYEC CEMS from May 12 to May 15, 2025

Sampling Location	Parameter	Minimum	Average	Maximum
BH Outlet	Oxygen (% , 1 hr Avg)	7.86	8.73	10.28
BH Outlet	Carbon Monoxide (mg/Rm ³ , 1 hr Avg) *	6	14	33
BH Outlet	Carbon Monoxide (mg/Rm ³ , 4 hr Avg) *	8.5	13.6	24.5
BH Outlet	Sulphur Dioxide (mg/Rm ³ , 1 hr Avg) *	0	4.8	44
BH Outlet	Sulphur Dioxide (mg/Rm ³ , 24 hr Avg) *	3.8	5.2	6.6
BH Outlet	Nitrogen Oxides (mg/Rm ³ , 1 hr Avg) *	96	109	121
BH Outlet	Nitrogen Oxides (mg/Rm ³ , 24 hr Avg) *	107	109	110
BH Outlet	Hydrogen Chloride (mg/Rm ³ , 1 hr Avg) *	1	3	7
BH Outlet	Hydrogen Chloride (mg/Rm ³ , 24 hr Avg) *	2.7	3.3	3.8
BH Outlet	Total Hydrocarbons (mg/Rm ³ , 1 hr Avg) *	0.9	1.1	1.6
Quench Inlet	Oxygen (% , 1 hr Avg)	6	7	9

Data measured by the Alliance CEMS on May 13, 2025

Sampling Location	Test No.	Parameter	Minimum	Average	Maximum
BH Outlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.69	4.00
BH Outlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.38	2.16
BH Outlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0.46	0.93	2.82
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.67	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 1-min Avg)	0.31	0.47	0.62
Quench Inlet	2	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0	0
Quench Inlet	3	Total Hydrocarbons (ppm dry, 1-min Avg)	0	0.02	0.24
Average		Total Hydrocarbons (ppm dry, 1-min Avg)		0.16	
Quench Inlet	1	Total Hydrocarbons (ppm dry, 10-min Avg)	0.41	0.48	0.58
Quench Inlet	2	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0	0
Quench Inlet	3	Total Hydrocarbons (ppm dry, 10-min Avg)	0	0.01	0.14
Average		Total Hydrocarbons (ppm dry, 10-min Avg)		0.16	

* Reference conditions, dry basis adjusted to 11% oxygen

TABLE 11
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Metals Analyses Test No. 1

Metal	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	8.90	<2.5	8.90
Beryllium	<0.20	<0.10	<0.20
Cadmium	<0.10	<0.050	<0.10
Chromium	2.20	<0.50	2.20
Cobalt	<0.20	<0.10	<0.20
Copper	3.20	3.20	6.40
Lead	<0.50	1.12	1.12
Mercury *	<0.022	<0.578	<0.58
Molybdenum	16.7	<0.10	16.7
Nickel	1.43	0.32	1.75
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	7.60	4.10	11.7
Total			<52.4

* Includes the permanganate impingers

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

TABLE 12
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Metals Analyses Test No. 2

Metal	Probe & Filter	Impingers	Total
	Hydrofluoric Acid Digest	& Rinses	Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	9.60	<2.5	9.60
Beryllium	<0.20	<0.10	<0.20
Cadmium	0.12	<0.050	0.12
Chromium	2.10	<0.50	2.10
Cobalt	<0.20	<0.10	<0.20
Copper	3.60	3.73	7.33
Lead	<0.50	1.01	1.01
Mercury *	<0.022	<0.562	<0.56
Molybdenum	16.8	<0.10	16.8
Nickel	1.46	0.80	2.26
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	8.20	5.30	13.5
Total			<56.3

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Metals Analyses Test No. 3

Metal	Probe & Filter Hydrofluoric Acid Digest	Impingers & Rinses	Total Collected
	µg	µg	µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	9.40	<2.5	9.40
Beryllium	<0.20	<0.10	<0.20
Cadmium	<0.10	<0.050	<0.10
Chromium	2.10	<0.50	2.10
Cobalt	<0.20	<0.10	<0.20
Copper	3.20	2.82	6.02
Lead	<0.50	1.31	1.31
Mercury *	<0.022	<0.60	<0.56
Molybdenum	16.8	<0.10	16.8
Nickel	1.28	0.24	1.52
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	8.10	<3.0	8.10
Total			<48.9

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Metals Emission Data Test No. 1

Metal	Total Collected μg	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Antimony	<0.20	<0.034	<0.057	<0.045	<0.048	<0.00089
Arsenic	<0.50	<0.084	<0.14	<0.11	<0.12	<0.0022
Barium	8.90	1.50	2.55	1.99	2.12	0.040
Beryllium	<0.20	<0.034	<0.057	<0.045	<0.048	<0.00089
Cadmium	<0.10	<0.017	<0.029	<0.022	<0.024	<0.00044
Chromium	2.20	0.37	0.63	0.49	0.53	0.0098
Cobalt	<0.20	<0.034	<0.057	<0.045	<0.048	<0.00089
Copper	6.40	1.08	1.83	1.43	1.53	0.028
Lead	1.12	0.19	0.32	0.25	0.27	0.0050
Mercury	<0.58	<0.098	<0.17	<0.13	<0.14	<0.0026
Molybdenum	16.7	2.82	4.78	3.73	3.99	0.074
Nickel	1.75	0.30	0.50	0.39	0.42	0.0078
Selenium	<1.00	<0.17	<0.29	<0.22	<0.24	<0.0044
Silver	<0.20	<0.034	<0.057	<0.045	<0.048	<0.00089
Thallium	<0.20	<0.034	<0.057	<0.045	<0.048	<0.00089
Vanadium	<0.50	<0.084	<0.14	<0.11	<0.12	<0.0022
Zinc	11.7	1.98	3.35	2.61	2.79	0.052
Total	<52	<8.85	<15.0	<11.7	<12.5	<0.23

Dry Gas Volume Sampled (Rm^3^*) :	3.491
Actual Flowrate (m^3/s) :	26.3
Dry Reference Flowrate (Rm^3/s^*) :	15.5
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	19.9
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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Metals Emission Data Test No. 2

Metal	Total Collected μg	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Antimony	<0.20	<0.034	<0.058	<0.046	<0.049	<0.00089
Arsenic	<0.50	<0.086	<0.14	<0.11	<0.12	<0.0022
Barium	9.60	1.65	2.77	2.19	2.34	0.043
Beryllium	<0.20	<0.034	<0.058	<0.046	<0.049	<0.00089
Cadmium	0.12	0.021	0.035	0.027	0.029	0.00053
Chromium	2.10	0.36	0.61	0.48	0.51	0.0093
Cobalt	<0.20	<0.034	<0.058	<0.046	<0.049	<0.00089
Copper	7.33	1.26	2.11	1.67	1.79	0.033
Lead	1.01	0.17	0.29	0.23	0.25	0.0045
Mercury	<0.56	<0.096	<0.16	<0.13	<0.14	<0.0025
Molybdenum	16.8	2.88	4.85	3.83	4.10	0.075
Nickel	2.26	0.39	0.65	0.51	0.55	0.010
Selenium	<1.00	<0.17	<0.29	<0.23	<0.24	<0.0044
Silver	<0.20	<0.034	<0.058	<0.046	<0.049	<0.00089
Thallium	<0.20	<0.034	<0.058	<0.046	<0.049	<0.00089
Vanadium	<0.50	<0.086	<0.14	<0.11	<0.12	<0.0022
Zinc	13.5	2.32	3.89	3.08	3.30	0.060
Total	<56.3	<9.66	<16.2	<12.8	<13.7	<0.25

Dry Gas Volume Sampled (Rm^3^*) :	3.466
Actual Flowrate (m^3/s) :	25.9
Dry Reference Flowrate (Rm^3/s^*) :	15.4
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	19.5
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

TABLE 16
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Metals Emission Data Test No. 3

Metal	Total Collected μg	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Antimony	<0.20	<0.033	<0.056	<0.044	<0.047	<0.00087
Arsenic	<0.50	<0.082	<0.14	<0.11	<0.12	<0.0022
Barium	9.40	1.54	2.64	2.08	2.20	0.041
Beryllium	<0.20	<0.033	<0.056	<0.044	<0.047	<0.00087
Cadmium	<0.10	<0.016	<0.028	<0.022	<0.023	<0.00044
Chromium	2.10	0.34	0.59	0.46	0.49	0.0092
Cobalt	<0.20	<0.033	<0.056	<0.044	<0.047	<0.00087
Copper	6.02	0.99	1.69	1.33	1.41	0.026
Lead	1.31	0.21	0.37	0.29	0.31	0.0057
Mercury	<0.56	<0.092	<0.16	<0.12	<0.13	<0.0024
Molybdenum	16.8	2.75	4.71	3.71	3.93	0.073
Nickel	1.52	0.25	0.43	0.34	0.36	0.0066
Selenium	<1.00	<0.16	<0.28	<0.22	<0.23	<0.0044
Silver	<0.20	<0.033	<0.056	<0.044	<0.047	<0.00087
Thallium	<0.20	<0.033	<0.056	<0.044	<0.047	<0.00087
Vanadium	<0.50	<0.082	<0.14	<0.11	<0.12	<0.0022
Zinc	8.10	1.33	2.27	1.79	1.89	0.035
Total	<48.9	<8.01	<13.7	<10.8	<11.4	<0.21

Dry Gas Volume Sampled (Rm^3^*) :	3.566
Actual Flowrate (m^3/s) :	26.7
Dry Reference Flowrate (Rm^3/s^*) :	15.6
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	19.8
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 17
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Metal Actual Concentrations

Metal	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	µg/m ³	µg/m ³	µg/m ³	µg/m ³	%
Antimony	<0.034	<0.034	<0.033	<0.034	2.3
Arsenic	<0.084	<0.086	<0.082	<0.084	2.3
Barium	1.50	1.65	1.54	1.56	4.8
Beryllium	<0.034	<0.034	<0.033	<0.034	2.3
Cadmium	<0.017	0.021	<0.016	<0.018	12.8
Chromium	0.37	0.36	0.34	0.36	3.8
Cobalt	<0.034	<0.034	<0.033	<0.034	2.3
Copper	1.08	1.26	0.99	1.11	12.4
Lead	0.19	0.17	0.21	0.19	10.9
Mercury	<0.098	<0.096	<0.092	<0.095	3.2
Molybdenum	2.82	2.88	2.75	2.82	2.3
Nickel	0.30	0.39	0.25	0.31	22.7
Selenium	<0.17	<0.17	<0.16	<0.17	2.3
Silver	<0.034	<0.034	<0.033	<0.034	2.3
Thallium	<0.034	<0.034	<0.033	<0.034	2.3
Vanadium	<0.084	<0.086	<0.082	<0.084	2.3
Zinc	1.98	2.32	1.33	1.87	26.8
Total	<8.85	<9.66	<8.01	<8.84	9.3

TABLE 18
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Metal Dry Reference Concentrations

Metal	Dry Reference Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	µg/Rm ³ *	µg/Rm ³ *	µg/Rm ³ *	µg/Rm ³ *	%
Antimony	<0.057	<0.058	<0.056	<0.057	1.5
Arsenic	<0.14	<0.14	<0.14	<0.14	1.5
Barium	2.55	2.77	2.64	2.65	4.2
Beryllium	<0.057	<0.058	<0.056	<0.057	1.5
Cadmium	<0.029	0.035	<0.028	<0.030	12.0
Chromium	0.63	0.61	0.59	0.61	3.4
Cobalt	<0.057	<0.058	<0.056	<0.057	1.5
Copper	1.83	2.11	1.69	1.88	11.5
Lead	0.32	0.29	0.37	0.33	11.7
Mercury	<0.17	<0.16	<0.16	<0.16	2.7
Molybdenum	4.78	4.85	4.71	4.78	1.4
Nickel	0.50	0.65	0.43	0.53	21.8
Selenium	<0.29	<0.29	<0.28	<0.29	1.5
Silver	<0.057	<0.058	<0.056	<0.057	1.5
Thallium	<0.057	<0.058	<0.056	<0.057	1.5
Vanadium	<0.14	<0.14	<0.14	<0.14	1.5
Zinc	3.35	3.89	2.27	3.17	26.0
Total	<15.0	<16.2	<13.7	<15.0	8.4

* At 25°C and 1 atmosphere

TABLE 19
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Metal Dry Adjusted Concentrations

Metal	Dry Adjusted Concentration				Coefficient of Variation %
	Test No. 1 $\mu\text{g}/\text{Rm}^{3**}$	Test No. 2 $\mu\text{g}/\text{Rm}^{3**}$	Test No. 3 $\mu\text{g}/\text{Rm}^{3**}$	Average $\mu\text{g}/\text{Rm}^{3**}$	
Antimony	<0.045	<0.046	<0.044	<0.045	1.6
Arsenic	<0.11	<0.11	<0.11	<0.11	1.6
Barium	1.99	2.19	2.08	2.08	4.8
Beryllium	<0.045	<0.046	<0.044	<0.045	1.6
Cadmium	<0.022	0.027	<0.022	<0.024	12.4
Chromium	0.49	0.48	0.46	0.48	2.8
Cobalt	<0.045	<0.046	<0.044	<0.045	1.6
Copper	1.43	1.67	1.33	1.48	11.9
Lead	0.25	0.23	0.29	0.26	11.8
Mercury	<0.13	<0.13	<0.12	<0.13	2.2
Molybdenum	3.73	3.83	3.71	3.76	1.7
Nickel	0.39	0.51	0.34	0.41	22.2
Selenium	<0.22	<0.23	<0.22	<0.22	1.6
Silver	<0.045	<0.046	<0.044	<0.045	1.6
Thallium	<0.045	<0.046	<0.044	<0.045	1.6
Vanadium	<0.11	<0.11	<0.11	<0.11	1.6
Zinc	2.61	3.08	1.79	2.49	26.1
Total	<11.7	<12.8	<10.8	<11.8	8.6

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

TABLE 20
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Metal Wet Reference Concentrations

Metal	Wet Reference Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	$\mu\text{g}/\text{Rm}^3^*$	$\mu\text{g}/\text{Rm}^3^*$	$\mu\text{g}/\text{Rm}^3^*$	$\mu\text{g}/\text{Rm}^3^*$	%
Antimony	<0.048	<0.049	<0.047	<0.048	2.1
Arsenic	<0.12	<0.12	<0.12	<0.12	2.1
Barium	2.12	2.34	2.20	2.22	5.0
Beryllium	<0.048	<0.049	<0.047	<0.048	2.1
Cadmium	<0.024	0.029	<0.023	<0.026	12.8
Chromium	0.53	0.51	0.49	0.51	3.4
Cobalt	<0.048	<0.049	<0.047	<0.048	2.1
Copper	1.53	1.79	1.41	1.58	12.4
Lead	0.27	0.25	0.31	0.27	11.1
Mercury	<0.14	<0.14	<0.13	<0.14	2.8
Molybdenum	3.99	4.10	3.93	4.01	2.2
Nickel	0.42	0.55	0.36	0.44	22.7
Selenium	<0.24	<0.24	<0.23	<0.24	2.1
Silver	<0.048	<0.049	<0.047	<0.048	2.1
Thallium	<0.048	<0.049	<0.047	<0.048	2.1
Vanadium	<0.12	<0.12	<0.12	<0.12	2.1
Zinc	2.79	3.30	1.89	2.66	26.7
Total	<12.5	<13.7	<11.4	<12.6	9.1

* At 25°C and 1 atmosphere

TABLE 21
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Metal Emission Rates

Metal	Emission Rate				Coefficient of Variation %
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s	Average mg/s	
Antimony	<0.00089	<0.00089	<0.00087	<0.00088	0.9
Arsenic	<0.0022	<0.0022	<0.0022	<0.0022	0.9
Barium	0.040	0.043	0.041	0.041	3.8
Beryllium	<0.00089	<0.00089	<0.00087	<0.00088	0.9
Cadmium	<0.00044	0.00053	<0.00044	<0.00047	11.3
Chromium	0.0098	0.0093	0.0092	0.0094	3.2
Cobalt	<0.00089	<0.00089	<0.00087	<0.00088	0.9
Copper	0.028	0.033	0.026	0.029	10.9
Lead	0.0050	0.0045	0.0057	0.0051	12.4
Mercury	<0.0026	<0.0025	<0.0024	<0.0025	2.3
Molybdenum	0.074	0.075	0.073	0.074	0.8
Nickel	0.0078	0.010	0.0066	0.0082	21.2
Selenium	<0.0044	<0.0044	<0.0044	<0.0044	0.9
Silver	<0.00089	<0.00089	<0.00087	<0.00088	0.9
Thallium	<0.00089	<0.00089	<0.00087	<0.00088	0.9
Vanadium	<0.0022	<0.0022	<0.0022	<0.0022	0.9
Zinc	0.052	0.060	0.035	0.049	25.5
Total	<0.23	<0.25	<0.21	<0.23	7.8

TABLE 22
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Metal Emission Data

Metal	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^{3*}$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^{3**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^{3*}$	Emission Rate mg/s
Antimony	<0.034	<0.057	<0.045	<0.048	<0.00088
Arsenic	<0.084	<0.14	<0.11	<0.12	<0.0022
Barium	1.56	2.65	2.08	2.22	0.041
Beryllium	<0.034	<0.057	<0.045	<0.048	<0.00088
Cadmium	<0.018	<0.030	<0.024	<0.026	<0.00047
Chromium	0.36	0.61	0.48	0.51	0.0094
Cobalt	<0.034	<0.057	<0.045	<0.048	<0.00088
Copper	1.11	1.88	1.48	1.58	0.029
Lead	0.19	0.33	0.26	0.27	0.0051
Mercury	<0.095	<0.16	<0.13	<0.14	<0.0025
Molybdenum	2.82	4.78	3.76	4.01	0.074
Nickel	0.31	0.53	0.41	0.44	0.0082
Selenium	<0.17	<0.29	<0.22	<0.24	<0.0044
Silver	<0.034	<0.057	<0.045	<0.048	<0.00088
Thallium	<0.034	<0.057	<0.045	<0.048	<0.00088
Vanadium	<0.084	<0.14	<0.11	<0.12	<0.0022
Zinc	1.87	3.17	2.49	2.66	0.049
Total	<8.84	<15.0	<11.8	<12.6	<0.23

* At 25°C and 1 atmosphere

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

TABLE 23
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Blank Train Metal Analyses

Metal	Probe & Filter Hydrofluoric Acid Digest µg	Impingers & Rinses µg	Total Collected µg
Antimony	<0.20	<0.10	<0.20
Arsenic	<1.0	<0.50	<0.50
Barium	8.10	<2.5	8.10
Beryllium	<0.20	<0.10	<0.20
Cadmium	<0.10	<0.050	<0.10
Chromium	1.90	<0.50	1.90
Cobalt	<0.20	<0.10	<0.20
Copper	3.50	2.63	6.13
Lead	<0.50	0.29	0.29
Mercury *	<0.022	<0.225	<0.23
Molybdenum	15.9	<0.10	15.9
Nickel	1.07	0.10	1.17
Selenium	<2.0	<1.0	<1.00
Silver	<0.20	<0.10	<0.20
Thallium	<0.20	<0.10	<0.20
Vanadium	<1.0	<0.50	<0.50
Zinc	<6.0	<3.0	<6.00
Total			<42.8

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 1

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<4.5	<0.00055	<0.00094	<0.00075	<0.00078	<0.015
Pentachlorodibenzo-p-dioxins	<4.1	<0.00050	<0.00085	<0.00069	<0.00071	<0.014
Hexachlorodibenzo-p-dioxins	<5.2	<0.00064	<0.0011	<0.00087	<0.00090	<0.018
Heptachlorodibenzo-p-dioxins	<4.4	<0.00054	<0.00091	<0.00074	<0.00076	<0.015
Octachlorodibenzo-p-dioxin	<47	<0.0058	<0.0098	<0.0079	<0.0082	<0.16
Total	<65.2	<0.0080	<0.014	<0.011	<0.011	<0.22

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzofurans	16.5	0.0020	0.0034	0.0028	0.0029	0.056
Pentachlorodibenzofurans	15.2	0.0019	0.0032	0.0025	0.0026	0.051
Hexachlorodibenzofurans	15.1	0.0019	0.0031	0.0025	0.0026	0.051
Heptachlorodibenzofurans	<6.6	<0.00081	<0.0014	<0.0011	<0.0011	<0.022
Octachlorodibenzofuran	<14	<0.0017	<0.0029	<0.0023	<0.0024	<0.047
Total	<67.4	<0.0083	<0.014	<0.011	<0.012	<0.23

Dry Gas Volume Sampled (Rm ^{3*}) :	4.811
Actual Flowrate (m ³ /s) :	27.6
Dry Reference Flowrate (Rm ³ /s*) :	16.3
Dry Adjusted Flowrate (Rm ³ /s**) :	20.2
Wet Reference Flowrate (Rm ³ /s*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 2

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<4.5	<0.00055	<0.00092	<0.00077	<0.00077	<0.015
Pentachlorodibenzo-p-dioxins	<6.4	<0.00078	<0.0013	<0.0011	<0.0011	<0.022
Hexachlorodibenzo-p-dioxins	26.6	0.0032	0.0055	0.0046	0.0046	0.090
Heptachlorodibenzo-p-dioxins	23.8	0.0029	0.0049	0.0041	0.0041	0.081
Octachlorodibenzo-p-dioxin	<50	<0.0061	<0.010	<0.0086	<0.0086	<0.17
Total	<111	<0.014	<0.023	<0.019	<0.019	<0.38

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzofurans	<4.7	<0.00057	<0.00097	<0.00080	<0.00081	<0.016
Pentachlorodibenzofurans	<5.4	<0.00066	<0.0011	<0.00092	<0.00093	<0.018
Hexachlorodibenzofurans	8.88	0.0011	0.0018	0.0015	0.0015	0.030
Heptachlorodibenzofurans	<6.3	<0.00077	<0.0013	<0.0011	<0.0011	<0.021
Octachlorodibenzofuran	<17	<0.0021	<0.0035	<0.0029	<0.0029	<0.058
Total	<42.3	<0.0052	<0.0087	<0.0072	<0.0073	<0.14

Dry Gas Volume Sampled (Rm ^{3*}) :	4.866
Actual Flowrate (m ³ /s) :	27.8
Dry Reference Flowrate (Rm ³ /s*) :	16.5
Dry Adjusted Flowrate (Rm ³ /s**) :	19.8
Wet Reference Flowrate (Rm ³ /s*) :	19.7

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Data
Test No. 3

Dioxins

Congener Group	Total Collected pg	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<4.7	<0.00059	<0.0010	<0.00080	<0.00085	<0.016
Pentachlorodibenzo-p-dioxins	<7.1	<0.00090	<0.0015	<0.0012	<0.0013	<0.024
Hexachlorodibenzo-p-dioxins	<5.7	<0.00072	<0.0012	<0.00097	<0.0010	<0.019
Heptachlorodibenzo-p-dioxins	22.0	0.0028	0.0047	0.0037	0.0040	0.075
Octachlorodibenzo-p-dioxin	<45	<0.0057	<0.0097	<0.0076	<0.0081	<0.15
Total	<84.5	<0.011	<0.018	<0.014	<0.015	<0.29

Furans

Congener Group	Total Collected pg	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzofurans	10.6	0.0013	0.0023	0.0018	0.0019	0.036
Pentachlorodibenzofurans	30.6	0.0039	0.0066	0.0052	0.0055	0.10
Hexachlorodibenzofurans	16.2	0.0020	0.0035	0.0027	0.0029	0.055
Heptachlorodibenzofurans	<6.3	<0.00080	<0.0014	<0.0011	<0.0011	<0.021
Octachlorodibenzofuran	17.8	0.0023	0.0038	0.0030	0.0032	0.061
Total	<81.5	<0.010	<0.018	<0.014	<0.015	<0.28

Dry Gas Volume Sampled (Rm ^{3*}) :	4.643
Actual Flowrate (m ³ /s) :	26.9
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	20.1
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 27
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Actual Concentrations

Dioxins

Congener Group	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
Tetrachlorodibenzo-p-dioxins	<0.00055	<0.00055	<0.00059	<0.00057	4.5
Pentachlorodibenzo-p-dioxins	<0.00050	<0.00078	<0.00090	<0.00073	27.9
Hexachlorodibenzo-p-dioxins	<0.00064	0.0032	<0.00072	<0.0015	96.5
Heptachlorodibenzo-p-dioxins	<0.00054	0.0029	0.0028	<0.0021	64.1
Octachlorodibenzo-p-dioxin	<0.0058	<0.0061	<0.0057	<0.0059	3.7
Total	<0.0080	<0.014	<0.011	<0.011	25.9

Furans

Congener Group	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
Tetrachlorodibenzofurans	0.0020	<0.00057	0.0013	<0.0013	55.3
Pentachlorodibenzofurans	0.0019	<0.00066	0.0039	<0.0021	76.1
Hexachlorodibenzofurans	0.0019	0.0011	0.0020	0.0017	30.7
Heptachlorodibenzofurans	<0.00081	<0.00077	<0.00080	<0.00079	2.7
Octachlorodibenzofuran	<0.0017	<0.0021	0.0023	<0.0020	13.5
Total	<0.0083	<0.0052	<0.010	<0.0079	32.8

TABLE 28
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Tetrachlorodibenzo-p-dioxins	<0.00094	<0.00092	<0.0010	<0.00096	5.0
Pentachlorodibenzo-p-dioxins	<0.00085	<0.0013	<0.0015	<0.0012	28.1
Hexachlorodibenzo-p-dioxins	<0.0011	0.0055	<0.0012	<0.0026	96.1
Heptachlorodibenzo-p-dioxins	<0.00091	0.0049	0.0047	<0.0035	64.1
Octachlorodibenzo-p-dioxin	<0.0098	<0.010	<0.0097	<0.0099	3.2
Total	<0.014	<0.023	<0.018	<0.018	25.6

Furans

Congener Group	Dry Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Tetrachlorodibenzofurans	0.0034	<0.00097	0.0023	<0.0022	55.4
Pentachlorodibenzofurans	0.0032	<0.0011	0.0066	<0.0036	76.5
Hexachlorodibenzofurans	0.0031	0.0018	0.0035	0.0028	31.1
Heptachlorodibenzofurans	<0.0014	<0.0013	<0.0014	<0.0013	3.1
Octachlorodibenzofuran	<0.0029	<0.0035	0.0038	<0.0034	13.7
Total	<0.014	<0.0087	<0.018	<0.013	33.3

* At 25°C and 1 atmosphere

TABLE 29
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Dry Adjusted Concentrations

Dioxins

Congener Group	Dry Adjusted Concentration				Coefficient of Variation %
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *	Average ng/Rm ³ *	
Tetrachlorodibenzo-p-dioxins	<0.00075	<0.00077	<0.00080	<0.00077	2.7
Pentachlorodibenzo-p-dioxins	<0.00069	<0.0011	<0.0012	<0.0010	27.3
Hexachlorodibenzo-p-dioxins	<0.00087	0.0046	<0.00097	<0.0021	98.6
Heptachlorodibenzo-p-dioxins	<0.00074	0.0041	0.0037	<0.0028	64.4
Octachlorodibenzo-p-dioxin	<0.0079	<0.0086	<0.0076	<0.0080	6.1
Total	<0.011	<0.019	<0.014	<0.015	27.6

Furans

Congener Group	Dry Adjusted Concentration				Coefficient of Variation %
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *	Average ng/Rm ³ *	
Tetrachlorodibenzofurans	0.0028	<0.00080	0.0018	<0.0018	54.9
Pentachlorodibenzofurans	0.0025	<0.00092	0.0052	<0.0029	74.4
Hexachlorodibenzofurans	0.0025	0.0015	0.0027	0.0023	28.8
Heptachlorodibenzofurans	<0.0011	<0.0011	<0.0011	<0.0011	1.9
Octachlorodibenzofuran	<0.0023	<0.0029	0.0030	<0.0028	13.0
Total	<0.011	<0.0072	<0.014	<0.011	30.7

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

TABLE 30
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Tetrachlorodibenzo-p-dioxins	<0.00078	<0.00077	<0.00085	<0.00080	4.9
Pentachlorodibenzo-p-dioxins	<0.00071	<0.0011	<0.0013	<0.0010	28.1
Hexachlorodibenzo-p-dioxins	<0.00090	0.0046	<0.0010	<0.0022	96.2
Heptachlorodibenzo-p-dioxins	<0.00076	0.0041	0.0040	<0.0029	64.1
Octachlorodibenzo-p-dioxin	<0.0082	<0.0086	<0.0081	<0.0083	3.3
Total	<0.011	<0.019	<0.015	<0.015	25.7

Furans

Congener Group	Wet Reference Concentration				Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3	Average	
	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Tetrachlorodibenzofurans	0.0029	<0.00081	0.0019	<0.0019	55.3
Pentachlorodibenzofurans	0.0026	<0.00093	0.0055	<0.0030	76.5
Hexachlorodibenzofurans	0.0026	0.0015	0.0029	0.0024	31.1
Heptachlorodibenzofurans	<0.0011	<0.0011	<0.0011	<0.0011	2.9
Octachlorodibenzofuran	<0.0024	<0.0029	0.0032	<0.0029	13.7
Total	<0.012	<0.0073	<0.015	<0.011	33.2

* At 25°C and 1 atmosphere

TABLE 31
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Congener Group Emission Rates

Dioxins

Congener Group	Emission Rate			Average ng/s	Coefficient of Variation %
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s		
Tetrachlorodibenzo-p-dioxins	<0.015	<0.015	<0.016	<0.015	2.8
Pentachlorodibenzo-p-dioxins	<0.014	<0.022	<0.024	<0.020	26.9
Hexachlorodibenzo-p-dioxins	<0.018	0.090	<0.019	<0.042	97.6
Heptachlorodibenzo-p-dioxins	<0.015	0.081	0.075	<0.057	64.1
Octachlorodibenzo-p-dioxin	<0.16	<0.17	<0.15	<0.16	5.2
Total	<0.22	<0.38	<0.29	<0.30	26.6

Furans

Congener Group	Emission Rate			Average ng/s	Coefficient of Variation %
	Test No. 1 ng/s	Test No. 2 ng/s	Test No. 3 ng/s		
Tetrachlorodibenzofurans	0.056	<0.016	0.036	<0.036	55.6
Pentachlorodibenzofurans	0.051	<0.018	0.10	<0.058	74.6
Hexachlorodibenzofurans	0.051	0.030	0.055	0.045	29.6
Heptachlorodibenzofurans	<0.022	<0.021	<0.021	<0.022	2.6
Octachlorodibenzofuran	<0.047	<0.058	0.061	<0.055	12.5
Total	<0.23	<0.14	<0.28	<0.22	31.3

TABLE 32
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Congener Group Emission Data

Dioxins

Congener Group	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzo-p-dioxins	<0.00057	<0.00096	<0.00077	<0.00080	<0.015
Pentachlorodibenzo-p-dioxins	<0.00073	<0.0012	<0.0010	<0.0010	<0.020
Hexachlorodibenzo-p-dioxins	<0.0015	<0.0026	<0.0021	<0.0022	<0.042
Heptachlorodibenzo-p-dioxins	<0.0021	<0.0035	<0.0028	<0.0029	<0.057
Octachlorodibenzo-p-dioxin	<0.0059	<0.0099	<0.0080	<0.0083	<0.16
Total	<0.011	<0.018	<0.015	<0.015	<0.30

Furans

Congener Group	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate ng/s
Tetrachlorodibenzofurans	<0.0013	<0.0022	<0.0018	<0.0019	<0.036
Pentachlorodibenzofurans	<0.0021	<0.0036	<0.0029	<0.0030	<0.058
Hexachlorodibenzofurans	0.0017	0.0028	0.0023	0.0024	0.045
Heptachlorodibenzofurans	<0.00079	<0.0013	<0.0011	<0.0011	<0.022
Octachlorodibenzofuran	<0.0020	<0.0034	<0.0028	<0.0029	<0.055
Total	<0.0079	<0.013	<0.011	<0.011	<0.22

* At 25°C and 1 atmosphere

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

TABLE 33
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Blank Dioxin and Furan Congener Group Analyses

Dioxins

Congener Group	Blank Train	Method Blank
	pg	pg
Tetrachlorodibenzo-p-dioxins	<5.0	<3.8
Pentachlorodibenzo-p-dioxins	<4.3	<6.3
Hexachlorodibenzo-p-dioxins	<5.4	10.8
Heptachlorodibenzo-p-dioxins	<7.1	<5.7
Octachlorodibenzo-p-dioxin	<22	<29
Total	<43.8	<55.6

Furans

Congener Group	Blank Train	Method Blank
	pg	pg
Tetrachlorodibenzofurans	<3.3	<5.0
Pentachlorodibenzofurans	<5.0	<4.6
Hexachlorodibenzofurans	<2.9	<6.7
Heptachlorodibenzofurans	<3.6	6.28
Octachlorodibenzofuran	<25	26.1
Total	<39.8	<48.7

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 1

Specific Isomer	Total Collected pg	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ^{3*}	Dry Adjusted Concentration pg/Rm ^{3**}	Wet Reference Concentration pg/Rm ^{3*}	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<4.5	<0.55	<0.94	<0.75	<0.78	<0.015
12378-pentachlorodibenzo-p-dioxin	<4.1	<0.50	<0.85	<0.69	<0.71	<0.014
123478-hexachlorodibenzo-p-dioxin	<5.2	<0.64	<1.08	<0.87	<0.90	<0.018
123678-hexachlorodibenzo-p-dioxin	<4.8	<0.59	<1.00	<0.81	<0.83	<0.016
123789-hexachlorodibenzo-p-dioxin	<4.9	<0.60	<1.02	<0.82	<0.85	<0.017
1234678-heptachlorodibenzo-p-dioxin	<23	<2.82	<4.78	<3.86	<4.00	<0.078
Octachlorodibenzo-p-dioxin	<47	<5.77	<9.77	<7.88	<8.17	<0.16
2378-tetrachlorodibenzofuran	6.39	0.78	1.33	1.07	1.11	0.022
12378-pentachlorodibenzofuran	<5.3	<0.65	<1.10	<0.89	<0.92	<0.018
23478-pentachlorodibenzofuran	<5.2	<0.64	<1.08	<0.87	<0.90	<0.018
123478-hexachlorodibenzofuran	3.52	0.43	0.73	0.59	0.61	0.012
123678-hexachlorodibenzofuran	<4.9	<0.60	<1.02	<0.82	<0.85	<0.017
234678-hexachlorodibenzofuran	3.38	0.41	0.70	0.57	0.59	0.011
123789-hexachlorodibenzofuran	5.44	0.67	1.13	0.91	0.95	0.018
1234678-heptachlorodibenzofuran	<14	<1.72	<2.91	<2.35	<2.43	<0.047
1234789-heptachlorodibenzofuran	<6.6	<0.81	<1.37	<1.11	<1.15	<0.022
Octachlorodibenzofuran	<14	<1.72	<2.91	<2.35	<2.43	<0.047
PCB 81	<25	<3.07	<5.20	<4.19	<4.34	<0.085
PCB 77	233	28.6	48.4	39.1	40.5	0.79
PCB 123	94.2	11.6	19.6	15.8	16.4	0.32
PCB 118	5380	660	1118	902	935	18.2
PCB 114	150	18.4	31.2	25.2	26.1	0.51
PCB 105	1750	215	364	294	304	5.93
PCB 126	<16	<1.96	<3.33	<2.68	<2.78	<0.054
PCB 167	20.1	2.47	4.18	3.37	3.49	0.068
PCB 156/157	78.6	9.65	16.3	13.2	13.7	0.27
PCB 169	<7.6	<0.93	<1.58	<1.27	<1.32	<0.026
PCB 189	<6.7	<0.82	<1.39	<1.12	<1.16	<0.023
Total Dioxins & Furans Only	<162	<19.9	<33.7	<27.2	<28.2	<0.55
Total PCBs Only	<7761	<953	<1613	<1302	<1348	<26.3
Total Dioxins & Furans and PCBs	<7923	<973	<1647	<1329	<1377	<26.8

Dry Gas Volume Sampled (Rm ^{3*}) :	4.811
Actual Flowrate (m ³ /s) :	27.6
Dry Reference Flowrate (Rm ³ /s*) :	16.3
Dry Adjusted Flowrate (Rm ³ /s**) :	20.2
Wet Reference Flowrate (Rm ³ /s*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 2

Specific Isomer	Total Collected pg	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ^{3*}	Dry Adjusted Concentration pg/Rm ^{3**}	Wet Reference Concentration pg/Rm ^{3*}	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<4.5	<0.55	<0.92	<0.77	<0.77	<0.015
12378-pentachlorodibenzo-p-dioxin	<6.4	<0.78	<1.32	<1.10	<1.10	<0.022
123478-hexachlorodibenzo-p-dioxin	<5.4	<0.66	<1.11	<0.92	<0.93	<0.018
123678-hexachlorodibenzo-p-dioxin	<5.0	<0.61	<1.03	<0.86	<0.86	<0.017
123789-hexachlorodibenzo-p-dioxin	<5.1	<0.62	<1.05	<0.87	<0.88	<0.017
1234678-heptachlorodibenzo-p-dioxin	23.8	2.90	4.89	4.08	4.10	0.08
Octachlorodibenzo-p-dioxin	<50	<6.10	<10.3	<8.56	<8.61	<0.17
2378-tetrachlorodibenzofuran	<4.7	<0.57	<0.97	<0.80	<0.81	<0.016
12378-pentachlorodibenzofuran	<5.4	<0.66	<1.11	<0.92	<0.93	<0.018
23478-pentachlorodibenzofuran	<4.9	<0.60	<1.01	<0.84	<0.84	<0.017
123478-hexachlorodibenzofuran	<4.4	<0.54	<0.90	<0.75	<0.76	<0.015
123678-hexachlorodibenzofuran	<4.2	<0.51	<0.86	<0.72	<0.72	<0.014
234678-hexachlorodibenzofuran	<4.4	<0.54	<0.90	<0.75	<0.76	<0.015
123789-hexachlorodibenzofuran	<5.1	<0.62	<1.05	<0.87	<0.88	<0.017
1234678-heptachlorodibenzofuran	<9.5	<1.16	<1.95	<1.63	<1.64	<0.032
1234789-heptachlorodibenzofuran	<6.3	<0.77	<1.29	<1.08	<1.08	<0.021
Octachlorodibenzofuran	<17	<2.07	<3.49	<2.91	<2.93	<0.058
PCB 81	32.0	3.90	6.58	5.48	5.51	0.11
PCB 77	796	97.1	164	136	137	2.70
PCB 123	322	39.3	66.2	55.1	55.4	1.09
PCB 118	21800	2659	4480	3733	3752	73.9
PCB 114	519	63.3	107	88.9	89.3	1.76
PCB 105	5920	722	1217	1014	1019	20.1
PCB 126	<19	<2.32	<3.90	<3.25	<3.27	<0.064
PCB 167	96.8	11.8	19.9	16.6	16.7	0.33
PCB 156/157	225	27.4	46.2	38.5	38.7	0.76
PCB 169	<6.8	<0.83	<1.40	<1.16	<1.17	<0.023
PCB 189	<7.4	<0.90	<1.52	<1.27	<1.27	<0.025
Total Dioxins & Furans Only	<166	<20.3	<34.1	<28.4	<28.6	<0.56
Total PCBs Only	<29744	<3628	<6113	<5094	<5120	<101
Total Dioxins & Furans and PCBs	<29910	<3648	<6147	<5122	<5148	<101

Dry Gas Volume Sampled (Rm ^{3*}) :	4.866
Actual Flowrate (m ³ /s) :	27.8
Dry Reference Flowrate (Rm ³ /s*) :	16.5
Dry Adjusted Flowrate (Rm ³ /s**) :	19.8
Wet Reference Flowrate (Rm ³ /s*) :	19.7

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Emission Data
Test No. 3

Specific Isomer	Total Collected pg	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ³ *	Dry Adjusted Concentration pg/Rm ³ **	Wet Reference Concentration pg/Rm ³ *	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<4.7	<0.59	<1.01	<0.80	<0.85	<0.016
12378-pentachlorodibenzo-p-dioxin	<7.1	<0.90	<1.53	<1.20	<1.28	<0.024
123478-hexachlorodibenzo-p-dioxin	<5.7	<0.72	<1.23	<0.97	<1.03	<0.019
123678-hexachlorodibenzo-p-dioxin	<5.8	<0.73	<1.25	<0.98	<1.04	<0.020
123789-hexachlorodibenzo-p-dioxin	<5.4	<0.68	<1.16	<0.91	<0.97	<0.018
1234678-heptachlorodibenzo-p-dioxin	<22	<2.78	<4.74	<3.72	<3.96	<0.075
Octachlorodibenzo-p-dioxin	<45	<5.69	<9.69	<7.62	<8.10	<0.15
2378-tetrachlorodibenzofuran	<7.5	<0.95	<1.62	<1.27	<1.35	<0.026
12378-pentachlorodibenzofuran	<9.8	<1.24	<2.11	<1.66	<1.76	<0.033
23478-pentachlorodibenzofuran	8.04	1.02	1.73	1.36	1.45	0.027
123478-hexachlorodibenzofuran	<5.2	<0.66	<1.12	<0.88	<0.94	<0.018
123678-hexachlorodibenzofuran	<4.9	<0.62	<1.06	<0.83	<0.88	<0.017
234678-hexachlorodibenzofuran	<5.1	<0.65	<1.10	<0.86	<0.92	<0.017
123789-hexachlorodibenzofuran	<5.9	<0.75	<1.27	<1.00	<1.06	<0.020
1234678-heptachlorodibenzofuran	<6.6	<0.83	<1.42	<1.12	<1.19	<0.022
1234789-heptachlorodibenzofuran	<6.3	<0.80	<1.36	<1.07	<1.13	<0.021
Octachlorodibenzofuran	17.8	2.25	3.83	3.01	3.20	0.061
PCB 81	32.7	4.14	7.04	5.54	5.89	0.11
PCB 77	687	86.9	148	116	124	2.34
PCB 123	323	40.9	69.6	54.7	58.2	1.10
PCB 118	18500	2340	3984	3132	3331	63.0
PCB 114	486	61.5	104.7	82.3	87.5	1.65
PCB 105	5590	707	1204	946	1006	19.0
PCB 126	<23	<2.91	<4.95	<3.89	<4.14	<0.078
PCB 167	100	12.7	21.5	16.9	18.0	0.34
PCB 156/157	260	32.9	56.0	44.0	46.8	0.88
PCB 169	<6.2	<0.78	<1.34	<1.05	<1.12	<0.021
PCB 189	<4.9	<0.62	<1.06	<0.83	<0.88	<0.017
Total Dioxins & Furans Only	<173	<21.9	<37.2	<29.3	<31.1	<0.59
Total PCBs Only	<26013	<3291	<5603	<4404	<4684	<88.5
Total Dioxins & Furans and PCBs	<26186	<3313	<5640	<4433	<4715	<89.1

Dry Gas Volume Sampled (Rm ³ *) :	4.643
Actual Flowrate (m ³ /s) :	26.9
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	20.1
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 37
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Specific Isomer Actual Concentrations

Specific Isomer	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	pg/m ³	pg/m ³	pg/m ³	pg/m ³	%
2378-tetrachlorodibenzo-p-dioxin	<0.55	<0.55	<0.59	<0.57	4.5
12378-pentachlorodibenzo-p-dioxin	<0.50	<0.78	<0.90	<0.73	27.9
123478-hexachlorodibenzo-p-dioxin	<0.64	<0.66	<0.72	<0.67	6.4
123678-hexachlorodibenzo-p-dioxin	<0.59	<0.61	<0.73	<0.64	12.1
123789-hexachlorodibenzo-p-dioxin	<0.60	<0.62	<0.68	<0.64	6.7
1234678-heptachlorodibenzo-p-dioxin	<2.82	2.90	<2.78	<2.84	2.2
Octachlorodibenzo-p-dioxin	<5.77	<6.10	<5.69	<5.85	3.7
2378-tetrachlorodibenzofuran	0.78	<0.57	<0.95	<0.77	24.5
12378-pentachlorodibenzofuran	<0.65	<0.66	<1.24	<0.85	39.8
23478-pentachlorodibenzofuran	<0.64	<0.60	1.02	<0.75	30.8
123478-hexachlorodibenzofuran	0.43	<0.54	<0.66	<0.54	20.8
123678-hexachlorodibenzofuran	<0.60	<0.51	<0.62	<0.58	10.0
234678-hexachlorodibenzofuran	0.41	<0.54	<0.65	<0.53	21.6
123789-hexachlorodibenzofuran	0.67	<0.62	<0.75	<0.68	9.3
1234678-heptachlorodibenzofuran	<1.72	<1.16	<0.83	<1.24	36.1
1234789-heptachlorodibenzofuran	<0.81	<0.77	<0.80	<0.79	2.7
Octachlorodibenzofuran	<1.72	<2.07	2.25	<2.01	13.5
PCB 81	<3.07	3.90	4.14	<3.70	15.2
PCB 77	28.6	97.1	86.9	70.9	52.1
PCB 123	11.6	39.3	40.9	30.6	53.9
PCB 118	660	2659	2340	1887	56.9
PCB 114	18.4	63.3	61.5	47.7	53.2
PCB 105	215	722	707	548	52.7
PCB 126	<1.96	<2.32	<2.91	<2.40	19.9
PCB 167	2.47	11.8	12.7	8.97	63.0
PCB 156/157	9.65	27.4	32.9	23.3	52.1
PCB 169	<0.93	<0.83	<0.78	<0.85	9.0
PCB 189	<0.82	<0.90	<0.62	<0.78	18.6
Total Dioxins & Furans Only	<19.9	<20.3	<21.9	<20.7	5.0
Total PCBs Only	<953	<3628	<3291	<2624	55.5
Total Dioxins & Furans and PCBs	<973	<3648	<3313	<2645	55.1

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

TABLE 38
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	
2378-tetrachlorodibenzo-p-dioxin	<0.94	<0.92	<1.01	<0.96	5.0
12378-pentachlorodibenzo-p-dioxin	<0.85	<1.32	<1.53	<1.23	28.1
123478-hexachlorodibenzo-p-dioxin	<1.08	<1.11	<1.23	<1.14	6.8
123678-hexachlorodibenzo-p-dioxin	<1.00	<1.03	<1.25	<1.09	12.6
123789-hexachlorodibenzo-p-dioxin	<1.02	<1.05	<1.16	<1.08	7.1
1234678-heptachlorodibenzo-p-dioxin	<4.78	4.89	<4.74	<4.80	1.6
Octachlorodibenzo-p-dioxin	<9.77	<10.3	<9.69	<9.91	3.2
2378-tetrachlorodibenzofuran	1.33	<0.97	<1.62	<1.30	25.0
12378-pentachlorodibenzofuran	<1.10	<1.11	<2.11	<1.44	40.3
23478-pentachlorodibenzofuran	<1.08	<1.01	1.73	<1.27	31.3
123478-hexachlorodibenzofuran	0.73	<0.90	<1.12	<0.92	21.2
123678-hexachlorodibenzofuran	<1.02	<0.86	<1.06	<0.98	10.4
234678-hexachlorodibenzofuran	0.70	<0.90	<1.10	<0.90	22.0
123789-hexachlorodibenzofuran	1.13	<1.05	<1.27	<1.15	9.8
1234678-heptachlorodibenzofuran	<2.91	<1.95	<1.42	<2.09	36.0
1234789-heptachlorodibenzofuran	<1.37	<1.29	<1.36	<1.34	3.1
Octachlorodibenzofuran	<2.91	<3.49	3.83	<3.41	13.7
PCB 81	<5.20	6.58	7.04	<6.27	15.3
PCB 77	48.4	164	148	120	52.1
PCB 123	19.6	66.2	69.6	51.8	54.0
PCB 118	1118	4480	3984	3194	56.8
PCB 114	31.2	107	104.7	80.8	53.2
PCB 105	364	1217	1204	928	52.7
PCB 126	<3.33	<3.90	<4.95	<4.06	20.3
PCB 167	4.18	19.9	21.5	15.2	63.0
PCB 156/157	16.3	46.2	56.0	39.5	52.3
PCB 169	<1.58	<1.40	<1.34	<1.44	8.8
PCB 189	<1.39	<1.52	<1.06	<1.32	18.2
Total Dioxins & Furans Only	<33.7	<34.1	<37.2	<35.0	5.5
Total PCBs Only	<1613	<6113	<5603	<4443	55.5
Total Dioxins & Furans and PCBs	<1647	<6147	<5640	<4478	55.0

* 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 39
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	%
2378-tetrachlorodibenzo-p-dioxin	<0.75	<0.77	<0.80	<0.77	2.7
12378-pentachlorodibenzo-p-dioxin	<0.69	<1.10	<1.20	<1.00	27.3
123478-hexachlorodibenzo-p-dioxin	<0.87	<0.92	<0.97	<0.92	5.1
123678-hexachlorodibenzo-p-dioxin	<0.81	<0.86	<0.98	<0.88	10.3
123789-hexachlorodibenzo-p-dioxin	<0.82	<0.87	<0.91	<0.87	5.3
1234678-heptachlorodibenzo-p-dioxin	<3.86	4.08	<3.72	<3.89	4.6
Octachlorodibenzo-p-dioxin	<7.88	<8.56	<7.62	<8.02	6.1
2378-tetrachlorodibenzofuran	1.07	<0.80	<1.27	<1.05	22.2
12378-pentachlorodibenzofuran	<0.89	<0.92	<1.66	<1.16	37.6
23478-pentachlorodibenzofuran	<0.87	<0.84	1.36	<1.02	28.5
123478-hexachlorodibenzofuran	0.59	<0.75	<0.88	<0.74	19.6
123678-hexachlorodibenzofuran	<0.82	<0.72	<0.83	<0.79	7.8
234678-hexachlorodibenzofuran	0.57	<0.75	<0.86	<0.73	20.6
123789-hexachlorodibenzofuran	0.91	<0.87	<1.00	<0.93	6.9
1234678-heptachlorodibenzofuran	<2.35	<1.63	<1.12	<1.70	36.4
1234789-heptachlorodibenzofuran	<1.11	<1.08	<1.07	<1.08	1.9
Octachlorodibenzofuran	<2.35	<2.91	3.01	<2.76	13.0
PCB 81	<4.19	5.48	5.54	<5.07	15.0
PCB 77	39.1	136	116	97.2	52.8
PCB 123	15.8	55.1	54.7	41.9	53.9
PCB 118	902	3733	3132	2589	57.6
PCB 114	25.2	88.9	82.3	65.4	53.5
PCB 105	294	1014	946	751	53.0
PCB 126	<2.68	<3.25	<3.89	<3.28	18.5
PCB 167	3.37	16.6	16.9	12.3	62.9
PCB 156/157	13.2	38.5	44.0	31.9	51.5
PCB 169	<1.27	<1.16	<1.05	<1.16	9.7
PCB 189	<1.12	<1.27	<0.83	<1.07	20.8
Total Dioxins & Furans Only	<27.2	<28.4	<29.3	<28.3	3.6
Total PCBs Only	<1302	<5094	<4404	<3600	56.1
Total Dioxins & Furans and PCBs	<1329	<5122	<4433	<3628	55.7

* 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
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	pg/Rm ³ *	%
2378-tetrachlorodibenzo-p-dioxin	<0.78	<0.77	<0.85	<0.80	4.9
12378-pentachlorodibenzo-p-dioxin	<0.71	<1.10	<1.28	<1.03	28.1
123478-hexachlorodibenzo-p-dioxin	<0.90	<0.93	<1.03	<0.95	6.8
123678-hexachlorodibenzo-p-dioxin	<0.83	<0.86	<1.04	<0.91	12.5
123789-hexachlorodibenzo-p-dioxin	<0.85	<0.88	<0.97	<0.90	7.1
1234678-heptachlorodibenzo-p-dioxin	<4.00	4.10	<3.96	<4.02	1.7
Octachlorodibenzo-p-dioxin	<8.17	<8.61	<8.10	<8.29	3.3
2378-tetrachlorodibenzofuran	1.11	<0.81	<1.35	<1.09	24.9
12378-pentachlorodibenzofuran	<0.92	<0.93	<1.76	<1.20	40.2
23478-pentachlorodibenzofuran	<0.90	<0.84	1.45	<1.06	31.3
123478-hexachlorodibenzofuran	0.61	<0.76	<0.94	<0.77	21.2
123678-hexachlorodibenzofuran	<0.85	<0.72	<0.88	<0.82	10.3
234678-hexachlorodibenzofuran	0.59	<0.76	<0.92	<0.75	21.9
123789-hexachlorodibenzofuran	0.95	<0.88	<1.06	<0.96	9.7
1234678-heptachlorodibenzofuran	<2.43	<1.64	<1.19	<1.75	36.0
1234789-heptachlorodibenzofuran	<1.15	<1.08	<1.13	<1.12	2.9
Octachlorodibenzofuran	<2.43	<2.93	3.20	<2.85	13.7
PCB 81	<4.34	5.51	5.89	<5.25	15.3
PCB 77	40.5	137	124	100	52.1
PCB 123	16.4	55.4	58.2	43.3	54.0
PCB 118	935	3752	3331	2673	56.9
PCB 114	26.1	89.3	87.5	67.6	53.2
PCB 105	304	1019	1006	777	52.7
PCB 126	<2.78	<3.27	<4.14	<3.40	20.3
PCB 167	3.49	16.7	18.0	12.72	63.0
PCB 156/157	13.7	38.7	46.8	33.1	52.3
PCB 169	<1.32	<1.17	<1.12	<1.20	8.8
PCB 189	<1.16	<1.27	<0.88	<1.11	18.2
Total Dioxins & Furans Only	<28.2	<28.6	<31.1	<29.3	5.4
Total PCBs Only	<1348	<5120	<4684	<3717	55.5
Total Dioxins & Furans and PCBs	<1377	<5148	<4715	<3747	55.1

* At 25°C and 1 atmosphere

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

TABLE 41
Reworld Durham York Renewable Energy L.P.
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	<0.015	<0.015	<0.016	<0.015	2.8
12378-pentachlorodibenzo-p-dioxin	<0.014	<0.022	<0.024	<0.020	26.9
123478-hexachlorodibenzo-p-dioxin	<0.018	<0.018	<0.019	<0.018	4.9
123678-hexachlorodibenzo-p-dioxin	<0.016	<0.017	<0.020	<0.018	10.4
123789-hexachlorodibenzo-p-dioxin	<0.017	<0.017	<0.018	<0.017	5.1
1234678-heptachlorodibenzo-p-dioxin	<0.078	0.08	<0.075	<0.078	3.8
Octachlorodibenzo-p-dioxin	<0.16	<0.17	<0.15	<0.16	5.2
2378-tetrachlorodibenzofuran	0.022	<0.016	<0.026	<0.021	22.9
12378-pentachlorodibenzofuran	<0.018	<0.018	<0.033	<0.023	37.9
23478-pentachlorodibenzofuran	<0.018	<0.017	0.027	<0.021	28.9
123478-hexachlorodibenzofuran	0.012	<0.015	<0.018	<0.015	19.4
123678-hexachlorodibenzofuran	<0.017	<0.014	<0.017	<0.016	8.7
234678-hexachlorodibenzofuran	0.011	<0.015	<0.017	<0.015	20.4
123789-hexachlorodibenzofuran	0.018	<0.017	<0.020	<0.019	7.5
1234678-heptachlorodibenzofuran	<0.047	<0.032	<0.022	<0.034	37.0
1234789-heptachlorodibenzofuran	<0.022	<0.021	<0.021	<0.022	2.6
Octachlorodibenzofuran	<0.047	<0.058	0.061	<0.055	12.5
PCB 81	<0.085	0.11	0.11	<0.10	14.4
PCB 77	0.79	2.70	2.34	1.94	52.2
PCB 123	0.32	1.09	1.10	0.84	53.6
PCB 118	18.2	73.9	63.0	51.7	57.1
PCB 114	0.51	1.76	1.65	1.31	53.1
PCB 105	5.93	20.1	19.0	15.0	52.5
PCB 126	<0.054	<0.064	<0.078	<0.066	18.4
PCB 167	0.068	0.33	0.34	0.25	62.6
PCB 156/157	0.27	0.76	0.88	0.64	51.4
PCB 169	<0.026	<0.023	<0.021	<0.023	10.0
PCB 189	<0.023	<0.025	<0.017	<0.021	20.2
Total Dioxins & Furans Only	<0.55	<0.56	<0.59	<0.57	3.4
Total PCBs Only	<26.3	<101	<88.5	<71.9	55.6
Total Dioxins & Furans and PCBs	<26.8	<101	<89.1	<72.5	55.2

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

TABLE 42
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Specific Isomer Emission Data

Specific Isomer	Actual Concentration pg/m ³	Dry Reference Concentration pg/Rm ^{3*}	Dry Adjusted Concentration pg/Rm ^{3**}	Wet Reference Concentration pg/Rm ^{3*}	Emission Rate ng/s
2378-tetrachlorodibenzo-p-dioxin	<0.57	<0.96	<0.77	<0.80	<0.015
12378-pentachlorodibenzo-p-dioxin	<0.73	<1.23	<1.00	<1.03	<0.020
123478-hexachlorodibenzo-p-dioxin	<0.67	<1.14	<0.92	<0.95	<0.018
123678-hexachlorodibenzo-p-dioxin	<0.64	<1.09	<0.88	<0.91	<0.018
123789-hexachlorodibenzo-p-dioxin	<0.64	<1.08	<0.87	<0.90	<0.017
1234678-heptachlorodibenzo-p-dioxin	<2.84	<4.80	<3.89	<4.02	<0.078
Octachlorodibenzo-p-dioxin	<5.85	<9.91	<8.02	<8.29	<0.16
2378-tetrachlorodibenzofuran	<0.77	<1.30	<1.05	<1.09	<0.021
12378-pentachlorodibenzofuran	<0.85	<1.44	<1.16	<1.20	<0.023
23478-pentachlorodibenzofuran	<0.75	<1.27	<1.02	<1.06	<0.021
123478-hexachlorodibenzofuran	<0.54	<0.92	<0.74	<0.77	<0.015
123678-hexachlorodibenzofuran	<0.58	<0.98	<0.79	<0.82	<0.016
234678-hexachlorodibenzofuran	<0.53	<0.90	<0.73	<0.75	<0.015
123789-hexachlorodibenzofuran	<0.68	<1.15	<0.93	<0.96	<0.019
1234678-heptachlorodibenzofuran	<1.24	<2.09	<1.70	<1.75	<0.034
1234789-heptachlorodibenzofuran	<0.79	<1.34	<1.08	<1.12	<0.022
Octachlorodibenzofuran	<2.01	<3.41	<2.76	<2.85	<0.055
PCB 81	<3.70	<6.27	<5.07	<5.25	<0.10
PCB 77	70.9	120	97.2	100	1.94
PCB 123	30.6	51.8	41.9	43.3	0.84
PCB 118	1887	3194	2589	2673	51.7
PCB 114	47.7	80.8	65.4	67.6	1.31
PCB 105	548	928	751	777	15.0
PCB 126	<2.40	<4.06	<3.28	<3.40	<0.066
PCB 167	8.97	15.2	12.3	12.7	0.25
PCB 156/157	23.3	39.5	31.9	33.1	0.64
PCB 169	<0.85	<1.44	<1.16	<1.20	<0.023
PCB 189	<0.78	<1.32	<1.07	<1.11	<0.021
Total Dioxins & Furans Only	<20.7	<35.0	<28.3	<29.3	<0.57
Total PCBs Only	<2624	<4443	<3600	<3717	<71.9
Total Dioxins & Furans and PCBs	<2645	<4478	<3628	<3747	<72.5

* 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 43
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Blank Dioxin and Furan Specific Isomer Analyses

Specific Isomer	Blank Train pg	Method Blank pg
2378-tetrachlorodibenzo-p-dioxin	<5.0	<3.8
12378-pentachlorodibenzo-p-dioxin	<4.3	<6.3
123478-hexachlorodibenzo-p-dioxin	<5.4	<5.5
123678-hexachlorodibenzo-p-dioxin	<5.1	<5.2
123789-hexachlorodibenzo-p-dioxin	<5.1	7.70
1234678-heptachlorodibenzo-p-dioxin	<7.1	<5.7
Octachlorodibenzo-p-dioxin	<22	<29
2378-tetrachlorodibenzofuran	<3.3	<5.0
12378-pentachlorodibenzofuran	<5.0	<4.6
23478-pentachlorodibenzofuran	<4.5	<4.2
123478-hexachlorodibenzofuran	<2.5	<5.8
123678-hexachlorodibenzofuran	<2.5	<5.5
234678-hexachlorodibenzofuran	<2.5	6.22
123789-hexachlorodibenzofuran	<2.9	<6.7
1234678-heptachlorodibenzofuran	<3.1	<5.2
1234789-heptachlorodibenzofuran	<3.6	6.28
Octachlorodibenzofuran	<25	26.1
PCB 81	<7.3	<8.9
PCB 77	<7.7	<9.1
PCB 123	<4.6	<4.5
PCB 118	<22	<3.9
PCB 114	<4.5	<4.5
PCB 105	<6.3	<4.2
PCB 126	<4.3	<4.2
PCB 167	<3.5	<4.2
PCB 156/157	<4.5	<5.2
PCB 169	<3.6	<4.2
PCB 189	<3.4	<4.7
Total Dioxins & Furans Only	<109	<139
Total PCBs Only	<71.7	<57.6
Total Dioxins & Furans and PCBs	<181	<196

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Actual Concentrations

Specific Isomer	Toxicity Equivalency Factor	Actual Concentration			
		Test No. 1 pg TEQ/m ³	Test No. 2 pg TEQ/m ³	Test No. 3 pg TEQ/m ³	Average pg TEQ/m ³
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.55	<0.55	<0.59	<0.57
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.50	<0.78	<0.90	<0.73
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.064	<0.066	<0.072	<0.067
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.059	<0.061	<0.073	<0.064
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.060	<0.062	<0.068	<0.064
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.028	0.029	<0.028	<0.028
Octachlorodibenzo-p-dioxin	0.00030	<0.0017	<0.0018	<0.0017	<0.0018
2378-tetrachlorodibenzofuran	0.10000	0.078	<0.057	<0.095	<0.077
12378-pentachlorodibenzofuran	0.03000	<0.020	<0.020	<0.037	<0.025
23478-pentachlorodibenzofuran	0.30000	<0.19	<0.18	0.31	<0.23
123478-hexachlorodibenzofuran	0.10000	0.043	<0.054	<0.066	<0.054
123678-hexachlorodibenzofuran	0.10000	<0.060	<0.051	<0.062	<0.058
234678-hexachlorodibenzofuran	0.10000	0.041	<0.054	<0.065	<0.053
123789-hexachlorodibenzofuran	0.10000	0.067	<0.062	<0.075	<0.068
1234678-heptachlorodibenzofuran	0.01000	<0.017	<0.012	<0.0083	<0.012
1234789-heptachlorodibenzofuran	0.01000	<0.0081	<0.0077	<0.0080	<0.0079
Octachlorodibenzofuran	0.00030	<0.00052	<0.00062	0.00068	<0.00060
PCB 81	0.00030	<0.00092	0.0012	0.0012	<0.0011
PCB 77	0.00010	0.0029	0.0097	0.0087	0.0071
PCB 123	0.00003	0.00035	0.0012	0.0012	0.00092
PCB 118	0.00003	0.020	0.080	0.070	0.057
PCB 114	0.00003	0.00055	0.0019	0.0018	0.0014
PCB 105	0.00003	0.0064	0.022	0.021	0.016
PCB 126	0.10000	<0.20	<0.23	<0.29	<0.24
PCB 167	0.00003	0.000074	0.00035	0.00038	0.00027
PCB 156/157	0.00003	0.00029	0.00082	0.00099	0.00070
PCB 169	0.03000	<0.028	<0.025	<0.024	<0.025
PCB 189	0.00003	<0.000025	<0.000027	<0.000019	<0.000023
Total Dioxins & Furans Only		<1.80	<2.05	<2.46	<2.10
Total PCBs Only		<0.26	<0.37	<0.42	<0.35
Total Dioxins & Furans and PCBs		<2.05	<2.42	<2.88	<2.45

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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Reference Concentrations

Specific Isomer	Toxicity Equivalency Factor	Test No. 1	Dry Reference Concentration		
		pg TEQ/Rm ³ *	Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Average pg TEQ/Rm ³ *
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.94	<0.92	<1.01	<0.96
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.85	<1.32	<1.53	<1.23
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.11	<0.11	<0.12	<0.11
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.10	<0.10	<0.12	<0.11
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.10	<0.10	<0.12	<0.11
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.048	0.049	<0.047	<0.048
Octachlorodibenzo-p-dioxin	0.00030	<0.0029	<0.0031	<0.0029	<0.0030
2378-tetrachlorodibenzofuran	0.10000	0.13	<0.097	<0.16	<0.13
12378-pentachlorodibenzofuran	0.03000	<0.033	<0.033	<0.063	<0.043
23478-pentachlorodibenzofuran	0.30000	<0.32	<0.30	0.52	<0.38
123478-hexachlorodibenzofuran	0.10000	0.073	<0.090	<0.11	<0.092
123678-hexachlorodibenzofuran	0.10000	<0.10	<0.086	<0.11	<0.098
234678-hexachlorodibenzofuran	0.10000	0.070	<0.090	<0.11	<0.090
123789-hexachlorodibenzofuran	0.10000	0.11	<0.10	<0.13	<0.11
1234678-heptachlorodibenzofuran	0.01000	<0.029	<0.020	<0.014	<0.021
1234789-heptachlorodibenzofuran	0.01000	<0.014	<0.013	<0.014	<0.013
Octachlorodibenzofuran	0.00030	<0.00087	<0.0010	0.0012	<0.0010
PCB 81	0.00030	<0.0016	0.0020	0.0021	<0.0019
PCB 77	0.00010	0.0048	0.016	0.015	0.012
PCB 123	0.00003	0.00059	0.0020	0.0021	0.0016
PCB 118	0.00003	0.034	0.13	0.12	0.096
PCB 114	0.00003	0.00094	0.0032	0.0031	0.0024
PCB 105	0.00003	0.011	0.036	0.036	0.028
PCB 126	0.10000	<0.33	<0.39	<0.50	<0.41
PCB 167	0.00003	0.00013	0.00060	0.00065	0.00046
PCB 156/157	0.00003	0.00049	0.0014	0.0017	0.0012
PCB 169	0.03000	<0.047	<0.042	<0.040	<0.043
PCB 189	0.00003	<0.000042	<0.000046	<0.000032	<0.000040
Total Dioxins & Furans Only		<3.04	<3.45	<4.18	<3.56
Total PCBs Only		<0.43	<0.63	<0.72	<0.59
Total Dioxins & Furans and PCBs		<3.47	<4.08	<4.90	<4.15

* 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
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Average pg TEQ/Rm ³ *
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.75	<0.77	<0.80	<0.77
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.69	<1.10	<1.20	<1.00
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.087	<0.092	<0.097	<0.092
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.081	<0.086	<0.098	<0.088
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.082	<0.087	<0.091	<0.087
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.039	0.041	<0.037	<0.039
Octachlorodibenzo-p-dioxin	0.00030	<0.0024	<0.0026	<0.0023	<0.0024
2378-tetrachlorodibenzofuran	0.10000	0.11	<0.080	<0.13	<0.10
12378-pentachlorodibenzofuran	0.03000	<0.027	<0.028	<0.050	<0.035
23478-pentachlorodibenzofuran	0.30000	<0.26	<0.25	0.41	<0.31
123478-hexachlorodibenzofuran	0.10000	0.059	<0.075	<0.088	<0.074
123678-hexachlorodibenzofuran	0.10000	<0.082	<0.072	<0.083	<0.079
234678-hexachlorodibenzofuran	0.10000	0.057	<0.075	<0.086	<0.073
123789-hexachlorodibenzofuran	0.10000	0.091	<0.087	<0.10	<0.093
1234678-heptachlorodibenzofuran	0.01000	<0.023	<0.016	<0.011	<0.017
1234789-heptachlorodibenzofuran	0.01000	<0.011	<0.011	<0.011	<0.011
Octachlorodibenzofuran	0.00030	<0.00070	<0.00087	0.00090	<0.00083
PCB 81	0.00030	<0.0013	0.0016	0.0017	<0.0015
PCB 77	0.00010	0.0039	0.014	0.012	0.0097
PCB 123	0.00003	0.00047	0.0017	0.0016	0.0013
PCB 118	0.00003	0.027	0.11	0.094	0.078
PCB 114	0.00003	0.00075	0.0027	0.0025	0.0020
PCB 105	0.00003	0.0088	0.030	0.028	0.023
PCB 126	0.10000	<0.27	<0.33	<0.39	<0.33
PCB 167	0.00003	0.00010	0.00050	0.00051	0.00037
PCB 156/157	0.00003	0.00040	0.0012	0.0013	0.00096
PCB 169	0.03000	<0.038	<0.035	<0.031	<0.035
PCB 189	0.00003	<0.000034	<0.000038	<0.000025	<0.000032
Total Dioxins & Furans Only		<2.45	<2.87	<3.29	<2.87
Total PCBs Only		<0.35	<0.52	<0.56	<0.48
Total Dioxins & Furans and PCBs		<2.80	<3.40	<3.85	<3.35

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

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

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

TABLE 46A
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Average pg TEQ/Rm ³ *
2378-tetrachlorodibenzo-p-dioxin	1.00000	0.38	0.39	0.40	0.39
12378-pentachlorodibenzo-p-dioxin	1.00000	0.34	0.55	0.60	0.50
123478-hexachlorodibenzo-p-dioxin	0.10000	0.044	0.046	0.048	0.046
123678-hexachlorodibenzo-p-dioxin	0.10000	0.040	0.043	0.049	0.044
123789-hexachlorodibenzo-p-dioxin	0.10000	0.041	0.044	0.046	0.043
1234678-heptachlorodibenzo-p-dioxin	0.01000	0.019	0.041	0.019	0.026
Octachlorodibenzo-p-dioxin	0.00030	0.0012	0.0013	0.0011	0.0012
2378-tetrachlorodibenzofuran	0.10000	0.11	0.040	0.063	0.070
12378-pentachlorodibenzofuran	0.03000	0.013	0.014	0.025	0.017
23478-pentachlorodibenzofuran	0.30000	0.13	0.13	0.41	0.22
123478-hexachlorodibenzofuran	0.10000	0.059	0.038	0.044	0.047
123678-hexachlorodibenzofuran	0.10000	0.041	0.036	0.041	0.040
234678-hexachlorodibenzofuran	0.10000	0.057	0.038	0.043	0.046
123789-hexachlorodibenzofuran	0.10000	0.091	0.044	0.050	0.062
1234678-heptachlorodibenzofuran	0.01000	0.012	0.0081	0.0056	0.0085
1234789-heptachlorodibenzofuran	0.01000	0.0055	0.0054	0.0053	0.0054
Octachlorodibenzofuran	0.00030	0.00035	0.00044	0.00090	0.00056
PCB 81	0.00030	0.00063	0.0016	0.0017	0.0013
PCB 77	0.00010	0.0039	0.014	0.012	0.0097
PCB 123	0.00003	0.00047	0.0017	0.0016	0.0013
PCB 118	0.00003	0.027	0.11	0.094	0.078
PCB 114	0.00003	0.00075	0.0027	0.0025	0.0020
PCB 105	0.00003	0.0088	0.030	0.028	0.0225
PCB 126	0.10000	0.13	0.16	0.19	0.16
PCB 167	0.00003	0.00010	0.00050	0.00051	0.00037
PCB 156/157	0.00003	0.00040	0.0012	0.0013	0.00096
PCB 169	0.03000	0.019	0.017	0.016	0.017
PCB 189	0.00003	0.000017	0.000019	0.000012	0.000016
Total Dioxins & Furans Only		1.38	1.46	1.85	1.56
Total PCBs Only		0.20	0.34	0.35	0.30
Total Dioxins & Furans and PCBs		1.58	1.80	2.20	1.86

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Dry Adjusted Concentrations
Calculated Using the Full Detection Limit

Specific Isomer	Toxicity Equivalency Factor	Test No. 1 pg TEQ/Rm ³ *	Dry Adjusted Concentration			Average pg TEQ/Rm ³ *
			Test No. 2 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	Test No. 3 pg TEQ/Rm ³ *	
2378-tetrachlorodibenzo-p-dioxin	1.000	<0.75	<0.77	<0.80	<0.77	<0.77
12378-pentachlorodibenzo-p-dioxin	0.500	<0.34	<0.55	<0.60	<0.50	<0.50
123478-hexachlorodibenzo-p-dioxin	0.100	<0.087	<0.092	<0.097	<0.092	<0.092
123678-hexachlorodibenzo-p-dioxin	0.100	<0.081	<0.086	<0.098	<0.088	<0.088
123789-hexachlorodibenzo-p-dioxin	0.100	<0.082	<0.087	<0.091	<0.087	<0.087
1234678-heptachlorodibenzo-p-dioxin	0.010	<0.039	0.041	<0.037	<0.039	<0.039
Octachlorodibenzo-p-dioxin	0.001	<0.0079	<0.0086	<0.0076	<0.0080	<0.0080
2378-tetrachlorodibenzofuran	0.100	0.11	<0.080	<0.13	<0.10	<0.10
12378-pentachlorodibenzofuran	0.050	<0.044	<0.046	<0.083	<0.058	<0.058
23478-pentachlorodibenzofuran	0.500	<0.44	<0.42	0.68	<0.51	<0.51
123478-hexachlorodibenzofuran	0.100	0.059	<0.075	<0.088	<0.074	<0.074
123678-hexachlorodibenzofuran	0.100	<0.082	<0.072	<0.083	<0.079	<0.079
234678-hexachlorodibenzofuran	0.100	0.057	<0.075	<0.086	<0.073	<0.073
123789-hexachlorodibenzofuran	0.100	0.091	<0.087	<0.10	<0.093	<0.093
1234678-heptachlorodibenzofuran	0.010	<0.023	<0.016	<0.011	<0.017	<0.017
1234789-heptachlorodibenzofuran	0.010	<0.011	<0.011	<0.011	<0.011	<0.011
Octachlorodibenzofuran	0.001	<0.0023	<0.0029	0.0030	<0.0028	<0.0028
Total Dioxins & Furans		<2.31	<2.52	<3.00	<2.61	<2.61
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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dioxin and Furan Toxicity Equivalent Wet Reference Concentrations

Specific Isomer	Toxicity	Wet Reference Concentration			Average
	Equivalency	Test No. 1	Test No. 2	Test No. 3	
	Factor	pg TEQ/Rm ^{3*}	pg TEQ/Rm ^{3*}	pg TEQ/Rm ^{3*}	pg TEQ/Rm ^{3*}
2378-tetrachlorodibenzo-p-dioxin	1.00000	<0.78	<0.77	<0.85	<0.80
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.71	<1.10	<1.28	<1.03
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.090	<0.093	<0.10	<0.095
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.083	<0.086	<0.10	<0.091
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.085	<0.088	<0.097	<0.090
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.040	0.041	<0.040	<0.040
Octachlorodibenzo-p-dioxin	0.00030	<0.0024	<0.0026	<0.0024	<0.0025
2378-tetrachlorodibenzofuran	0.10000	0.11	<0.081	<0.14	<0.11
12378-pentachlorodibenzofuran	0.03000	<0.028	<0.028	<0.053	<0.036
23478-pentachlorodibenzofuran	0.30000	<0.27	<0.25	0.43	<0.32
123478-hexachlorodibenzofuran	0.10000	0.061	<0.076	<0.094	<0.077
123678-hexachlorodibenzofuran	0.10000	<0.085	<0.072	<0.088	<0.082
234678-hexachlorodibenzofuran	0.10000	0.059	<0.076	<0.092	<0.075
123789-hexachlorodibenzofuran	0.10000	0.095	<0.088	<0.11	<0.096
1234678-heptachlorodibenzofuran	0.01000	<0.024	<0.016	<0.012	<0.018
1234789-heptachlorodibenzofuran	0.01000	<0.011	<0.011	<0.011	<0.011
Octachlorodibenzofuran	0.00030	<0.00073	<0.00088	0.00096	<0.00086
PCB 81	0.00030	<0.0013	0.0017	0.0018	<0.0016
PCB 77	0.00010	0.0040	0.014	0.012	0.010
PCB 123	0.00003	0.00049	0.0017	0.0017	0.0013
PCB 118	0.00003	0.028	0.11	0.10	0.080
PCB 114	0.00003	0.00078	0.0027	0.0026	0.0020
PCB 105	0.00003	0.0091	0.031	0.030	0.023
PCB 126	0.10000	<0.28	<0.33	<0.41	<0.34
PCB 167	0.00003	0.00010	0.00050	0.00054	0.00038
PCB 156/157	0.00003	0.00041	0.0012	0.0014	0.00099
PCB 169	0.03000	<0.040	<0.035	<0.033	<0.036
PCB 189	0.00003	<0.000035	<0.000038	<0.000026	<0.000033
Total Dioxins & Furans Only		<2.54	<2.89	<3.50	<2.98
Total PCBs Only		<0.36	<0.53	<0.60	<0.50
Total Dioxins & Furans and PCBs		<2.90	<3.41	<4.10	<3.47

* 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
Reworld Durham York Renewable Energy L.P.
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	<0.015	<0.015	<0.016	<0.015
12378-pentachlorodibenzo-p-dioxin	1.00000	<0.014	<0.022	<0.024	<0.020
123478-hexachlorodibenzo-p-dioxin	0.10000	<0.0018	<0.0018	<0.0019	<0.0018
123678-hexachlorodibenzo-p-dioxin	0.10000	<0.0016	<0.0017	<0.0020	<0.0018
123789-hexachlorodibenzo-p-dioxin	0.10000	<0.0017	<0.0017	<0.0018	<0.0017
1234678-heptachlorodibenzo-p-dioxin	0.01000	<0.00078	0.00081	<0.00075	<0.00078
Octachlorodibenzo-p-dioxin	0.00030	<0.000048	<0.000051	<0.000046	<0.000048
2378-tetrachlorodibenzofuran	0.10000	0.0022	<0.0016	<0.0026	<0.0021
12378-pentachlorodibenzofuran	0.03000	<0.00054	<0.00055	<0.0010	<0.00070
23478-pentachlorodibenzofuran	0.30000	<0.0053	<0.0050	0.0082	<0.0062
123478-hexachlorodibenzofuran	0.10000	0.0012	<0.0015	<0.0018	<0.0015
123678-hexachlorodibenzofuran	0.10000	<0.0017	<0.0014	<0.0017	<0.0016
234678-hexachlorodibenzofuran	0.10000	0.0011	<0.0015	<0.0017	<0.0015
123789-hexachlorodibenzofuran	0.10000	0.0018	<0.0017	<0.0020	<0.0019
1234678-heptachlorodibenzofuran	0.01000	<0.00047	<0.00032	<0.00022	<0.00034
1234789-heptachlorodibenzofuran	0.01000	<0.00022	<0.00021	<0.00021	<0.00022
Octachlorodibenzofuran	0.00030	<0.000014	<0.000017	0.000018	<0.000017
PCB 81	0.00030	<0.000025	0.000033	0.000033	<0.000030
PCB 77	0.00010	0.000079	0.00027	0.00023	0.00019
PCB 123	0.00003	0.0000096	0.000033	0.000033	0.000025
PCB 118	0.00003	0.00055	0.0022	0.0019	0.0016
PCB 114	0.00003	0.000015	0.000053	0.000050	0.000039
PCB 105	0.00003	0.00018	0.00060	0.00057	0.00045
PCB 126	0.10000	<0.0054	<0.0064	<0.0078	<0.0066
PCB 167	0.00003	0.0000020	0.0000098	0.000010	0.0000074
PCB 156/157	0.00003	0.0000080	0.000023	0.000027	0.000019
PCB 169	0.03000	<0.00077	<0.00069	<0.00063	<0.00070
PCB 189	0.00003	<0.00000068	<0.00000075	<0.00000050	<0.00000064
Total Dioxins & Furans Only		<0.050	<0.057	<0.066	<0.058
Total PCBs Only		<0.0071	<0.010	<0.011	<0.010
Total Dioxins & Furans and PCBs		<0.057	<0.067	<0.077	<0.067

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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Dioxin and Furan Toxicity Equivalent Emission Data
Calculated Using the Full Detection Limit

Specific Isomer	Actual Concentration pg TEQ/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	<0.57	<0.96	<0.77	<0.80	<0.015
12378-pentachlorodibenzo-p-dioxin	<0.73	<1.23	<1.00	<1.03	<0.020
123478-hexachlorodibenzo-p-dioxin	<0.067	<0.11	<0.092	<0.095	<0.0018
123678-hexachlorodibenzo-p-dioxin	<0.064	<0.11	<0.088	<0.091	<0.0018
123789-hexachlorodibenzo-p-dioxin	<0.064	<0.11	<0.087	<0.090	<0.0017
1234678-heptachlorodibenzo-p-dioxin	<0.028	<0.048	<0.039	<0.040	<0.00078
Octachlorodibenzo-p-dioxin	<0.0018	<0.0030	<0.0024	<0.0025	<0.000048
2378-tetrachlorodibenzofuran	<0.077	<0.13	<0.10	<0.11	<0.0021
12378-pentachlorodibenzofuran	<0.025	<0.043	<0.035	<0.036	<0.00070
23478-pentachlorodibenzofuran	<0.23	<0.38	<0.31	<0.32	<0.0062
123478-hexachlorodibenzofuran	<0.054	<0.092	<0.074	<0.077	<0.0015
123678-hexachlorodibenzofuran	<0.058	<0.098	<0.079	<0.082	<0.0016
234678-hexachlorodibenzofuran	<0.053	<0.090	<0.073	<0.075	<0.0015
123789-hexachlorodibenzofuran	<0.068	<0.11	<0.093	<0.096	<0.0019
1234678-heptachlorodibenzofuran	<0.012	<0.021	<0.017	<0.018	<0.00034
1234789-heptachlorodibenzofuran	<0.0079	<0.013	<0.011	<0.011	<0.00022
Octachlorodibenzofuran	<0.00060	<0.0010	<0.00083	<0.00086	<0.000017
PCB 81	<0.0011	<0.0019	<0.0015	<0.0016	<0.000030
PCB 77	0.0071	0.012	0.0097	0.010	0.00019
PCB 123	0.00092	0.0016	0.0013	0.0013	0.000025
PCB 118	0.057	0.096	0.078	0.080	0.0016
PCB 114	0.0014	0.0024	0.0020	0.0020	0.000039
PCB 105	0.016	0.028	0.023	0.023	0.00045
PCB 126	<0.24	<0.41	<0.33	<0.34	<0.0066
PCB 167	0.00027	0.00046	0.00037	0.00038	0.0000074
PCB 156/157	0.00070	0.0012	0.00096	0.00099	0.000019
PCB 169	<0.025	<0.043	<0.035	<0.036	<0.00070
PCB 189	<0.000023	<0.000040	<0.000032	<0.000033	<0.00000064
Total Dioxins & Furans Only	<2.10	<3.56	<2.87	<2.98	<0.058
Total PCBs Only	<0.35	<0.59	<0.48	<0.50	<0.010
Total Dioxins & Furans and PCBs	<2.45	<4.15	<3.35	<3.47	<0.067

* 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
Reworld Durham York Renewable Energy L.P.
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/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	0.28	0.48	0.39	0.40	0.0077
12378-pentachlorodibenzo-p-dioxin	0.36	0.62	0.50	0.52	0.010
123478-hexachlorodibenzo-p-dioxin	0.034	0.057	0.046	0.048	0.00092
123678-hexachlorodibenzo-p-dioxin	0.032	0.055	0.044	0.046	0.00088
123789-hexachlorodibenzo-p-dioxin	0.032	0.054	0.043	0.045	0.00087
1234678-heptachlorodibenzo-p-dioxin	0.019	0.032	0.026	0.027	0.00052
Octachlorodibenzo-p-dioxin	0.00088	0.0015	0.0012	0.0012	0.000024
2378-tetrachlorodibenzofuran	0.052	0.087	0.070	0.073	0.0014
12378-pentachlorodibenzofuran	0.013	0.022	0.017	0.018	0.00035
23478-pentachlorodibenzofuran	0.16	0.28	0.22	0.23	0.0044
123478-hexachlorodibenzofuran	0.034	0.058	0.047	0.049	0.00094
123678-hexachlorodibenzofuran	0.029	0.049	0.040	0.041	0.00079
234678-hexachlorodibenzofuran	0.034	0.057	0.046	0.048	0.00092
123789-hexachlorodibenzofuran	0.045	0.076	0.062	0.064	0.0012
1234678-heptachlorodibenzofuran	0.0062	0.010	0.0085	0.0088	0.00017
1234789-heptachlorodibenzofuran	0.0040	0.0067	0.0054	0.0056	0.00011
Octachlorodibenzofuran	0.00041	0.00070	0.00056	0.00059	0.000011
PCB 81	0.00096	0.0016	0.0013	0.0014	0.000026
PCB 77	0.0071	0.012	0.0097	0.010	0.00019
PCB 123	0.00092	0.0016	0.0013	0.0013	0.000025
PCB 118	0.057	0.096	0.078	0.080	0.0016
PCB 114	0.0014	0.0024	0.0020	0.0020	0.000039
PCB 105	0.016	0.028	0.023	0.0233	0.00045
PCB 126	0.12	0.20	0.16	0.17	0.0033
PCB 167	0.00027	0.00046	0.00037	0.00038	0.0000074
PCB 156/157	0.00070	0.0012	0.00096	0.00099	0.000019
PCB 169	0.013	0.022	0.017	0.018	0.00035
PCB 189	0.000012	0.000020	0.000016	0.000017	0.00000032
Total Dioxins & Furans Only	1.14	1.94	1.56	1.62	0.031
Total PCBs Only	0.22	0.37	0.30	0.31	0.0059
Total Dioxins & Furans and PCBs	1.36	2.31	1.86	1.93	0.037

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Emission Data for Chlorobenzenes
Test No. 1

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	989	121	206	166	172	3.35
1,3-Dichlorobenzene	220	27.0	45.7	36.9	38.2	0.75
1,4-Dichlorobenzene	150	18.4	31.2	25.2	26.1	0.51
1,2-Dichlorobenzene	168	20.6	34.9	28.2	29.2	0.57
Total Dichlorobenzene	538	66.0	112	90.2	93.5	1.82
1,3,5-trichlorobenzene	26.0	3.19	5.40	4.36	4.52	0.088
1,2,4-trichlorobenzene	47.8	5.87	9.94	8.02	8.31	0.16
1,2,3-trichlorobenzene	22.2	2.73	4.61	3.72	3.86	0.075
Total Trichlorobenzene	96.0	11.8	20.0	16.1	16.7	0.33
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	12.8	1.57	2.66	2.15	2.22	0.043
1,2,3,4-tetrachlorobenzene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Total Tetrachlorobenzene	<24.8	<3.04	<5.15	<4.16	<4.31	<0.084
Pentachlorobenzene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Hexachlorobenzene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Total Chlorobenzenes	<1672	<205	<347	<280	<290	<5.66

Dry Gas Volume Sampled (Rm ^{3*}) :	4.811
Actual Flowrate (m ³ /s) :	27.6
Dry Reference Flowrate (Rm ³ /s*) :	16.3
Dry Adjusted Flowrate (Rm ³ /s**) :	20.2
Wet Reference Flowrate (Rm ³ /s*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Emission Data for Chlorobenzenes
Test No. 2

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	1110	135	228	190	191	3.76
1,3-Dichlorobenzene	225	27.4	46.2	38.5	38.7	0.76
1,4-Dichlorobenzene	149	18.2	30.6	25.5	25.6	0.51
1,2-Dichlorobenzene	170	20.7	34.9	29.1	29.3	0.58
Total Dichlorobenzene	544	66.4	112	93.2	93.6	1.84
1,3,5-trichlorobenzene	21.8	2.66	4.48	3.73	3.75	0.074
1,2,4-trichlorobenzene	47.8	5.83	9.82	8.19	8.23	0.16
1,2,3-trichlorobenzene	21.7	2.65	4.46	3.72	3.74	0.074
Total Trichlorobenzene	91.3	11.1	18.8	15.6	15.7	0.31
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.46	<2.47	<2.06	<2.07	<0.041
1,2,3,4-tetrachlorobenzene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Total Tetrachlorobenzene	<24.0	<2.93	<4.93	<4.11	<4.13	<0.081
Pentachlorobenzene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Hexachlorobenzene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Total Chlorobenzenes	<1793	<219	<369	<307	<309	<6.08

Dry Gas Volume Sampled (Rm ^{3*}) :	4.866
Actual Flowrate (m ³ /s) :	27.8
Dry Reference Flowrate (Rm ³ /s*) :	16.5
Dry Adjusted Flowrate (Rm ³ /s**) :	19.8
Wet Reference Flowrate (Rm ³ /s*) :	19.7

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Emission Data for Chlorobenzenes
Test No. 3

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	1300	164	280	220	234	4.42
1,3-Dichlorobenzene	232	29.3	50.0	39.3	41.8	0.79
1,4-Dichlorobenzene	144	18.2	31.0	24.4	25.9	0.49
1,2-Dichlorobenzene	166	21.0	35.8	28.1	29.9	0.56
Total Dichlorobenzene	542	68.6	117	91.8	97.6	1.84
1,3,5-trichlorobenzene	19.3	2.44	4.16	3.27	3.47	0.066
1,2,4-trichlorobenzene	43.8	5.54	9.43	7.42	7.89	0.15
1,2,3-trichlorobenzene	17.0	2.15	3.66	2.88	3.06	0.058
Total Trichlorobenzene	80.1	10.1	17.3	13.6	14.4	0.27
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<12	<1.52	<2.58	<2.03	<2.16	<0.041
1,2,3,4-tetrachlorobenzene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Total Tetrachlorobenzene	<24.0	<3.04	<5.17	<4.06	<4.32	<0.082
Pentachlorobenzene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Hexachlorobenzene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Total Chlorobenzenes	<1970	<249	<424	<334	<355	<6.70

Dry Gas Volume Sampled (Rm ^{3*}) :	4.643
Actual Flowrate (m ³ /s) :	26.9
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	20.1
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 54
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Actual Concentrations for Chlorobenzenes

Specific Isomer	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
Monochlorobenzene	121	135	164	140	15.6
1,3-Dichlorobenzene	27.0	27.4	29.3	27.9	4.5
1,4-Dichlorobenzene	18.4	18.2	18.2	18.3	0.7
1,2-Dichlorobenzene	20.6	20.7	21.0	20.8	0.9
Total Dichlorobenzene	66.0	66.4	68.6	67.0	2.1
1,3,5-trichlorobenzene	3.19	2.66	2.44	2.76	14.0
1,2,4-trichlorobenzene	5.87	5.83	5.54	5.75	3.1
1,2,3-trichlorobenzene	2.73	2.65	2.15	2.51	12.4
Total Trichlorobenzene	11.8	11.1	10.1	11.0	7.6
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	1.57	<1.46	<1.52	<1.52	3.5
1,2,3,4-tetrachlorobenzene	<1.47	<1.46	<1.52	<1.48	2.0
Total Tetrachlorobenzene	<3.04	<2.93	<3.04	<3.00	2.2
Pentachlorobenzene	<1.47	<1.46	<1.52	<1.48	2.0
Hexachlorobenzene	<1.47	<1.46	<1.52	<1.48	2.0
Total Chlorobenzenes	<205	<219	<249	<224	10.0

TABLE 55
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Monochlorobenzene	206	228	280	238	16.0
1,3-Dichlorobenzene	45.7	46.2	50.0	47.3	4.9
1,4-Dichlorobenzene	31.2	30.6	31.0	30.9	0.9
1,2-Dichlorobenzene	34.9	34.9	35.8	35.2	1.4
Total Dichlorobenzene	112	112	117	113	2.5
1,3,5-trichlorobenzene	5.40	4.48	4.16	4.68	13.8
1,2,4-trichlorobenzene	9.94	9.82	9.43	9.73	2.7
1,2,3-trichlorobenzene	4.61	4.46	3.66	4.25	12.0
Total Trichlorobenzene	20.0	18.8	17.3	18.7	7.3
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	2.66	<2.47	<2.58	<2.57	3.8
1,2,3,4-tetrachlorobenzene	<2.49	<2.47	<2.58	<2.51	2.5
Total Tetrachlorobenzene	<5.15	<4.93	<5.17	<5.09	2.6
Pentachlorobenzene	<2.49	<2.47	<2.58	<2.51	2.5
Hexachlorobenzene	<2.49	<2.47	<2.58	<2.51	2.5
Total Chlorobenzenes	<347	<369	<424	<380	10.4

* At 25°C and 1 atmosphere

TABLE 56
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Dry Adjusted Concentrations for Chlorobenzenes

Specific Isomer	Dry Adjusted Concentration				Coefficient of Variation %
	Test No. 1 ng/Rm ³ *	Test No. 2 ng/Rm ³ *	Test No. 3 ng/Rm ³ *	Average ng/Rm ³ *	
Monochlorobenzene	166	190	220	192	14.1
1,3-Dichlorobenzene	36.9	38.5	39.3	38.2	3.2
1,4-Dichlorobenzene	25.2	25.5	24.4	25.0	2.3
1,2-Dichlorobenzene	28.2	29.1	28.1	28.5	2.0
Total Dichlorobenzene	90.2	93.2	91.8	91.7	1.6
1,3,5-trichlorobenzene	4.36	3.73	3.27	3.79	14.5
1,2,4-trichlorobenzene	8.02	8.19	7.42	7.87	5.1
1,2,3-trichlorobenzene	3.72	3.72	2.88	3.44	14.1
Total Trichlorobenzene	16.1	15.6	13.6	15.1	9.0
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	2.15	<2.06	<2.03	<2.08	2.9
1,2,3,4-tetrachlorobenzene	<2.01	<2.06	<2.03	<2.03	1.0
Total Tetrachlorobenzene	<4.16	<4.11	<4.06	<4.11	1.2
Pentachlorobenzene	<2.01	<2.06	<2.03	<2.03	1.0
Hexachlorobenzene	<2.01	<2.06	<2.03	<2.03	1.0
Total Chlorobenzenes	<280	<307	<334	<307	8.7

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

TABLE 57
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Monochlorobenzene	172	191	234	199	16.0
1,3-Dichlorobenzene	38.2	38.7	41.8	39.6	4.8
1,4-Dichlorobenzene	26.1	25.6	25.9	25.9	0.8
1,2-Dichlorobenzene	29.2	29.3	29.9	29.4	1.3
Total Dichlorobenzene	93.5	93.6	97.6	94.9	2.5
1,3,5-trichlorobenzene	4.52	3.75	3.47	3.91	13.8
1,2,4-trichlorobenzene	8.31	8.23	7.89	8.14	2.7
1,2,3-trichlorobenzene	3.86	3.74	3.06	3.55	12.1
Total Trichlorobenzene	16.7	15.7	14.4	15.6	7.3
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	2.22	<2.07	<2.16	<2.15	3.7
1,2,3,4-tetrachlorobenzene	<2.08	<2.07	<2.16	<2.10	2.4
Total Tetrachlorobenzene	<4.31	<4.13	<4.32	<4.25	2.5
Pentachlorobenzene	<2.08	<2.07	<2.16	<2.10	2.4
Hexachlorobenzene	<2.08	<2.07	<2.16	<2.10	2.4
Total Chlorobenzenes	<290	<309	<355	<318	10.4

* At 25°C and 1 atmosphere

TABLE 58
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Emission Rates for Chlorobenzenes

Specific Isomer	Emission Rate			Average µg/s	Coefficient of Variation %
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s		
Monochlorobenzene	3.35	3.76	4.42	3.85	14.1
1,3-Dichlorobenzene	0.75	0.76	0.79	0.77	2.9
1,4-Dichlorobenzene	0.51	0.51	0.49	0.50	1.9
1,2-Dichlorobenzene	0.57	0.58	0.56	0.57	1.0
Total Dichlorobenzene	1.82	1.84	1.84	1.84	0.7
1,3,5-trichlorobenzene	0.088	0.074	0.066	0.076	14.9
1,2,4-trichlorobenzene	0.16	0.16	0.15	0.16	4.7
1,2,3-trichlorobenzene	0.075	0.074	0.058	0.069	13.9
Total Trichlorobenzene	0.33	0.31	0.27	0.30	8.9
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	0.043	<0.041	<0.041	<0.042	3.6
1,2,3,4-tetrachlorobenzene	<0.041	<0.041	<0.041	<0.041	0.2
Total Tetrachlorobenzene	<0.084	<0.081	<0.082	<0.082	1.8
Pentachlorobenzene	<0.041	<0.041	<0.041	<0.041	0.2
Hexachlorobenzene	<0.041	<0.041	<0.041	<0.041	0.2
Total Chlorobenzenes	<5.66	<6.08	<6.70	<6.15	8.5

TABLE 59
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Emission Data for Chlorobenzenes

Specific Isomer	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Monochlorobenzene	140	238	192	199	3.85
1,3-Dichlorobenzene	27.9	47.3	38.2	39.6	0.77
1,4-Dichlorobenzene	18.3	30.9	25.0	25.9	0.50
1,2-Dichlorobenzene	20.8	35.2	28.5	29.4	0.57
Total Dichlorobenzene	67.0	113	91.7	94.9	1.84
1,3,5-trichlorobenzene	2.76	4.68	3.79	3.91	0.076
1,2,4-trichlorobenzene	5.75	9.73	7.87	8.14	0.16
1,2,3-trichlorobenzene	2.51	4.25	3.44	3.55	0.069
Total Trichlorobenzene	11.0	18.7	15.1	15.6	0.30
1,2,3,5- & 1,2,4,5-tetrachlorobenzenes	<1.52	<2.57	<2.08	<2.15	<0.042
1,2,3,4-tetrachlorobenzene	<1.48	<2.51	<2.03	<2.10	<0.041
Total Tetrachlorobenzene	<3.00	<5.09	<4.11	<4.25	<0.082
Pentachlorobenzene	<1.48	<2.51	<2.03	<2.10	<0.041
Hexachlorobenzene	<1.48	<2.51	<2.03	<2.10	<0.041
Total Chlorobenzenes	<224	<380	<307	<318	<6.15

* At 25°C and 1 atmosphere

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

TABLE 60
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Chlorobenzene Blank Analyses

Isomers and Congener Group Totals	Blank Train Total ng	Method Blank Total ng
Monochlorobenzene	48.9	<12
1,3-Dichlorobenzene	<12	<12
1,4-Dichlorobenzene	14.3	<12
1,2-Dichlorobenzene	<12	<12
Total Dichlorobenzene	<38.3	<36.0
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	<171	<132

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Analysis and Emission Data
Test No. 1

Specific Isomer	Total Collected ng	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
2-monochlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
3 & 4-monochlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
Total Monochlorophenols	<120	<14.7	<24.9	<20.1	<20.8	<0.41
2,6-dichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,4 & 2,5-dichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
3,5-dichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,3-dichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
3,4-dichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
Total Dichlorophenols	<300	<36.8	<62.4	<50.3	<52.1	<1.02
2,4,6-trichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,3,6-trichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,3,5-trichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,4,5-trichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,3,4-trichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
3,4,5-trichlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
Total Trichlorophenols	<360	<44.2	<74.8	<60.4	<62.5	<1.22
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
2,3,4,5-tetrachlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
Total Tetrachlorophenols	<120	<14.7	<24.9	<20.1	<20.8	<0.41
Pentachlorophenol	<60	<7.37	<12.5	<10.1	<10.4	<0.20
Total Chlorophenols	<960	<118	<200	<161	<167	<3.25

Dry Gas Volume Sampled (Rm ^{3*}) :	4.811
Actual Flowrate (m ³ /s) :	27.6
Dry Reference Flowrate (Rm ³ /s*) :	16.3
Dry Adjusted Flowrate (Rm ³ /s**) :	20.2
Wet Reference Flowrate (Rm ³ /s*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
2-monochlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
3 & 4-monochlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
Total Monochlorophenols	<120	<14.6	<24.7	<20.6	<20.7	<0.41
2,6-dichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,4 & 2,5-dichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
3,5-dichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,3-dichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
3,4-dichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
Total Dichlorophenols	<300	<36.6	<61.7	<51.4	<51.6	<1.02
2,4,6-trichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,3,6-trichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,3,5-trichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,4,5-trichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,3,4-trichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
3,4,5-trichlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
Total Trichlorophenols	<360	<43.9	<74.0	<61.7	<62.0	<1.22
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
2,3,4,5-tetrachlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
Total Tetrachlorophenols	<120	<14.6	<24.7	<20.6	<20.7	<0.41
Pentachlorophenol	<60	<7.32	<12.3	<10.3	<10.3	<0.20
Total Chlorophenols	<960	<117	<197	<164	<165	<3.26

Dry Gas Volume Sampled (Rm ^{3*}) :	4.866
Actual Flowrate (m ³ /s) :	27.8
Dry Reference Flowrate (Rm ³ /s*) :	16.5
Dry Adjusted Flowrate (Rm ³ /s**) :	19.8
Wet Reference Flowrate (Rm ³ /s*) :	19.7

* 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
2-monochlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
3 & 4-monochlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
Total Monochlorophenols	<120	<15.2	<25.8	<20.3	<21.6	<0.41
2,6-dichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,4 & 2,5-dichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
3,5-dichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,3-dichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
3,4-dichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
Total Dichlorophenols	<300	<38.0	<64.6	<50.8	<54.0	<1.02
2,4,6-trichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,3,6-trichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,3,5-trichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,4,5-trichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,3,4-trichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
3,4,5-trichlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
Total Trichlorophenols	<360	<45.5	<77.5	<60.9	<64.8	<1.23
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
2,3,4,5-tetrachlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
Total Tetrachlorophenols	<120	<15.2	<25.8	<20.3	<21.6	<0.41
Pentachlorophenol	<60	<7.59	<12.9	<10.2	<10.8	<0.20
Total Chlorophenols	<960	<121	<207	<163	<173	<3.27

Dry Gas Volume Sampled (Rm ^{3*}) :	4.643
Actual Flowrate (m ³ /s) :	26.9
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	20.1
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 64
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Actual Concentrations

Specific Isomer	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
2-monochlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
3 & 4-monochlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
Total Monochlorophenols	<14.7	<14.6	<15.2	<14.8	2.0
2,6-dichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,4 & 2,5-dichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
3,5-dichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,3-dichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
3,4-dichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
Total Dichlorophenols	<36.8	<36.6	<38.0	<37.1	2.0
2,4,6-trichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,3,6-trichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,3,5-trichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,4,5-trichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,3,4-trichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
3,4,5-trichlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
Total Trichlorophenols	<44.2	<43.9	<45.5	<44.5	2.0
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
2,3,4,5-tetrachlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
Total Tetrachlorophenols	<14.7	<14.6	<15.2	<14.8	2.0
Pentachlorophenol	<7.37	<7.32	<7.59	<7.42	2.0
Total Chlorophenols	<118	<117	<121	<119	2.0

TABLE 65
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
2-monochlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
3 & 4-monochlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
Total Monochlorophenols	<24.9	<24.7	<25.8	<25.1	2.5
2,6-dichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,4 & 2,5-dichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
3,5-dichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,3-dichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
3,4-dichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
Total Dichlorophenols	<62.4	<61.7	<64.6	<62.9	2.5
2,4,6-trichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,3,6-trichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,3,5-trichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,4,5-trichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,3,4-trichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
3,4,5-trichlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
Total Trichlorophenols	<74.8	<74.0	<77.5	<75.4	2.5
2,3,5,6/2,3,4,6-tetrachlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
2,3,4,5-tetrachlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
Total Tetrachlorophenols	<24.9	<24.7	<25.8	<25.1	2.5
Pentachlorophenol	<12.5	<12.3	<12.9	<12.6	2.5
Total Chlorophenols	<200	<197	<207	<201	2.5

* At 25°C and 1 atmosphere

TABLE 66
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
2-monochlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
3 & 4-monochlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
Total Monochlorophenols	<20.1	<20.6	<20.3	<20.3	1.0
2,6-dichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,4 & 2,5-dichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
3,5-dichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,3-dichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
3,4-dichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
Total Dichlorophenols	<50.3	<51.4	<50.8	<50.8	1.0
2,4,6-trichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,3,6-trichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,3,5-trichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,4,5-trichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,3,4-trichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
3,4,5-trichlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
Total Trichlorophenols	<60.4	<61.7	<60.9	<61.0	1.0
2,3,5,6/2,3,4,6-tetrachlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
2,3,4,5-tetrachlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
Total Tetrachlorophenols	<20.1	<20.6	<20.3	<20.3	1.0
Pentachlorophenol	<10.1	<10.3	<10.2	<10.2	1.0
Total Chlorophenols	<161	<164	<163	<163	1.0

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

TABLE 67
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
2-monochlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
3 & 4-monochlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
Total Monochlorophenols	<20.8	<20.7	<21.6	<21.0	2.4
2,6-dichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,4 & 2,5-dichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
3,5-dichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,3-dichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
3,4-dichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
Total Dichlorophenols	<52.1	<51.6	<54.0	<52.6	2.4
2,4,6-trichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,3,6-trichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,3,5-trichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,4,5-trichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,3,4-trichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
3,4,5-trichlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
Total Trichlorophenols	<62.5	<62.0	<64.8	<63.1	2.4
2,3,5,6/2,3,4,6-tetrachlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
2,3,4,5-tetrachlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
Total Tetrachlorophenols	<20.8	<20.7	<21.6	<21.0	2.4
Pentachlorophenol	<10.4	<10.3	<10.8	<10.5	2.4
Total Chlorophenols	<167	<165	<173	<168	2.4

* At 25°C and 1 atmosphere

TABLE 68
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Chlorophenol Isomer and Congener Group Emission Rates

Specific Isomer	Emission Rate			Average µg/s	Coefficient of Variation %
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s		
2-monochlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
3 & 4-monochlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
Total Monochlorophenols	<0.41	<0.41	<0.41	<0.41	0.2
2,6-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,4 & 2,5-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
3,5-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,3-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
3,4-dichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
Total Dichlorophenols	<1.02	<1.02	<1.02	<1.02	0.2
2,4,6-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,3,6-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,3,5-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,4,5-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,3,4-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
3,4,5-trichlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
Total Trichlorophenols	<1.22	<1.22	<1.23	<1.22	0.2
2,3,5,6/2,3,4,6-tetrachlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
2,3,4,5-tetrachlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
Total Tetrachlorophenols	<0.41	<0.41	<0.41	<0.41	0.2
Pentachlorophenol	<0.20	<0.20	<0.20	<0.20	0.2
Total Chlorophenols	<3.25	<3.26	<3.27	<3.26	0.2

TABLE 69
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Emission Data for Chlorophenol Isomer and Congener Groups

Specific Isomer	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
2-monochlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
3 & 4-monochlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
Total Monochlorophenols	<14.8	<25.1	<20.3	<21.0	<0.41
2,6-dichlorophenol	<7.4	<12.6	<10.2	<10.5	<0.20
2,4 & 2,5-dichlorophenol	<7.4	<12.6	<10.2	<10.5	<0.20
3,5-dichlorophenol	<7.4	<12.6	<10.2	<10.5	<0.20
2,3-dichlorophenol	<7.4	<12.6	<10.2	<10.5	<0.20
3,4-dichlorophenol	<7.4	<12.6	<10.2	<10.5	<0.20
Total Dichlorophenols	<37.1	<62.9	<50.8	<52.6	<1.02
2,4,6-trichlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
2,3,6-trichlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
2,3,5-trichlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
2,4,5-trichlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
2,3,4-trichlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
3,4,5-trichlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
Total Trichlorophenols	<44.5	<75.4	<61.0	<63.1	<1.22
2,3,5,6/2,3,4,6-tetrachlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
2,3,4,5-tetrachlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
Total Tetrachlorophenols	<14.8	<25.1	<20.3	<21.0	<0.41
Pentachlorophenol	<7.42	<12.6	<10.2	<10.5	<0.20
Total Chlorophenols	<119	<201	<163	<168	<3.26

* At 25°C and 1 atmosphere

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

TABLE 70
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Chlorophenol Blank Analyses

Congener Group	Media Blank Total ng	Blank Train Total ng
2-monochlorophenol	<60	<60
3 & 4-monochlorophenol	<60	<60
Total Monochlorophenols	<120	<120
2,6-dichlorophenol	<60	<60
2,4 & 2,5-dichlorophenol	<60	<60
3,5-dichlorophenol	<60	<60
2,3-dichlorophenol	<60	<60
3,4-dichlorophenol	<60	<60
Total Dichlorophenols	<300	<300
2,4,6-trichlorophenol	<60	<60
2,3,6-trichlorophenol	<60	<60
2,3,5-trichlorophenol	<60	<60
2,4,5-trichlorophenol	<60	<60
2,3,4-trichlorophenol	<60	<60
3,4,5-trichlorophenol	<60	<60
Total Trichlorophenols	<360	<360
2,3,5,6/2,3,4,6-tetrachlorophenol	<60	<60
2,3,4,5-tetrachlorophenol	<60	<60
Total Tetrachlorophenols	<120	<120
Pentachlorophenol	<60	<60
Total Chlorophenols	<960	<960

"<" 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
Acenaphthene	137	16.8	28.5	23.0	23.8	0.46
Acenaphthylene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Anthracene	69.4	8.52	14.4	11.6	12.1	0.24
Benzo(a)Anthracene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Benzo(b)Fluoranthene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Benzo(k,j)Fluoranthene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Benzo(a)fluorene	12.7	1.56	2.64	2.13	2.21	0.043
Benzo(b)fluorene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Benzo(g,h,i)Perylene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Benzo(a)Pyrene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Benzo(e)Pyrene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Biphenyl	69.7	8.56	14.5	11.7	12.1	0.24
2-Chloronaphthalene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Chrysene/Triphenylene/Benzo(b)anthracene	24.8	3.04	5.15	4.16	4.31	0.084
Coronene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Dibenzo(a,c/a,h)Anthracene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Dibenzo(a,e)pyrene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
9,10-dimethylanthracene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
7,12-Dimethylbenzo(a)anthracene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Fluoranthene	337	41.4	70.0	56.5	58.6	1.14
Fluorene	30.2	3.71	6.28	5.07	5.25	0.10
Indeno(1,2,3-cd)Pyrene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
2-methylanthracene	174	21.4	36.2	29.2	30.2	0.59
3-Methylcholanthrene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
1-Methylnaphthalene	19.8	2.43	4.12	3.32	3.44	0.067
2-Methylnaphthalene	37.9	4.65	7.88	6.36	6.59	0.13
1-Methylphenanthrene	180	22.1	37.4	30.2	31.3	0.61
9-Methylphenanthrene	427	52.4	88.8	71.6	74.2	1.45
Naphthalene	166	20.4	34.5	27.8	28.8	0.56
Perylene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Phenanthrene	2540	312	528	426	441	8.61
Picene	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Pyrene	221	27.1	45.9	37.1	38.4	0.75
Tetralin	49.7	6.10	10.3	8.34	8.64	0.17
m-terphenyl	19.7	2.42	4.09	3.30	3.42	0.067
o-Terphenyl	28.4	3.49	5.90	4.76	4.93	0.096
p-terphenyl	<12	<1.47	<2.49	<2.01	<2.08	<0.041
Total	<4772	<586	<992	<800	<829	<16.2

Dry Gas Volume Sampled (Rm ^{3*}) :	4.811
Actual Flowrate (m ³ /s) :	27.6
Dry Reference Flowrate (Rm ³ /s*) :	16.3
Dry Adjusted Flowrate (Rm ³ /s**) :	20.2
Wet Reference Flowrate (Rm ³ /s*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
Acenaphthene	40.4	4.93	8.30	6.92	6.95	0.14
Acenaphthylene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Anthracene	55.2	6.73	11.3	9.45	9.50	0.19
Benzo(a)Anthracene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Benzo(b)Fluoranthene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Benzo(k/j)Fluoranthene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Benzo(a)fluorene	21.4	2.61	4.40	3.66	3.68	0.073
Benzo(b)fluorene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Benzo(g,h,i)Perylene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Benzo(a)Pyrene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Benzo(e)Pyrene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Biphenyl	72.8	8.88	15.0	12.5	12.5	0.25
2-Chloronaphthalene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Chrysene/Triphenylene/Benzo(b)anthracene	17.2	2.10	3.53	2.95	2.96	0.058
Coronene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Dibenzo(a,c/a,h)Anthracene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Dibenzo(a,e)pyrene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
9,10-dimethylanthracene	37.6	4.59	7.73	6.44	6.47	0.13
7,12-Dimethylbenzo(a)anthracene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Fluoranthene	482	58.8	99.1	82.5	83.0	1.63
Fluorene	66.8	8.15	13.7	11.4	11.5	0.23
Indeno(1,2,3-cd)Pyrene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
2-methylanthracene	300	36.6	61.7	51.4	51.6	1.02
3-Methylcholanthrene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
1-Methylnaphthalene	28.3	3.45	5.82	4.85	4.87	0.096
2-Methylnaphthalene	51.3	6.26	10.5	8.79	8.83	0.17
1-Methylphenanthrene	293	35.7	60.2	50.2	50.4	0.99
9-Methylphenanthrene	860	105	177	147	148	2.92
Naphthalene	189	23.1	38.8	32.4	32.5	0.64
Perylene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Phenanthrene	2800	342	575	480	482	9.49
Picene	<12	<1.46	<2.47	<2.06	<2.07	<0.041
Pyrene	338	41.2	69.5	57.9	58.2	1.15
Tetralin	56.0	6.83	11.5	9.59	9.64	0.19
m-terphenyl	44.6	5.44	9.17	7.64	7.68	0.15
o-Terphenyl	29.1	3.55	5.98	4.98	5.01	0.099
p-terphenyl	16.3	1.99	3.35	2.79	2.81	0.055
Total	<6003	<732	<1234	<1028	<1033	<20.4

Dry Gas Volume Sampled (Rm ^{3*}) :	4.866
Actual Flowrate (m ³ /s) :	27.8
Dry Reference Flowrate (Rm ³ /s*) :	16.5
Dry Adjusted Flowrate (Rm ³ /s**) :	19.8
Wet Reference Flowrate (Rm ³ /s*) :	19.7

* 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
Reworld Durham York Renewable Energy L.P.
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/m ³	ng/Rm ^{3*}	ng/Rm ^{3**}	ng/Rm ^{3*}	µg/s
Acenaphthene	149	18.8	32.1	25.2	26.8	0.51
Acenaphthylene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Anthracene	53.0	6.70	11.4	8.97	9.54	0.18
Benzo(a)Anthracene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Benzo(b)Fluoranthene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Benzo(k,j)Fluoranthene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Benzo(a)fluorene	22.3	2.82	4.80	3.78	4.02	0.076
Benzo(b)fluorene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Benzo(g,h,i)Perylene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Benzo(a)Pyrene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Benzo(e)Pyrene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Biphenyl	41.2	5.21	8.87	6.98	7.42	0.14
2-Chloronaphthalene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Chrysene/Triphenylene/Benzo(b)anthracene	19.4	2.45	4.18	3.28	3.49	0.066
Coronene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Dibenzo(a,c/a,h)Anthracene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Dibenzo(a,e)pyrene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
9,10-dimethylanthracene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
7,12-Dimethylbenzo(a)anthracene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Fluoranthene	519	65.7	112	87.9	93.4	1.77
Fluorene	33.3	4.21	7.17	5.64	6.00	0.11
Indeno(1,2,3-cd)Pyrene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
2-methylanthracene	139	17.6	29.9	23.5	25.0	0.47
3-Methylcholanthrene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
1-Methylnaphthalene	28.5	3.61	6.14	4.83	5.13	0.097
2-Methylnaphthalene	55.6	7.03	12.0	9.41	10.0	0.19
1-Methylphenanthrene	143	18.1	30.8	24.2	25.7	0.49
9-Methylphenanthrene	369	46.7	79.5	62.5	66.4	1.26
Naphthalene	206	26.1	44.4	34.9	37.1	0.70
Perylene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Phenanthrene	1580	200	340	267	284	5.38
Picene	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Pyrene	337	42.6	72.6	57.1	60.7	1.15
Tetralin	62.6	7.92	13.5	10.6	11.3	0.21
m-terphenyl	28.8	3.64	6.20	4.88	5.19	0.098
o-Terphenyl	25.7	3.25	5.54	4.35	4.63	0.087
p-terphenyl	<12	<1.52	<2.58	<2.03	<2.16	<0.041
Total	<4040	<511	<870	<684	<727	<13.7

Dry Gas Volume Sampled (Rm ^{3*}) :	4.643
Actual Flowrate (m ³ /s) :	26.9
Dry Reference Flowrate (Rm ³ /s*) :	15.8
Dry Adjusted Flowrate (Rm ³ /s**) :	20.1
Wet Reference Flowrate (Rm ³ /s*) :	18.9

* At 25°C and 1 atmosphere

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

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

TABLE 74
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Actual Concentrations

Compound	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/m ³	ng/m ³	ng/m ³	ng/m ³	%
Acenaphthene	16.8	4.93	18.8	13.5	55.6
Acenaphthylene	<1.47	<1.46	<1.52	<1.48	2.0
Anthracene	8.52	6.73	6.70	7.32	14.2
Benzo(a)Anthracene	<1.47	<1.46	<1.52	<1.48	2.0
Benzo(b)Fluoranthene	<1.47	<1.46	<1.52	<1.48	2.0
Benzo(k,j)Fluoranthene	<1.47	<1.46	<1.52	<1.48	2.0
Benzo(a)fluorene	1.56	2.61	2.82	2.33	29.0
Benzo(b)fluorene	<1.47	<1.46	<1.52	<1.48	2.0
Benzo(g,h,i)Perylene	<1.47	<1.46	<1.52	<1.48	2.0
Benzo(a)Pyrene	<1.47	<1.46	<1.52	<1.48	2.0
Benzo(e)Pyrene	<1.47	<1.46	<1.52	<1.48	2.0
Biphenyl	8.56	8.88	5.21	7.55	26.9
2-Chloronaphthalene	<1.47	<1.46	<1.52	<1.48	2.0
Chrysene/Triphenylene/Benzo(b)anthracene	3.04	2.10	2.45	2.53	18.9
Coronene	<1.47	<1.46	<1.52	<1.48	2.0
Dibenzo(a,c/a,h)Anthracene	<1.47	<1.46	<1.52	<1.48	2.0
Dibenzo(a,e)pyrene	<1.47	<1.46	<1.52	<1.48	2.0
9,10-dimethylanthracene	<1.47	4.59	<1.52	<2.53	70.7
7,12-Dimethylbenzo(a)anthracene	<1.47	<1.46	<1.52	<1.48	2.0
Fluoranthene	41.4	58.8	65.7	55.3	22.7
Fluorene	3.71	8.15	4.21	5.36	45.4
Indeno(1,2,3-cd)Pyrene	<1.47	<1.46	<1.52	<1.48	2.0
2-methylanthracene	21.4	36.6	17.6	25.2	40.0
3-Methylcholanthrene	<1.47	<1.46	<1.52	<1.48	2.0
1-Methylnaphthalene	2.43	3.45	3.61	3.16	20.2
2-Methylnaphthalene	4.65	6.26	7.03	5.98	20.3
1-Methylphenanthrene	22.1	35.7	18.1	25.3	36.6
9-Methylphenanthrene	52.4	105	46.7	68.0	47.2
Naphthalene	20.4	23.1	26.1	23.2	12.3
Perylene	<1.47	<1.46	<1.52	<1.48	2.0
Phenanthrene	312	342	200	284	26.3
Picene	<1.47	<1.46	<1.52	<1.48	2.0
Pyrene	27.1	41.2	42.6	37.0	23.2
Tetralin	6.10	6.83	7.92	6.95	13.2
m-terphenyl	2.42	5.44	3.64	3.83	39.6
o-Terphenyl	3.49	3.55	3.25	3.43	4.6
p-terphenyl	<1.47	1.99	<1.52	<1.66	17.2
Total	<586	<732	<511	<610	18.4

TABLE 75
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Acenaphthene	28.5	8.30	32.1	23.0	55.8
Acenaphthylene	<2.49	<2.47	<2.58	<2.51	2.5
Anthracene	14.4	11.3	11.4	12.4	14.2
Benzo(a)Anthracene	<2.49	<2.47	<2.58	<2.51	2.5
Benzo(b)Fluoranthene	<2.49	<2.47	<2.58	<2.51	2.5
Benzo(k,j)Fluoranthene	<2.49	<2.47	<2.58	<2.51	2.5
Benzo(a)fluorene	2.64	4.40	4.80	3.95	29.1
Benzo(b)fluorene	<2.49	<2.47	<2.58	<2.51	2.5
Benzo(g,h,i)Perylene	<2.49	<2.47	<2.58	<2.51	2.5
Benzo(a)Pyrene	<2.49	<2.47	<2.58	<2.51	2.5
Benzo(e)Pyrene	<2.49	<2.47	<2.58	<2.51	2.5
Biphenyl	14.5	15.0	8.87	12.8	26.5
2-Chloronaphthalene	<2.49	<2.47	<2.58	<2.51	2.5
Chrysene/Triphenylene/Benzo(b)anthracene	5.15	3.53	4.18	4.29	19.0
Coronene	<2.49	<2.47	<2.58	<2.51	2.5
Dibenzo(a,c/a,h)Anthracene	<2.49	<2.47	<2.58	<2.51	2.5
Dibenzo(a,e)pyrene	<2.49	<2.47	<2.58	<2.51	2.5
9,10-dimethylanthracene	<2.49	7.73	<2.58	<4.27	70.2
7,12-Dimethylbenzo(a)anthracene	<2.49	<2.47	<2.58	<2.51	2.5
Fluoranthene	70.0	99.1	112	93.6	22.8
Fluorene	6.28	13.7	7.17	9.06	44.9
Indeno(1,2,3-cd)Pyrene	<2.49	<2.47	<2.58	<2.51	2.5
2-methylanthracene	36.2	61.7	29.9	42.6	39.5
3-Methylcholanthrene	<2.49	<2.47	<2.58	<2.51	2.5
1-Methylnaphthalene	4.12	5.82	6.14	5.36	20.3
2-Methylnaphthalene	7.88	10.5	12.0	10.1	20.5
1-Methylphenanthrene	37.4	60.2	30.8	42.8	36.0
9-Methylphenanthrene	88.8	177	79.5	115	46.7
Naphthalene	34.5	38.8	44.4	39.2	12.6
Perylene	<2.49	<2.47	<2.58	<2.51	2.5
Phenanthrene	528	575	340	481	25.8
Picene	<2.49	<2.47	<2.58	<2.51	2.5
Pyrene	45.9	69.5	72.6	62.7	23.2
Tetralin	10.3	11.5	13.5	11.8	13.5
m-terphenyl	4.09	9.17	6.20	6.49	39.3
o-Terphenyl	5.90	5.98	5.54	5.81	4.1
p-terphenyl	<2.49	3.35	<2.58	<2.81	16.7
Total	<992	<1234	<870	<1032	17.9

* At 25°C and 1 atmosphere

TABLE 76
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Dry Adjusted Concentrations

Compound	Dry Adjusted Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	ng/Rm ^{3*}	%
Acenaphthene	23.0	6.92	25.2	18.4	54.3
Acenaphthylene	<2.01	<2.06	<2.03	<2.03	1.0
Anthracene	11.6	9.45	8.97	10.0	14.2
Benzo(a)Anthracene	<2.01	<2.06	<2.03	<2.03	1.0
Benzo(b)Fluoranthene	<2.01	<2.06	<2.03	<2.03	1.0
Benzo(k/j)Fluoranthene	<2.01	<2.06	<2.03	<2.03	1.0
Benzo(a)fluorene	2.13	3.66	3.78	3.19	28.8
Benzo(b)fluorene	<2.01	<2.06	<2.03	<2.03	1.0
Benzo(g,h,i)Perylene	<2.01	<2.06	<2.03	<2.03	1.0
Benzo(a)Pyrene	<2.01	<2.06	<2.03	<2.03	1.0
Benzo(e)Pyrene	<2.01	<2.06	<2.03	<2.03	1.0
Biphenyl	11.7	12.5	6.98	10.4	28.6
2-Chloronaphthalene	<2.01	<2.06	<2.03	<2.03	1.0
Chrysene/Triphenylene/Benzo(b)anthracene	4.16	2.95	3.28	3.46	18.1
Coronene	<2.01	<2.06	<2.03	<2.03	1.0
Dibenzo(a,c/a,h)Anthracene	<2.01	<2.06	<2.03	<2.03	1.0
Dibenzo(a,e)pyrene	<2.01	<2.06	<2.03	<2.03	1.0
9,10-dimethylanthracene	<2.01	6.44	<2.03	<3.49	73.0
7,12-Dimethylbenzo(a)anthracene	<2.01	<2.06	<2.03	<2.03	1.0
Fluoranthene	56.5	82.5	87.9	75.6	22.2
Fluorene	5.07	11.4	5.64	7.38	47.8
Indeno(1,2,3-cd)Pyrene	<2.01	<2.06	<2.03	<2.03	1.0
2-methylanthracene	29.2	51.4	23.5	34.7	42.4
3-Methylcholanthrene	<2.01	<2.06	<2.03	<2.03	1.0
1-Methylnaphthalene	3.32	4.85	4.83	4.33	20.2
2-Methylnaphthalene	6.36	8.79	9.41	8.19	19.7
1-Methylphenanthrene	30.2	50.2	24.2	34.9	39.0
9-Methylphenanthrene	71.6	147	62.5	93.8	49.6
Naphthalene	27.8	32.4	34.9	31.7	11.2
Perylene	<2.01	<2.06	<2.03	<2.03	1.0
Phenanthrene	426	480	267	391	28.2
Picene	<2.01	<2.06	<2.03	<2.03	1.0
Pyrene	37.1	57.9	57.1	50.7	23.3
Tetralin	8.34	9.59	10.6	9.5	11.9
m-terphenyl	3.30	7.64	4.88	5.27	41.6
o-Terphenyl	4.76	4.98	4.35	4.70	6.8
p-terphenyl	<2.01	2.79	<2.03	<2.28	19.5
Total	<800	<1028	<684	<838	20.9

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

TABLE 77
Reworld Durham York Renewable Energy L.P.
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/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	ng/Rm ³ *	%
Acenaphthene	23.8	6.95	26.8	19.2	55.8
Acenaphthylene	<2.08	<2.07	<2.16	<2.10	2.4
Anthracene	12.1	9.50	9.54	10.4	14.1
Benzo(a)Anthracene	<2.08	<2.07	<2.16	<2.10	2.4
Benzo(b)Fluoranthene	<2.08	<2.07	<2.16	<2.10	2.4
Benzo(k/j)Fluoranthene	<2.08	<2.07	<2.16	<2.10	2.4
Benzo(a)fluorene	2.21	3.68	4.02	3.30	29.2
Benzo(b)fluorene	<2.08	<2.07	<2.16	<2.10	2.4
Benzo(g,h,i)Perylene	<2.08	<2.07	<2.16	<2.10	2.4
Benzo(a)Pyrene	<2.08	<2.07	<2.16	<2.10	2.4
Benzo(e)Pyrene	<2.08	<2.07	<2.16	<2.10	2.4
Biphenyl	12.1	12.5	7.42	10.7	26.6
2-Chloronaphthalene	<2.08	<2.07	<2.16	<2.10	2.4
Chrysene/Triphenylene/Benzo(b)anthracene	4.31	2.96	3.49	3.59	18.9
Coronene	<2.08	<2.07	<2.16	<2.10	2.4
Dibenzo(a,c/a,h)Anthracene	<2.08	<2.07	<2.16	<2.10	2.4
Dibenzo(a,e)pyrene	<2.08	<2.07	<2.16	<2.10	2.4
9,10-dimethylanthracene	<2.08	6.47	<2.16	<3.57	70.3
7,12-Dimethylbenzo(a)anthracene	<2.08	<2.07	<2.16	<2.10	2.4
Fluoranthene	58.6	83.0	93.4	78.3	22.9
Fluorene	5.25	11.5	6.00	7.58	45.0
Indeno(1,2,3-cd)Pyrene	<2.08	<2.07	<2.16	<2.10	2.4
2-methylanthracene	30.2	51.6	25.0	35.6	39.6
3-Methylcholanthrene	<2.08	<2.07	<2.16	<2.10	2.4
1-Methylnaphthalene	3.44	4.87	5.13	4.48	20.3
2-Methylnaphthalene	6.59	8.83	10.0	8.48	20.5
1-Methylphenanthrene	31.3	50.4	25.7	35.8	36.2
9-Methylphenanthrene	74.2	148	66.4	96.2	46.8
Naphthalene	28.8	32.5	37.1	32.8	12.6
Perylene	<2.08	<2.07	<2.16	<2.10	2.4
Phenanthrene	441	482	284	403	25.9
Picene	<2.08	<2.07	<2.16	<2.10	2.4
Pyrene	38.4	58.2	60.7	52.4	23.3
Tetralin	8.64	9.64	11.3	9.85	13.5
m-terphenyl	3.42	7.68	5.19	5.43	39.4
o-Terphenyl	4.93	5.01	4.63	4.86	4.2
p-terphenyl	<2.08	2.81	<2.16	<2.35	16.9
Total	<829	<1033	<727	<863	18.0

* At 25°C and 1 atmosphere

TABLE 78
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Polycyclic Aromatic Hydrocarbon Emission Rates

Compound	Emission Rate			Average µg/s	Coefficient of Variation %
	Test No. 1 µg/s	Test No. 2 µg/s	Test No. 3 µg/s		
Acenaphthene	0.46	0.14	0.51	0.37	54.8
Acenaphthylene	<0.041	<0.041	<0.041	<0.041	0.2
Anthracene	0.24	0.19	0.18	0.20	14.9
Benzo(a)Anthracene	<0.041	<0.041	<0.041	<0.041	0.2
Benzo(b)Fluoranthene	<0.041	<0.041	<0.041	<0.041	0.2
Benzo(k/j)Fluoranthene	<0.041	<0.041	<0.041	<0.041	0.2
Benzo(a)fluorene	0.043	0.073	0.076	0.064	28.3
Benzo(b)fluorene	<0.041	<0.041	<0.041	<0.041	0.2
Benzo(g,h,i)Perylene	<0.041	<0.041	<0.041	<0.041	0.2
Benzo(a)Pyrene	<0.041	<0.041	<0.041	<0.041	0.2
Benzo(e)Pyrene	<0.041	<0.041	<0.041	<0.041	0.2
Biphenyl	0.24	0.25	0.14	0.21	28.3
2-Chloronaphthalene	<0.041	<0.041	<0.041	<0.041	0.2
Chrysene/Triphenylene/Benzo(b)anthracene	0.084	0.058	0.066	0.069	19.0
Coronene	<0.041	<0.041	<0.041	<0.041	0.2
Dibenzo(a,c/a,h)Anthracene	<0.041	<0.041	<0.041	<0.041	0.2
Dibenzo(a,e)pyrene	<0.041	<0.041	<0.041	<0.041	0.2
9,10-dimethylantracene	<0.041	0.13	<0.041	<0.070	71.9
7,12-Dimethylbenzo(a)anthracene	<0.041	<0.041	<0.041	<0.041	0.2
Fluoranthene	1.14	1.63	1.77	1.51	21.7
Fluorene	0.10	0.23	0.11	0.15	46.6
Indeno(1,2,3-cd)Pyrene	<0.041	<0.041	<0.041	<0.041	0.2
2-methylantracene	0.59	1.02	0.47	0.69	41.3
3-Methylcholanthrene	<0.041	<0.041	<0.041	<0.041	0.2
1-Methylnaphthalene	0.067	0.096	0.097	0.087	19.6
2-Methylnaphthalene	0.13	0.17	0.19	0.16	19.3
1-Methylphenanthrene	0.61	0.99	0.49	0.70	37.9
9-Methylphenanthrene	1.45	2.92	1.26	1.87	48.5
Naphthalene	0.56	0.64	0.70	0.63	10.9
Perylene	<0.041	<0.041	<0.041	<0.041	0.2
Phenanthrene	8.61	9.49	5.38	7.83	27.7
Picene	<0.041	<0.041	<0.041	<0.041	0.2
Pyrene	0.75	1.15	1.15	1.01	22.6
Tetralin	0.17	0.19	0.21	0.19	11.7
m-terphenyl	0.067	0.15	0.098	0.11	40.6
o-Terphenyl	0.096	0.099	0.087	0.094	6.3
p-terphenyl	<0.041	0.055	<0.041	<0.046	18.4
Total	<16.2	<20.4	<13.7	<16.8	19.9

TABLE 79
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Polycyclic Aromatic Hydrocarbon Emission Data

Compound	Actual Concentration ng/m ³	Dry Reference Concentration ng/Rm ^{3*}	Dry Adjusted Concentration ng/Rm ^{3**}	Wet Reference Concentration ng/Rm ^{3*}	Emission Rate µg/s
Acenaphthene	13.5	23.0	18.4	19.2	0.37
Acenaphthylene	<1.48	<2.51	<2.03	<2.10	<0.041
Anthracene	7.32	12.4	10.0	10.4	0.20
Benzo(a)Anthracene	<1.48	<2.51	<2.03	<2.10	<0.041
Benzo(b)Fluoranthene	<1.48	<2.51	<2.03	<2.10	<0.041
Benzo(k/j)Fluoranthene	<1.48	<2.51	<2.03	<2.10	<0.041
Benzo(a)fluorene	2.33	3.95	3.19	3.30	0.064
Benzo(b)fluorene	<1.48	<2.51	<2.03	<2.10	<0.041
Benzo(g,h,i)Perylene	<1.48	<2.51	<2.03	<2.10	<0.041
Benzo(a)Pyrene	<1.48	<2.51	<2.03	<2.10	<0.041
Benzo(e)Pyrene	<1.48	<2.51	<2.03	<2.10	<0.041
Biphenyl	7.55	12.8	10.4	10.7	0.21
2-Chloronaphthalene	<1.48	<2.51	<2.03	<2.10	<0.041
Chrysene/Triphenylene/Benzo(b)anthracene	2.53	4.29	3.46	3.59	0.069
Coronene	<1.48	<2.51	<2.03	<2.10	<0.041
Dibenzo(a,c/a,h)Anthracene	<1.48	<2.51	<2.03	<2.10	<0.041
Dibenzo(a,e)pyrene	<1.48	<2.51	<2.03	<2.10	<0.041
9,10-dimethylanthracene	<2.53	<4.27	<3.49	<3.57	<0.070
7,12-Dimethylbenzo(a)anthracene	<1.48	<2.51	<2.03	<2.10	<0.041
Fluoranthene	55.3	93.6	75.6	78.3	1.51
Fluorene	5.36	9.06	7.38	7.58	0.15
Indeno(1,2,3-cd)Pyrene	<1.48	<2.51	<2.03	<2.10	<0.041
2-methylanthracene	25.2	42.6	34.7	35.6	0.69
3-Methylcholanthrene	<1.48	<2.51	<2.03	<2.10	<0.041
1-Methylnaphthalene	3.16	5.36	4.33	4.48	0.087
2-Methylnaphthalene	5.98	10.1	8.19	8.48	0.16
1-Methylphenanthrene	25.3	42.8	34.9	35.8	0.70
9-Methylphenanthrene	68.0	115	93.8	96.2	1.87
Naphthalene	23.2	39.2	31.7	32.8	0.63
Perylene	<1.48	<2.51	<2.03	<2.10	<0.041
Phenanthrene	284	481	391	403	7.83
Picene	<1.48	<2.51	<2.03	<2.10	<0.041
Pyrene	37.0	62.7	50.7	52.4	1.01
Tetralin	6.95	11.8	9.51	9.85	0.19
m-terphenyl	3.83	6.49	5.27	5.43	0.11
o-Terphenyl	3.43	5.81	4.70	4.86	0.094
p-terphenyl	<1.66	<2.81	<2.28	<2.35	<0.046
Total	<610	<1032	<838	<863	<16.8

* At 25°C and 1 atmosphere

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

TABLE 80
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Blank Polycyclic Aromatic Hydrocarbon Analyses

Compound	Blank Train	Method Blank
	ng	ng
Acenaphthene	<12	<12
Acenaphthylene	<12	<12
Anthracene	<12	<12
Benzo(a)Anthracene	<12	<12
Benzo(b)Fluoranthene	<12	<12
Benzo(k/j)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	14.9
2-Chloronaphthalene	<12	<12
Chrysene/Triphenylene/Benzo(b)anthracene	<12	<12
Coronene	<12	<12
Dibenzo(a,c/a,h)Anthracene	<12	<12
Dibenzo(a,e)pyrene	<12	<12
9,10-dimethylantracene	43.2	<12
7,12-Dimethylbenzo(a)anthracene	<12	<2
Fluoranthene	<12	<12
Fluorene	<12	<12
Indeno(1,2,3-cd)Pyrene	<12	<12
2-methylantracene	<12	<12
3-Methylcholanthrene	<12	<12
1-Methylnaphthalene	<12	<12
2-Methylnaphthalene	13.2	<12
1-Methylphenanthrene	<12	<12
9-Methylphenanthrene	<12	<12
Naphthalene	121	68.1
Perylene	<12	<12
Phenanthrene	13.6	19.7
Picene	<12	<12
Pyrene	<12	<12
Tetralin	50.9	19.7
m-terphenyl	<12	<12
o-Terphenyl	<12	<12
p-terphenyl	<12	<12
Total	<626	<508

"<" 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Acetaldehyde, Formaldehyde and Acrolein Emission Data

Acetaldehyde

Test No.	Total Collected μg	Dry Volume Sampled Rm^3 *	Actual $\mu\text{g}/\text{m}^3$	Acetaldehyde Concentration			Acetaldehyde Emission Rate mg/s
				Dry Reference $\mu\text{g}/\text{Rm}^3$ *	Dry Adjusted $\mu\text{g}/\text{Rm}^3$ **	Wet Reference $\mu\text{g}/\text{Rm}^3$ *	
1	3.75	0.0245	93.0	153	133	130	2.46
2	2.80	0.0291	58.2	96.2	76.5	81.7	1.52
3	3.90	0.0319	73.3	122	100	104	1.81
Average			74.8	124	103	105	1.93
Blank Train	3.25						
Field Blank	7.63						

Formaldehyde

Test No.	Total Collected μg	Dry Volume Sampled Rm^3 *	Actual $\mu\text{g}/\text{m}^3$	Formaldehyde Concentration			Formaldehyde Emission Rate mg/s
				Dry Reference $\mu\text{g}/\text{Rm}^3$ *	Dry Adjusted $\mu\text{g}/\text{Rm}^3$ **	Wet Reference $\mu\text{g}/\text{Rm}^3$ *	
1	1.32	0.0245	32.7	53.9	46.7	45.7	0.87
2	1.50	0.0291	31.2	51.5	41.0	43.8	0.81
3	1.42	0.0319	26.7	44.5	36.2	37.9	0.66
Average			30.2	50.0	41.3	42.4	0.78
Blank Train	1.12						
Field Blank	1.73						

Acrolein

Test No.	Total Collected μg	Dry Volume Sampled Rm^3 *	Actual $\mu\text{g}/\text{m}^3$	Acrolein Concentration			Acrolein Emission Rate mg/s
				Dry Reference $\mu\text{g}/\text{Rm}^3$ *	Dry Adjusted $\mu\text{g}/\text{Rm}^3$ **	Wet Reference $\mu\text{g}/\text{Rm}^3$ *	
1	<0.50	0.0245	<12.4	<20.4	<17.7	<17.3	<0.33
2	<0.50	0.0291	<10.4	<17.2	<13.7	<14.6	<0.27
3	<0.50	0.0319	<9.39	<15.7	<12.8	<13.3	<0.23
Average			<10.7	<17.8	<14.7	<15.1	<0.28
Blank Train	<0.50						
Field Blank	<0.50						

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

Sampling was conducted at a single point. Volumetric flowrates from corresponding flow 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 1

Compound	Total Collected	Actual Concentration	Dry Reference Concentration	Dry Adjusted Concentration	Wet Reference Concentration	Emission Rate
	ppb	µg/m ³	µg/Rm ³ *	µg/Rm ³ **	µg/Rm ³ *	mg/s
Acetone	5.20	7.32	12.4	10.0	10.4	0.20
Benzene	0.16	0.30	0.51	0.41	0.43	0.0083
Bromodichloromethane	<0.20	<0.77	<1.30	<1.05	<1.09	<0.021
Bromoform	<0.20	<1.24	<2.10	<1.69	<1.76	<0.034
Bromomethane	<0.20	<0.46	<0.78	<0.63	<0.65	<0.013
1,3-Butadiene	<0.20	<0.26	<0.44	<0.36	<0.37	<0.0072
2-Butanone	0.38	0.66	1.12	0.90	0.94	0.018
Carbon Tetrachloride	<0.20	<0.74	<1.26	<1.02	<1.05	<0.021
Chloroform	<0.20	<0.58	<0.98	<0.79	<0.82	<0.016
Cumene (Isopropylbenzene)	<0.20	<0.59	<1.00	<0.81	<0.84	<0.016
Dibromochloromethane	<0.20	<1.00	<1.70	<1.37	<1.42	<0.028
Dichlorodifluoromethane	<0.56	<1.65	<2.80	<2.26	<2.34	<0.046
1,2-Dichloroethane	<0.20	<0.48	<0.81	<0.65	<0.68	<0.013
trans,1,2-Dichloroethene	<0.20	<0.47	<0.79	<0.64	<0.66	<0.013
1,1-Dichloroethene	<0.20	<0.47	<0.79	<0.64	<0.66	<0.013
1,2-Dichloropropane	<0.20	<0.53	<0.90	<0.73	<0.75	<0.015
Ethylbenzene	0.18	0.46	0.78	0.63	0.65	0.013
Ethylene Dibromide	<0.20	<0.89	<1.50	<1.21	<1.25	<0.024
Mesitylene (1,3,5-Trimethylbenzene)	0.95	2.78	4.70	3.79	3.93	0.077
Methylene Chloride	<0.20	<0.41	<0.69	<0.56	<0.58	<0.011
Styrene	<0.20	<0.50	<0.85	<0.69	<0.71	<0.014
Tetrachloroethene	1.87	7.50	12.7	10.2	10.6	0.207
Toluene	0.46	1.02	1.73	1.40	1.45	0.028
1,1,1-Trichloroethane	<0.20	<0.65	<1.10	<0.89	<0.92	<0.018
Trichloroethene/1,1,2-Trichloroethene	<0.20	<0.65	<1.10	<0.89	<0.92	<0.018
Trichlorotrifluoroethane	<0.20	<0.89	<1.50	<1.21	<1.25	<0.024
Trichlorofluoromethane	0.22	0.71	1.20	0.97	1.00	0.020
M&P-Xylene	0.76	1.95	3.30	2.66	2.76	0.054
O-Xylene	0.40	1.03	1.74	1.40	1.45	0.028
Vinyl Chloride	<0.20	<0.30	<0.51	<0.41	<0.43	<0.0083
Total	<14.9	<37.3	<63.1	<50.9	<52.7	<1.03

Actual Flowrate (m ³ /s) :	27.6
Dry Reference Flowrate (Rm ³ /s*) :	16.3
Dry Adjusted Flowrate (Rm ³ /s**) :	20.2
Wet Reference Flowrate (Rm ³ /s*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 2

Compound	Total Collected ppb	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^{3**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Emission Rate mg/s
Acetone	20.4	28.6	48.4	39.1	40.5	0.79
Benzene	0.59	1.11	1.88	1.52	1.57	0.031
Bromodichloromethane	<0.20	<0.77	<1.30	<1.05	<1.09	<0.021
Bromoform	<0.20	<1.24	<2.10	<1.69	<1.76	<0.034
Bromomethane	0.51	1.17	1.98	1.60	1.66	0.032
1,3-Butadiene	<0.20	<0.26	<0.44	<0.36	<0.37	<0.0072
2-Butanone	1.51	2.63	4.45	3.59	3.72	0.073
Carbon Tetrachloride	<0.20	<0.74	<1.26	<1.02	<1.05	<0.021
Chloroform	0.21	0.60	1.02	0.82	0.85	0.017
Cumene (Isopropylbenzene)	<0.20	<0.59	<1.00	<0.81	<0.84	<0.016
Dibromochloromethane	<0.20	<1.00	<1.70	<1.37	<1.42	<0.028
Dichlorodifluoromethane	<0.20	<0.59	<1.00	<0.81	<0.84	<0.016
1,2-Dichloroethane	<0.20	<0.48	<0.81	<0.65	<0.68	<0.013
trans,1,2-Dichloroethene	<0.20	<0.47	<0.79	<0.64	<0.66	<0.013
1,1-Dichloroethene	<0.20	<0.47	<0.79	<0.64	<0.66	<0.013
1,2-Dichloropropane	<0.20	<0.53	<0.90	<0.73	<0.75	<0.015
Ethylbenzene	0.11	0.28	0.48	0.39	0.40	0.0078
Ethylene Dibromide	<0.20	<0.89	<1.50	<1.21	<1.25	<0.024
Mesitylene (1,3,5-Trimethylbenzene)	<0.20	<0.59	<1.00	<0.81	<0.84	<0.016
Methylene Chloride	<0.20	<0.41	<0.69	<0.56	<0.58	<0.011
Styrene	<0.20	<0.50	<0.85	<0.69	<0.71	<0.014
Tetrachloroethene	<0.20	<0.83	<1.40	<1.13	<1.17	<0.023
Toluene	1.04	2.32	3.92	3.16	3.28	0.064
1,1,1-Trichloroethane	<0.20	<0.65	<1.10	<0.89	<0.92	<0.018
Trichloroethene/1,1,2-Trichloroethene	<0.20	<0.65	<1.10	<0.89	<0.92	<0.018
Trichlorotrifluoroethane	<0.20	<0.89	<1.50	<1.21	<1.25	<0.024
Trichlorofluoromethane	<0.20	<0.65	<1.10	<0.89	<0.92	<0.018
M&P-Xylene	0.23	0.59	1.00	0.81	0.84	0.016
O-Xylene	<0.10	<0.25	<0.43	<0.35	<0.36	<0.0070
Vinyl Chloride	<0.20	<0.30	<0.51	<0.41	<0.43	<0.0083
Total	<28.9	<51.0	<86.4	<69.7	<72.2	<1.41

Actual Flowrate (m^3/s) :	27.6
Dry Reference Flowrate (Rm^3/s^*) :	16.3
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	20.2
Wet Reference Flowrate (Rm^3/s^*) :	19.5

* 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
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Volatile Organic Emission Data
Test No. 3

Compound	Total Collected ppb	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3^{**}$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3^*$	Emission Rate mg/s
Acetone	7.50	10.6	17.8	14.8	14.9	0.29
Benzene	0.61	1.16	1.95	1.63	1.63	0.032
Bromodichloromethane	<0.20	<0.77	<1.30	<1.08	<1.09	<0.021
Bromoform	<0.20	<1.25	<2.10	<1.75	<1.76	<0.035
Bromomethane	0.48	1.10	1.86	1.55	1.56	0.031
1,3-Butadiene	<0.20	<0.26	<0.44	<0.37	<0.37	<0.0073
2-Butanone	1.01	1.77	2.98	2.48	2.50	0.049
Carbon Tetrachloride	<0.20	<0.75	<1.26	<1.05	<1.06	<0.021
Chloroform	0.22	0.64	1.07	0.89	0.90	0.018
Cumene (Isopropylbenzene)	<0.20	<0.59	<1.00	<0.83	<0.84	<0.017
Dibromochloromethane	<0.20	<1.01	<1.70	<1.42	<1.42	<0.028
Dichlorodifluoromethane	<0.20	<0.59	<1.00	<0.83	<0.84	<0.017
1,2-Dichloroethane	<0.20	<0.48	<0.81	<0.68	<0.68	<0.013
trans,1,2-Dichloroethene	<0.20	<0.47	<0.79	<0.66	<0.66	<0.013
1,1-Dichloroethene	<0.20	<0.47	<0.79	<0.66	<0.66	<0.013
1,2-Dichloropropane	<0.20	<0.53	<0.90	<0.75	<0.75	<0.015
Ethylbenzene	<0.20	<0.26	<0.43	<0.36	<0.36	<0.0071
Ethylene Dibromide	<0.20	<0.89	<1.50	<1.25	<1.26	<0.025
Mesitylene (1,3,5-Trimethylbenzene)	<0.20	<0.59	<1.00	<0.83	<0.84	<0.017
Methylene Chloride	<0.20	<0.41	<0.69	<0.58	<0.58	<0.011
Styrene	<0.20	<0.50	<0.85	<0.71	<0.71	<0.014
Tetrachloroethene	<0.20	<0.83	<1.40	<1.17	<1.17	<0.023
Toluene	0.92	2.06	3.47	2.89	2.91	0.057
1,1,1-Trichloroethane	<0.20	<0.65	<1.10	<0.92	<0.92	<0.018
Trichloroethene/1,1,2-Trichloroethene	<0.20	<0.65	<1.10	<0.92	<0.92	<0.018
Trichlorotrifluoroethane	<0.20	<0.89	<1.50	<1.25	<1.26	<0.025
Trichlorofluoromethane	<0.20	<0.65	<1.10	<0.92	<0.92	<0.018
M&P-Xylene	<0.20	<0.52	<0.87	<0.73	<0.73	<0.014
O-Xylene	<0.10	<0.26	<0.43	<0.36	<0.36	<0.0071
Vinyl Chloride	<0.20	<0.30	<0.51	<0.43	<0.43	<0.0084
Total	<15.4	<31.9	<53.7	<44.8	<45.0	<0.89

Actual Flowrate (m^3/s) :	27.8
Dry Reference Flowrate (Rm^3/s^*) :	16.5
Dry Adjusted Flowrate ($\text{Rm}^3/\text{s}^{**}$) :	19.8
Wet Reference Flowrate (Rm^3/s^*) :	19.7

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

TABLE 85
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Volatile Organic Actual Concentrations

Compound	Actual Concentration			Average	Coefficient of Variation
	Test No. 1	Test No. 2	Test No. 3		
	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	%
Acetone	7.32	28.6	10.6	15.5	73.9
Benzene	0.30	1.11	1.16	0.86	56.2
Bromodichloromethane	<0.77	<0.77	<0.77	<0.77	0.3
Bromoform	<1.24	<1.24	<1.25	<1.24	0.3
Bromomethane	<0.46	1.17	1.10	<0.91	43.0
1,3-Butadiene	<0.26	<0.26	<0.26	<0.26	0.3
2-Butanone	0.66	2.63	1.77	1.69	58.5
Carbon Tetrachloride	<0.74	<0.74	<0.75	<0.75	0.3
Chloroform	<0.58	0.60	0.64	<0.61	4.7
Cumene (Isopropylbenzene)	<0.59	<0.59	<0.59	<0.59	0.3
Dibromochloromethane	<1.00	<1.00	<1.01	<1.01	0.3
Dichlorodifluoromethane	<1.65	<0.59	<0.59	<0.95	64.8
1,2-Dichloroethane	<0.48	<0.48	<0.48	<0.48	0.3
trans,1,2-Dichloroethene	<0.47	<0.47	<0.47	<0.47	0.3
1,1-Dichloroethene	<0.47	<0.47	<0.47	<0.47	0.3
1,2-Dichloropropane	<0.53	<0.53	<0.53	<0.53	0.3
Ethylbenzene	0.46	0.28	<0.26	<0.33	33.4
Ethylene Dibromide	<0.89	<0.89	<0.89	<0.89	0.3
Mesitylene (1,3,5-Trimethylbenzene)	2.78	<0.59	<0.59	<1.32	95.5
Methylene Chloride	<0.41	<0.41	<0.41	<0.41	0.3
Styrene	<0.50	<0.50	<0.50	<0.50	0.3
Tetrachloroethene	7.50	<0.83	<0.83	<3.05	126
Toluene	1.02	2.32	2.06	1.80	38.1
1,1,1-Trichloroethane	<0.65	<0.65	<0.65	<0.65	0.3
Trichloroethene/1,1,2-Trichloroethene	<0.65	<0.65	<0.65	<0.65	0.3
Trichlorotrifluoroethane	<0.89	<0.89	<0.89	<0.89	0.3
Trichlorofluoromethane	0.71	<0.65	<0.65	<0.67	5.0
M&P-Xylene	1.95	0.59	<0.52	<1.02	79.2
O-Xylene	1.03	<0.25	<0.26	<0.51	87.1
Vinyl Chloride	<0.30	<0.30	<0.30	<0.30	0.3
Total	<37.3	<51.0	<31.9	<40.1	24.7

TABLE 86
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 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	12.4	48.4	17.8	26.2	74.1
Benzene	0.51	1.88	1.95	1.45	56.1
Bromodichloromethane	<1.30	<1.30	<1.30	<1.30	0.0
Bromoform	<2.10	<2.10	<2.10	<2.10	0.0
Bromomethane	<0.78	1.98	1.86	<1.54	42.9
1,3-Butadiene	<0.44	<0.44	<0.44	<0.44	0.0
2-Butanone	1.12	4.45	2.98	2.85	58.6
Carbon Tetrachloride	<1.26	<1.26	<1.26	<1.26	0.0
Chloroform	<0.98	1.02	1.07	<1.02	4.4
Cumene (Isopropylbenzene)	<1.00	<1.00	<1.00	<1.00	0.0
Dibromochloromethane	<1.70	<1.70	<1.70	<1.70	0.0
Dichlorodifluoromethane	<2.80	<1.00	<1.00	<1.60	65.0
1,2-Dichloroethane	<0.81	<0.81	<0.81	<0.81	0.0
trans,1,2-Dichloroethene	<0.79	<0.79	<0.79	<0.79	0.0
1,1-Dichloroethene	<0.79	<0.79	<0.79	<0.79	0.0
1,2-Dichloropropane	<0.90	<0.90	<0.90	<0.90	0.0
Ethylbenzene	0.78	0.48	<0.43	<0.56	33.6
Ethylene Dibromide	<1.50	<1.50	<1.50	<1.50	0.0
Mesitylene (1,3,5-Trimethylbenzene)	4.70	<1.00	<1.00	<2.23	95.7
Methylene Chloride	<0.69	<0.69	<0.69	<0.69	0.0
Styrene	<0.85	<0.85	<0.85	<0.85	0.0
Tetrachloroethene	12.7	<1.40	<1.40	<5.17	126
Toluene	1.73	3.92	3.47	3.04	38.0
1,1,1-Trichloroethane	<1.10	<1.10	<1.10	<1.10	0.0
Trichloroethene/1,1,2-Trichloroethene	<1.10	<1.10	<1.10	<1.10	0.0
Trichlorotrifluoroethane	<1.50	<1.50	<1.50	<1.50	0.0
Trichlorofluoromethane	1.20	<1.10	<1.10	<1.13	5.1
M&P-Xylene	3.30	1.00	<0.87	<1.72	79.3
O-Xylene	1.74	<0.43	<0.43	<0.87	87.3
Vinyl Chloride	<0.51	<0.51	<0.51	<0.51	0.0
Total	<63.1	<86.4	<53.7	<67.7	24.9

* At 25°C and 1 atmosphere

TABLE 87
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 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	10.0	39.1	14.8	21.3	73.1
Benzene	0.41	1.52	1.63	1.18	56.7
Bromodichloromethane	<1.05	<1.05	<1.08	<1.06	1.9
Bromoform	<1.69	<1.69	<1.75	<1.71	1.9
Bromomethane	<0.63	1.60	1.55	<1.26	43.4
1,3-Butadiene	<0.36	<0.36	<0.37	<0.36	1.9
2-Butanone	0.90	3.59	2.48	2.33	58.1
Carbon Tetrachloride	<1.02	<1.02	<1.05	<1.03	1.9
Chloroform	<0.79	0.82	0.89	<0.84	6.2
Cumene (Isopropylbenzene)	<0.81	<0.81	<0.83	<0.82	1.9
Dibromochloromethane	<1.37	<1.37	<1.42	<1.39	1.9
Dichlorodifluoromethane	<2.26	<0.81	<0.83	<1.30	63.9
1,2-Dichloroethane	<0.65	<0.65	<0.68	<0.66	1.9
trans,1,2-Dichloroethene	<0.64	<0.64	<0.66	<0.64	1.9
1,1-Dichloroethene	<0.64	<0.64	<0.66	<0.64	1.9
1,2-Dichloropropane	<0.73	<0.73	<0.75	<0.73	1.9
Ethylbenzene	0.63	0.39	<0.36	<0.46	32.5
Ethylene Dibromide	<1.21	<1.21	<1.25	<1.22	1.9
Mesitylene (1,3,5-Trimethylbenzene)	3.79	<0.81	<0.83	<1.81	94.8
Methylene Chloride	<0.56	<0.56	<0.58	<0.56	1.9
Styrene	<0.69	<0.69	<0.71	<0.69	1.9
Tetrachloroethene	10.2	<1.13	<1.17	<4.18	126
Toluene	1.40	3.16	2.89	2.48	38.3
1,1,1-Trichloroethane	<0.89	<0.89	<0.92	<0.90	1.9
Trichloroethene/1,1,2-Trichloroethene	<0.89	<0.89	<0.92	<0.90	1.9
Trichlorotrifluoroethane	<1.21	<1.21	<1.25	<1.22	1.9
Trichlorofluoromethane	0.97	<0.89	<0.92	<0.92	4.4
M&P-Xylene	2.66	0.81	<0.73	<1.40	78.4
O-Xylene	1.40	<0.35	<0.36	<0.70	86.3
Vinyl Chloride	<0.41	<0.41	<0.43	<0.42	1.9
Total	<50.9	<69.7	<44.8	<55.1	23.6

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

TABLE 88
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Volatile Organic Wet Reference Concentrations

Compound	Wet Reference Concentration				Coefficient of Variation
	Test No. 1 $\mu\text{g}/\text{Rm}^3^*$	Test No. 2 $\mu\text{g}/\text{Rm}^3^*$	Test No. 3 $\mu\text{g}/\text{Rm}^3^*$	Average $\mu\text{g}/\text{Rm}^3^*$	
Acetone	10.4	40.5	14.9	21.9	74.0
Benzene	0.43	1.57	1.63	1.21	56.2
Bromodichloromethane	<1.09	<1.09	<1.09	<1.09	0.1
Bromoform	<1.76	<1.76	<1.76	<1.76	0.1
Bromomethane	<0.65	1.66	1.56	<1.29	42.9
1,3-Butadiene	<0.37	<0.37	<0.37	<0.37	0.1
2-Butanone	0.94	3.72	2.50	2.38	58.5
Carbon Tetrachloride	<1.05	<1.05	<1.06	<1.05	0.1
Chloroform	<0.82	0.85	0.90	<0.86	4.5
Cumene (Isopropylbenzene)	<0.84	<0.84	<0.84	<0.84	0.1
Dibromochloromethane	<1.42	<1.42	<1.42	<1.42	0.1
Dichlorodifluoromethane	<2.34	<0.84	<0.84	<1.34	64.9
1,2-Dichloroethane	<0.68	<0.68	<0.68	<0.68	0.1
trans,1,2-Dichloroethene	<0.66	<0.66	<0.66	<0.66	0.1
1,1-Dichloroethene	<0.66	<0.66	<0.66	<0.66	0.1
1,2-Dichloropropane	<0.75	<0.75	<0.75	<0.75	0.1
Ethylbenzene	0.65	0.40	<0.36	<0.47	33.5
Ethylene Dibromide	<1.25	<1.25	<1.26	<1.25	0.1
Mesitylene (1,3,5-Trimethylbenzene)	3.93	<0.84	<0.84	<1.87	95.6
Methylene Chloride	<0.58	<0.58	<0.58	<0.58	0.1
Styrene	<0.71	<0.71	<0.71	<0.71	0.1
Tetrachloroethene	10.6	<1.17	<1.17	<4.32	126
Toluene	1.45	3.28	2.91	2.54	38.1
1,1,1-Trichloroethane	<0.92	<0.92	<0.92	<0.92	0.1
Trichloroethene/1,1,2-Trichloroethene	<0.92	<0.92	<0.92	<0.92	0.1
Trichlorotrifluoroethane	<1.25	<1.25	<1.26	<1.25	0.1
Trichlorofluoromethane	1.00	<0.92	<0.92	<0.95	5.0
M&P-Xylene	2.76	0.84	<0.73	<1.44	79.3
O-Xylene	1.45	<0.36	<0.36	<0.72	87.2
Vinyl Chloride	<0.43	<0.43	<0.43	<0.43	0.1
Total	<52.7	<72.2	<45.0	<56.6	24.8

* At 25°C and 1 atmosphere

TABLE 89
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Volatile Organic Emission Rates

Compound	Emission Rate			Average mg/s	Coefficient of Variation %
	Test No. 1 mg/s	Test No. 2 mg/s	Test No. 3 mg/s		
Acetone	0.20	0.79	0.29	0.43	73.7
Benzene	0.0083	0.031	0.032	0.024	56.3
Bromodichloromethane	<0.021	<0.021	<0.021	<0.021	0.7
Bromoform	<0.034	<0.034	<0.035	<0.034	0.7
Bromomethane	<0.013	0.032	0.031	<0.025	43.1
1,3-Butadiene	<0.0072	<0.0072	<0.0073	<0.0072	0.7
2-Butanone	0.018	0.073	0.049	0.047	58.4
Carbon Tetrachloride	<0.021	<0.021	<0.021	<0.021	0.7
Chloroform	<0.016	0.017	0.018	<0.017	5.1
Cumene (Isopropylbenzene)	<0.016	<0.016	<0.017	<0.016	0.7
Dibromochloromethane	<0.028	<0.028	<0.028	<0.028	0.7
Dichlorodifluoromethane	<0.046	<0.016	<0.017	<0.026	64.6
1,2-Dichloroethane	<0.013	<0.013	<0.013	<0.013	0.7
trans,1,2-Dichloroethene	<0.013	<0.013	<0.013	<0.013	0.7
1,1-Dichloroethene	<0.013	<0.013	<0.013	<0.013	0.7
1,2-Dichloropropane	<0.015	<0.015	<0.015	<0.015	0.7
Ethylbenzene	0.013	0.0078	<0.0071	<0.0092	33.2
Ethylene Dibromide	<0.024	<0.024	<0.025	<0.025	0.7
Mesitylene (1,3,5-Trimethylbenzene)	0.077	<0.016	<0.017	<0.036	95.3
Methylene Chloride	<0.011	<0.011	<0.011	<0.011	0.7
Styrene	<0.014	<0.014	<0.014	<0.014	0.7
Tetrachloroethene	0.207	<0.023	<0.023	<0.084	126
Toluene	0.028	0.064	0.057	0.050	38.1
1,1,1-Trichloroethane	<0.018	<0.018	<0.018	<0.018	0.7
Trichloroethene/1,1,2-Trichloroethene	<0.018	<0.018	<0.018	<0.018	0.7
Trichlorotrifluoroethane	<0.024	<0.024	<0.025	<0.025	0.7
Trichlorofluoromethane	0.020	<0.018	<0.018	<0.019	4.8
M&P-Xylene	0.054	0.016	<0.014	<0.028	79.0
O-Xylene	0.028	<0.0070	<0.0071	<0.014	86.9
Vinyl Chloride	<0.0083	<0.0083	<0.0084	<0.0083	0.7
Total	<1.03	<1.41	<0.89	<1.11	24.4

TABLE 90
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Summary of Volatile Organic Emission Data

Compound	Actual Concentration $\mu\text{g}/\text{m}^3$	Dry Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Dry Adjusted Concentration $\mu\text{g}/\text{Rm}^3*$	Wet Reference Concentration $\mu\text{g}/\text{Rm}^3*$	Emission Rate mg/s
Acetone	15.5	26.2	21.3	21.9	0.43
Benzene	0.86	1.45	1.18	1.21	0.024
Bromodichloromethane	<0.77	<1.30	<1.06	<1.09	<0.021
Bromoform	<1.24	<2.10	<1.71	<1.76	<0.034
Bromomethane	<0.91	<1.54	<1.26	<1.29	<0.025
1,3-Butadiene	<0.26	<0.44	<0.36	<0.37	<0.0072
2-Butanone	1.69	2.85	2.33	2.38	0.047
Carbon Tetrachloride	<0.75	<1.26	<1.03	<1.05	<0.021
Chloroform	<0.61	<1.02	<0.84	<0.86	<0.017
Cumene (Isopropylbenzene)	<0.59	<1.00	<0.82	<0.84	<0.016
Dibromochloromethane	<1.01	<1.70	<1.39	<1.42	<0.028
Dichlorodifluoromethane	<0.95	<1.60	<1.30	<1.34	<0.026
1,2-Dichloroethane	<0.48	<0.81	<0.66	<0.68	<0.013
trans,1,2-Dichloroethene	<0.47	<0.79	<0.64	<0.66	<0.013
1,1-Dichloroethene	<0.47	<0.79	<0.64	<0.66	<0.013
1,2-Dichloropropane	<0.53	<0.90	<0.73	<0.75	<0.015
Ethylbenzene	<0.33	<0.56	<0.46	<0.47	<0.0092
Ethylene Dibromide	<0.89	<1.50	<1.22	<1.25	<0.025
Mesitylene (1,3,5-Trimethylbenzene)	<1.32	<2.23	<1.81	<1.87	<0.036
Methylene Chloride	<0.41	<0.69	<0.56	<0.58	<0.011
Styrene	<0.50	<0.85	<0.69	<0.71	<0.014
Tetrachloroethene	<3.05	<5.17	<4.18	<4.32	<0.084
Toluene	1.80	3.04	2.48	2.54	0.050
1,1,1-Trichloroethane	<0.65	<1.10	<0.90	<0.92	<0.018
Trichloroethene/1,1,2-Trichloroethene	<0.65	<1.10	<0.90	<0.92	<0.018
Trichlorotrifluoroethane	<0.89	<1.50	<1.22	<1.25	<0.025
Trichlorofluoromethane	<0.67	<1.13	<0.92	<0.95	<0.019
M&P-Xylene	<1.02	<1.72	<1.40	<1.44	<0.028
O-Xylene	<0.51	<0.87	<0.70	<0.72	<0.014
Vinyl Chloride	<0.30	<0.51	<0.42	<0.43	<0.0083
Total	<40.1	<67.7	<55.1	<56.6	<1.11

* At 25°C and 1 atmosphere

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

TABLE 91
Reworld Durham York Renewable Energy L.P.
Boiler No. 2 BH Outlet
Blank Volatile Organic Analyses

Compound	Field Blank ppb
Acetone	29.2
Benzene	<0.10
Bromodichloromethane	<0.20
Bromoform	<0.20
Bromomethane	<0.20
1,3-Butadiene	<0.20
2-Butanone	<0.20
Carbon Tetrachloride	<0.20
Chloroform	<0.20
Cumene (Isopropylbenzene)	<0.20
Dibromochloromethane	<0.20
Dichlorodifluoromethane	<0.20
1,2-Dichloroethane	<0.20
trans,1,2-Dichloroethene	<0.20
1,1-Dichloroethene	<0.20
1,2-Dichloropropane	<0.20
Ethylbenzene	<0.10
Ethylene Dibromide	<0.20
Mesitylene (1,3,5-Trimethylbenzene)	<0.20
Methylene Chloride	<0.20
Styrene	<0.20
Tetrachloroethene	<0.20
Toluene	0.31
1,1,1-Trichloroethane	<0.20
Trichloroethene/1,1,2-Trichloroethene	<0.20
Trichlorotrifluoroethane	<0.20
Trichlorofluoromethane	<0.20
M&P-Xylene	<0.20
O-Xylene	<0.10
Vinyl Chloride	<0.20
Total	<29.5

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
(108 pages)**

Via email: christopher.belore@alliancetg.com

TSS File No.: CR:SA: 110366:25

2025/04/29

Chris Belore
Alliance Technical Group

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 (Project AST-2025-2049), dated April 24, 2025, 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 testing program is the same as previous years apart from the sampling and analysis method for VOCs.

Sources to be tested:

- Baghouse outlet Boiler #1
- Baghouse outlet Boiler #2

Target contaminants:

- Total Suspended Particulate Matter (TSP)
 - o Particulate size distribution
- Metals
- Semi-Volatile Organic Compounds (SVOC)
- Volatile Organic Compounds (VOCs)
- Halides and Ammonia
 - o Hydrogen Chloride (HCl)
 - o Hydrogen Fluoride (HF)
- Aldehydes

- Nitrogen Oxides (NO_x)
- Sulphur Dioxide (SO₂)
- Carbon Monoxide (CO)
- Total Hydrocarbons (THC)

Reference methods to be used:

Stack gas parameters	Ontario Source Testing Code (OSTC) Methods ON-1-ON-4
TSP	OSTC Method ON-5
PM ₁₀ & PM _{2.5}	US EPA Method 201A and 202
Metals	US EPA Method 29
SVOC	Environment Canada EPS/1/RM/2
VOCs	US EPA Method TO-15
Aldehydes	NCASI Method A105.01
Halides and Ammonia	US EPA Method 26A
THC	US EPA Method 25A
O ₂ and CO ₂	Facility CEMs
CO	Facility CEMs
NO _x	Facility CEMs
SO ₂	Facility CEMs

Testing strategy:

Triplicate testing will be conducted for each group of contaminants at the maximum load achievable at the time of testing.

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

Process conditions:

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.

During the source testing campaign, DYEC will be responsible for collecting, compiling, and reporting relevant process parameters pertaining to facility operations. Recorded data will include, but not be limited to:

- Total Power Output (MWh/d)
- Auxiliary Fuel Combusted (m³/d)
- Average Combustion Zone Temperature (°C)

- Steam (tonnes/d)
- MSW Combusted (tonnes/d)
- NO_x Reagent Injection Rate (liters/d)
- Carbon Injection Rate (kg/d)
- Lime Injection Rate (kg/d)

Our review indicates the pre-test plan is approved.

We have noted the sampling program to commence the week of May 12, 2025. 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: S. Kaur- Environment Specialist (skaur2@reworldwaste.com)
R. Kohler Jr.- Environmental Engineer (rkohler@reworldwaste.com)
A. Evans- Director, Waste Management (andrew.evans@durham.ca)
N. Victor- Reworld Waste (nvictor@reworldwaste.com)
N. Williams- Durham Region (nicia.williams@durham.ca)
L. Saha- Durham Region (Lipika.saha@durham.ca)
M. Farid – York Region (muneeb.farid@york.ca)
C. Dugas – Manager, MECP York-Durham D.O. (celeste.dugas@ontario.ca)
J. Butchart – Issues Project Coordinator, MECP York-Durham D.O. (jeff.butchart@ontario.ca)
D. Keene- ECO MECP York-Durham D.O (david.keene@ontario.ca)
J. McKerrall –TSS (jeffrey.mckerrall@ontario.ca)
B. Fullerton- TSS (bill.fullerton@ontario.ca)

File AQ-02 (Durham-York Energy Centre)

Doc.Mgmt # 5AI040046



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 than 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 ($^{\circ}\text{C}$) 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 odorous 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:

$$X_{10min} = X_{60min} * 1.65$$

where X_{10min} = 10-minute average concentration
 X_{60min} = 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)	2-monochlorophenol (2-MCP)
1,2-Dichlorobenzene (1,2-DCB)	3-monochlorophenol (3-MCP)
1,3-Dichlorobenzene (1,3-DCB)	4-monochlorophenol (4-MCP)
1,4-Dichlorobenzene (1,4-DCB)	2,3-dichlorophenol (2,3-DCP)
1,2,3-Trichlorobenzene (1,2,3-TCB)	2,4-dichlorophenol (2,4-DCP)
1,2,4-Trichlorobenzene (1,2,4-TCB)	2,5-dichlorophenol (2,5-DCP)
1,3,5-Trichlorobenzene (1,3,5-TCB)	2,6-dichlorophenol (2,6-DCP)
1,2,3,4-Tetrachlorobenzene (1,2,3,4-TeCB)	3,4-dichlorophenol (3,4-DCP)
1,2,3,5-Tetrachlorobenzene (1,2,3,5-TeCB)	3,5-dichlorophenol (3,5-DCP)
1,2,4,5-Tetrachlorobenzene (1,2,4,5-TeCB)	2,3,4-trichlorophenol (2,3,4-T3CP)
Pentachlorobenzene (PeCB)	2,3,5-trichlorophenol (2,3,5-T3CP)
Hexachlorobenzene (HxCB)	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) PCB-081 (3,4,4',5-TCB) PCB-105 (2,3,3',4,4'-PeCB) PCB-114 (2,3,4,4',5-PeCB) PCB-118 (2,3',4,4',5-PeCB) PCB-123 (2',3,4,4',5-PeCB) PCB-126 (3,3',4,4',5-PeCB) PCB-156 (2,3,3',4,4',5-HxCB) PCB-157 (2,3,3',4,4',5-HxCB) PCB-167 (2,3',4,4',5,5'-HxCB) PCB-169 (3,3',4,4',5,5'-HxCB) PCB-189 (2,3,3',4,4',5,5'-HpCB)	Acetaldehyde Acetone Acrolein Benzene Bromodichloromethane Bromoform Bromomethane Butadiene, 1,3 - Butanone, 2 - Carbon Tetrachloride Chloroform 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 Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)fluorene Benzo(b)fluorene Benzo(ghi)perylene Benzo(a)pyrene Benzo(e)pyrene Biphenyl 2-Chloronaphthalene Chrysene Coronene Dibenzo(a,c)anthracene Dibenzo(a,h)anthracene Dibenzo(a,e)pyrene 9,10-Dimethylanthracene 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	2,3,7,8-Tetrachlorodibenzo-p-dioxin 1,2,3,7,8-Pentachlorodibenzo-p-dioxin 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin 2,3,7,8-Tetrachlorodibenzofuran 2,3,4,7,8-Pentachlorodibenzofuran 1,2,3,7,8-Pentachlorodibenzofuran 1,2,3,4,7,8-Hexachlorodibenzofuran 1,2,3,6,7,8-Hexachlorodibenzofuran 1,2,3,7,8,9-Hexachlorodibenzofuran 2,3,4,6,7,8-Hexachlorodibenzofuran 1,2,3,4,6,7,8-Heptachlorodibenzofuran 1,2,3,4,7,8,9-Heptachlorodibenzofuran 1,2,3,4,6,7,8,9-Octachlorodibenzofuran

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

1. Range (parts per million, ppm):
2. Calibration Gas Ports:

SPECIFICATION

0 to ≥ 100 ppm
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 m³ at elevation 95.0 m masl, an active storage capacity of 3,099 m³ at 96.70 m masl elevation, and total storage capacity of 4,107 m³, 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 m³ at elevation 95.0 m masl, an active storage capacity of 2,054 m³ at 96.50 m masl elevation, and total storage capacity of 2,677 m³, 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



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 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



Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 7306-8FDKNX

Notice No. 2

Issue Date: October 24, 2014

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

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

and

TransRiver Canada Incorporated, as general partner for and on behalf of Covanta
Durham York Renewable Energy Limited Partnership
445 South St
Morristown, New Jersey
USA 07960

Site Location: Durham York Energy Centre
1835 Energy Drive
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

You are hereby notified that I have amended Approval No. 7306-8FDKNX issued on June 28, 2011 for Waste Disposal Site (Incineration), complete with an Energy from Waste Facility and associated equipment , as follows:

1. The address of the Site has been changed to read as follows:

Durham York Energy Centre
1835 Energy Drive
Clarington Municipality, Regional Municipality of Durham
L1E 2R2

2. The following definitions have been added:

" **Operator** " means any person other than the Regions' employees, authorized by the Regions as having the charge, management or control of any aspect of the Site and includes TransRiver Canada Incorporated, as general partner for and on behalf of Covanta Durham York Renewable Energy Limited Partnership, the partnership under the laws of Nova Scotia more particularly described in the October 6, 2014 letter from Joanna Rosengarten to the Ministry of Environment and Climate Change, and includes its successors and assignees, their successors and assignees;

" **Regions** " means any person that is responsible for the establishment or operation of the Site being approved by this Approval, and it includes The Regional Municipality of Durham and The Regional Municipality of York, their successors and assignees;

2. The following definition has been amended to read as follows:

" **Site** " means the property referred to as Durham York Energy Centre where the Owner has located and operates the Facility and the Works and located at 1835 Energy Drive in the Municipality of Clarington, Regional Municipality of Durham;

" **Owner** " within the context of this Approval, means the Regions and the Operator;

3. The following Conditions have been amended to read as follows:

"General: Change of Ownership" Conditions 1.(14) and 1.(15):

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

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

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

"Service Area, Approved Waste Types, Rates And Storage: Storage Restrictions" Condition 2.(5)(e):

2.(5)(e) (i) A maximum of 630 tonnes of the Residual Waste, limited to the bottom ash shall be stored in two (2) dedicated bunkers, located within the confines of the Residue Building, described in the Supporting Documentation.

(ii) The storage duration of bottom ash in the bunkers is limited to a maximum of seven (7) days.

(iii) Should additional storage location(s) and a longer storage duration be required during testing, a minimum of forty eight (48) hours before the storage parameters are changed from those approved in Condition 2.(5)(e)(i) and (ii), the Owner shall notify the District Manager, in writing, of the proposed changes and provide the reasons for the changes.

"Site Operations: Residual Waste Handling and Disposal" Condition 4.(5)(b)(iii):

4.(5)(b)(iii) The Owner may use the equipment that comes in contact with the hazardous wastes to handle other wastes provided that prior to such use, the equipment has been cleaned, as confirmed by visual inspections, to ensure the removal of any hazardous waste residues and to prevent cross contamination.

"Closure of the Site" Conditions 18.(1) and 18.(2):

(1) A minimum of nine (9) months prior to closure of the Site, the Regions shall submit, for approval by the Director, a written Closure Plan for the Site. This Plan shall include, as a minimum, a description of the work that will be done to facilitate closure of the Site and a schedule for completion of that work.

(2) Within ten (10) days after closure of the Site, the Regions shall notify the Director and the District Manager, in writing, that the Site is closed and that the approved Closure Plan has been implemented.

4. "Covanta Durham York Renewable Energy Limited Partnership" is replaced with "TransRiver Canada Incorporated, as general partner for and on behalf of Covanta Durham York Renewable Energy Limited Partnership, the partnership under the laws of Nova Scotia more particularly described in the October 6, 2014 letter from Joanna Rosengarten to the Ministry of Environment and Climate Change and includes its successors and assignees", in the Environmental Compliance Approval dated June 28, 2011 and in the Notice of Amendment dated August 12, 2014.

5. The following documents are added to Schedule "A":

8. Application for Environmental Compliance Approval Application dated May 23, 2014, signed by Matthew R. Mulcahy, Covanta Durham York Renewable Energy Limited Partnership, Application for Environmental Compliance Approval Application dated May 23, 2014, signed by Cliff Curtis, The Regional Municipality of Durham and Application for Environmental Compliance Approval Application dated May 23, 2014, signed by Laura McDowell, The Regional Municipality of York, including the following attached supporting documentation:

(a) revised Section 8.0 "Ash Handling and Associated System" and revised Section 10.0 "Potable Process and Wastewater" dated May 2014, of the document entitled "Design and Operations Report", dated March 2011, prepared by Golder Associates Ltd.

(b) Drawing No. M-2530, entitled "Piping & Instrumentation Diagram Bottom Ash Lime Slurry System"

(c) Drawing No. 70258-1-ME-GA-SK-001, entitled "Covanta Durham York Hydrated Lime System for Boiler Bottom Ash"

9. E-mail dated September 10, 2014 (2:26 p.m.) from Leon Brasowski, Covanta Durham York Renewable Energy Limited Partnership, to Margaret Wojcik, Ontario Ministry of the Environment and Climate Change, providing additional supporting documentation on the proposal, including an attachment entitled "M-1500^0360 Highlighted for MOE.pdf".

10. E-mail dated October 13, 2014 (3:23 p.m.) from Leon Brasowski, Covanta Durham York Renewable Energy Limited Partnership, to Ricki Allum, Ontario Ministry of the Environment and Climate Change, providing additional supporting documentation on the legal name of the applicant,

including an attachment entitled "Partnership Legal Clarification.pdf".

The reasons for this amendment to the Approval are as follows:

to approve the proposed Bottom Ash Lime Conditioning System, to correct the typographical errors in the Notice of Amendment dated August 12, 2014, to clarify the intent of the Residual Waste equipment cleaning condition and to allow different bottom ash storage conditions during testing.

This Notice shall constitute part of the approval issued under Approval No. 7306-8FDKNX dated June 28, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the
purposes of Part II.1 of the
Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor
12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 24th day of October, 2014

Tesfaye Gebrezghi, P.Eng.

Director

appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

MW/

c: District Manager, MOE York-Durham

Leon Brasowski, Covanta Energy Corporation

Content Copy Of Original



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.

Content Copy Of Original



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.

Content Copy Of Original



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 °C minimum
3. Flame Temperature: 1800 °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

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
Giuseppe 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

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
Giuseppe 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



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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
Giuseppe 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



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
Giuseppe 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)

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	Particulate/Metals
Test Date	May 12, 2025
Test Location	APC Outlet No. 1
Operator	BCP

Pitot Factor	.840
DGMCF (Y)	.983
Barometric Pressure	29.92 inHg
Static Pressure	-8.4 inH2O
Nozzle Size	.2442 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	477.6 g

Combustion Gas Concentration	
Oxygen	9.15 %
Carbon Dioxide	10.08 %
Carbon Monoxide	9.7 ppm

Reading Interval	2.5 min
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

Project No.:	AST-2025-2049
Page	1 of 5
Probe No.:	M29
Meter Box No.:	M317
Impinger Box No.:	3

Measuring Device	ID
Probe / Pitot	S10
Trendicator	
Control Box	M317
Incline Manometer	
Comb. Gas Analyzer	CEMS
Micromanometer	PM-4
Barometer	ENV.CAN.
Calipers	CAL-2

Nozzle Measurements	
1	.2440
2	.2445
3	.2440
Average:	.2442

Site Diagram

Notes:

Field Data Sheet

Date: May 17, 2025	Plant: Reworld	Test No.: 1429
Plant Location: Courtoise, Ontario		Test Location: APC Outlet No. 1

Point	Clock Time	Dry Gas Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
1	0	97.84	.77	70	280	1.7	3	255	250	60	
	2.5	98.60	.78	70	281	1.7	3	252	250	50	
	5	101.35	.82	71	284	1.8	3	250	256	48	
	7.5	103.15	.81	71	284	1.8	3	255	258	46	
	10	104.97	.80	71	284	1.75	3	250	256	45	
2	12.5	106.73	.80	71	284	1.75	3	257	251	44	
	15	108.49	.84	72	284	1.85	3	250	250	44	
	17.5	110.32	.84	72	284	1.85	3	258	251	44	
	20	112.14	.85	72	284	1.85	3	250	250	44	
	22.5	113.78	.78	73	284	1.75	3	250	256	43	
3	25	115.75	.78	73	285	1.75	3	257	257	43	
	27.5	117.51	.79	74	285	1.75	3	250	260	43	
	30	119.28	.71	74	285	1.6	3	255	258	43	
	32.5	120.98	.70	74	285	1.55	3	252	254	43	
	35	122.66	.70	75	285	1.55	3	255	250	43	
4	37.5	124.34	.64	75	286	1.4	2	253	250	43	
	40	125.94	.64	76	285	1.4	2	252	251	44	
	42.5	127.52	.63	76	286	1.45	2	256	250	44	
	45	129.11	.65	76	286	1.45	2	250	250	44	
	47.5	130.73	.64	76	287	1.45	2	250	255	44	
5	50	132.35	.62	77	286	1.4	2	257	255	44	

Traverse:	Initial Leak Check:	Final Leak Check:	cfm@	"Hg
Start Time: 9:32	Initial Leak Check: .004	Final Leak Check:	cfm@	"Hg
Finish Time:	Initial Leak Check:	Final Leak Check:	cfm@	"Hg

Project No.: AST-2025-2049

Operator: RCP

Field Data Sheet

Date: <u>May 17, 2025</u>	Plant: <u>Reworld</u>	Test No.: <u>1429</u>
Plant Location: <u>Courtice, Ontario</u>	Test Location: <u>APC Outlet No. 1</u>	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
8	52.5	133.97	.62	77	286	1.35	2	250	255	44	
	55	135.55	.63	77	285	1.4	2	257	258	44	
	57.5	137.12	.62	78	285	1.4	2	250	258	45	
	60	138.72	.67	78	284	1.5	3	255	257	45	
9	62.5	140.36	.70	78	283	1.6	3	250	255	45	
	65	142.08	.72	79	284	1.6	3	257	250	45	
	67.5	143.80	.68	79	283	1.5	3	250	251	45	
	70	145.47	.68	78	282	1.5	3	256	250	45	
10	72.5	147.13	.68	79	281	1.5	3	250	252	45	
	75	148.80	.65	80	281	1.45	3	257	251	45	
	77.5	150.43	.65	80	281	1.45	3	250	255	46	
	80	152.04	.64	80	281	1.45	3	254	257	46	
11	82.5	153.65	.63	80	280	1.4	3	250	257	46	
	85	155.25	.63	80	280	1.4	3	254	258	46	
	87.5	156.85	.63	81	280	1.4	3	252	254	47	
	90	158.47	.82	81	282	1.85	3	253	250	55	
12	92.5	160.84	.86	80	283	1.9	3	253	252	49	
	95	162.71	.84	81	283	1.9	3	253	260	48	
	97.5	164.57	.84	81	283	1.9	3	251	260	48	
	100	166.42	.85	81	283	1.9	3	254	259	48	
	102.5	168.28	.86	81	283	1.95	3	250	256	47	

Traverse: <u>2</u>	Initial Leak Check: <u>0.003</u> cfm@ <u>15</u> "Hg	Final Leak Check: <u>0.003</u> cfm@ <u>15</u> "Hg
Start Time: <u>11:02</u>	Initial Leak Check: <u>0.003</u> cfm@ <u>15</u> "Hg	Final Leak Check: <u>0.003</u> cfm@ <u>15</u> "Hg
Finish Time: <u>11:02</u>	Initial Leak Check: <u>0.004</u> cfm@ <u>15</u> "Hg	Final Leak Check: <u>0.004</u> cfm@ <u>15</u> "Hg

Project No.: AST-2025-2049
Operator: BCP

Field Data Sheet

Date: May 12, 2025	Plant: Reworld	Test No.: 1429
Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
3	105	170.14	.88	81	283	2	3	256	250	48	
	107.5	172.07	.86	82	284	1.95	3	250	251	48	
	110	173.94	.86	82	284	1.95	3	255	251	48	
4	112.5	175.80	.87	82	284	1.95	3	250	255	48	
	115	177.67	.89	82	285	2	3	258	260	48	
	117.5	179.58	.91	82	285	2.05	3	250	260	49	
5	120	181.52	.85	82	285	1.9	3	258	257	49	
	122.5	183.38	.86	82	285	1.95	3	250	257	49	
	125	185.25	.86	83	286	1.95	3	258	260	50	
6	127.5	187.13	.74	83	287	1.65	3	248	258	50	
	130	188.88	.76	83	287	1.7	3	257	256	50	
	132.5	190.65	.76	83	287	1.7	3	250	252	51	
7	135	192.43	.75	83	287	1.7	3	258	250	51	
	137.5	194.18	.72	83	286	1.6	3	250	250	51	
	140	195.89	.74	83	286	1.65	3	257	252	51	
8	142.5	197.62	.78	83	286	1.75	3	250	255	52	
	145	199.42	.78	83	286	1.75	3	258	254	53	
	147.5	201.22	.78	84	287	1.75	3	250	252	54	
9	150	203.01	.80	84	286	1.8	3	254	250	54	
	152.5	204.85	.80	84	286	1.85	3	251	250	53	
	155	206.70	.80	84	286	1.85	3	254	251	53	

Traverse:	Start Time:	Initial Leak Check:	Finish Time:	Final Leak Check:

Project No.: AST-2025-2049
Operator: BCP

1000

Project No.: AST-2025-2049

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.: 2	Particulate/Metals
Test Date May 12, 2024	
Test Location	APC Outlet No. 1
Operator BCP	

Pitot Factor	.846
DGMCF (Y)	.983
Barometric Pressure	29.84 "Hg
Static Pressure	-8.4 "H2O
Nozzle Size	.2442 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	461.4 g

Combustion Gas Concentration	
Oxygen	9.45 %
Carbon Dioxide	9.92 %
Carbon Monoxide	8.3 ppm

Reading Interval	2.5 min
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

Notes:

Project No.:	AST-2025-2049
Page	1 of 5
Probe No.:	428
Meter Box No.:	MB17
Impinger Box No.:	7

Measuring Device	ID
Probe / Pitot	S/O
Trendicator	
Control Box	MB17
Incline Manometer	"
Comb. Gas Analyzer	CEMS
Micromanometer	PM-4
Barometer	ENV.CAN.
Calipers	CH-2

Nozzle Measurements	
1	.2440
2	.2443
3	.2440
Average:	.2442

Site Diagram

Field Data Sheet

Date: May 12, 2025	Plant: Courtice, Ontario	Reword: Courtice, Ontario	Test No.: 2 H29
Plant Location:		Test Location: APC Outlet No. _____	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
1	0	85.54	.94	80	282	2.1	4	253	256	62	1
	2.5	27.49	.94	81	284	2.1	4	253	257	60	
	5	29.46	.92	81	284	2.1	4	250	258	58	
2	7.5	31.40	.93	80	283	2.1	4	255	253	57	
	10	33.35	.93	80	283	2.1	4	250	250	57	
	12.5	35.28	.95	80	283	2.1	4	257	250	57	
3	15	37.24	.92	80	283	2.1	4	270	251	58	
	17.5	39.22	.92	80	283	2.05	4	256	255	60	
	20	41.15	.92	80	283	2.05	4	250	256	60	
4	22.5	43.07	.86	81	283	1.95	4	258	254	58	
	25	44.97	.85	81	283	1.9	3	250	251	58	
	27.5	46.85	.83	81	282	1.85	3	257	250	58	
5	30	48.68	.78	81	282	1.75	3	250	250	60	
	32.5	50.47	.75	81	282	1.7	3	257	252	59	
	35	52.23	.75	81	281	1.7	3	251	256	59	
6	37.5	53.98	.65	82	281	1.45	3	254	254	58	
	40	55.61	.65	82	280	1.45	3	252	253	57	
	42.5	57.24	.71	82	280	1.6	3	253	251	57	
7	45	58.96	.72	82	280	1.65	3	251	253	56	
	47.5	60.69	.70	82	280	1.6	3	251	252	55	
	50	62.39	.70	82	280	1.6	3	256	251	54	

Traverse: 2	Initial Leak Check: 15	cfm@	cfm@	"Hg	"Hg
Start Time: 13:24	Final Leak Check:	cfm@	cfm@	Initial Leak Check:	Final Leak Check:
Finish Time:					

Field Data Sheet

Date: May 15, 2025 Plant: Reworld Test No.: 21129 Page 3 of 5
 Plant Location: Courtice, Ontario Test Location: APC Outlet No. 1

Point	Clock Time	Dry Gas Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
8	52.5	64.10	.73	83	278	1.65	3	250	252	53	
	55	65.85	.70	83	278	1.6	3	257	253	52	
	57.5	67.57	.70	83	278	1.6	3	250	253	51	
9	60	69.27	.70	83	278	1.6	3	258	251	50	
	62.5	70.96	.70	83	278	1.6	3	250	253	50	
	65	72.70	.67	83	278	1.55	3	258	255	50	
10	67.5	74.38	.68	84	278	1.55	3	250	254	49	
	70	76.07	.71	84	277	1.6	3	259	251	49	
11	72.5	77.79	.71	84	277	1.6	3	250	252	49	
	75	79.51	.69	84	276	1.55	3	258	253	49	
	77.5	81.22	.68	84	276	1.55	3	250	253	49	
	80	82.91	.66	84	276	1.5	3	258	253	49	
12	82.5	84.58	.65	84	276	1.5	3	250	254	49	
	85	86.23	.65	84	276	1.5	3	257	254	49	
	87.5	87.90	.66	85	276	1.5	3	248	253	49	
1	90	89.58	.80	84	282	1.8	4	260	250	58	
	92.5	92.00	.82	84	280	1.85	4	250	254	50	
	95	93.84	.83	84	277	1.9	4	256	255	49	
2	97.5	95.72	.90	85	277	2.05	4	250	254	49	
	100	97.64	.89	85	278	2.05	4	258	252	49	
	102.5	99.59	.87	85	279	1.95	4	250	252	49	

Traverse: 2 Initial Leak Check: 15.01 "Hg Initial Leak Check: check cfm@ 15 "Hg
 Start Time: 14:54 Finish Time: 15:01 Final Leak Check: 15 "Hg

Project No.: AST-2025-2049
 Operator: BCP

Field Data Sheet

Date: <u>May 12, 2025</u>	Plant: <u>2 M27</u>	Reword: <u>Courtoice, Ontario</u>
	Test Location: <u>APC Outlet No. 1</u>	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
3	105	101.49	.85	85	279	1.95	4	258	253	50	
	107.5	103.38	.85	85	280	1.95	4	250	253	50	
	110	105.27	.88	85	280	2	4	256	252	50	
	112.5	107.21	.78	85	281	1.75	4	250	254	50	
4	115	109.00	.83	85	282	1.9	4	251	252	51	
	117.5	110.86	.84	85	282	1.9	4	251	251	51	
	120	112.73	.77	85	283	1.75	4	255	252	51	
	122.5	114.53	.76	86	283	1.7	4	253	253	51	
5	125	116.32	.76	86	284	1.7	4	252	253	52	
	127.5	118.09	.67	86	284	1.5	3	254	254	52	
	130	119.74	.67	86	283	1.5	3	251	253	52	
	132.5	121.43	.68	86	283	1.55	3	255	253	52	
7	135	123.10	.76	86	283	1.7	4	252	253	53	
	137.5	124.86	.77	86	283	1.75	4	256	252	53	
	140	126.64	.79	86	283	1.8	4	250	253	53	
	142.5	128.48	.80	86	284	1.8	4	257	252	53	
8	145	130.31	.80	87	284	1.8	4	250	253	54	
	147.5	132.12	.80	87	284	1.8	4	258	254	54	
	150	133.96	.80	87	285	1.8	4	250	253	54	
	152.5	135.79	.81	87	284	1.85	4	259	252	54	
	155	137.63	.81	87	284	1.85	4	250	253	55	

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

Project No.: AST-2025-2049
Operator: BCP

Page 5 of 5

[illegible]

Project No.: AST-2025-2049
Operator: BCP

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	3
Test Date	13 May 25
Test Location	APC Outlet No. 1
Operator	

Project No.:	AST-2025-2049
Page	1 of 5
Probe No.:	
Meter Box No.:	MB 17
Impinger Box No.:	

Pitot Factor	840
DGMCF (Y)	0.983
Barometric Pressure	29.74
Static Pressure	-9.5
Nozzle Size	1.2442
Stack Diameter	54
Length	
Width	
Port length:	11

Moisture Gain	
Total	507.7
	g

Combustion Gas Concentration	
Oxygen	9.40
Carbon Dioxide	9.39
Carbon Monoxide	6.5
	ppm

Measuring Device	ID
Probe / Pitot	S10
Trendicator	MB 17
Control Box	MB 17
Incline Manometer	MB 17
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV. CAN.
Calipers	

Reading Interval	2.5 min
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other _____

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

Site Diagram

Nozzle Measurements	
1	_____
2	_____
3	_____
Average:	_____

Notes: _____

Field Data Sheet

Date: May 13 2015	Plant: Reworld	Test No.: 3	Page 2 of 5
Plant Location: Courtee, Ontario		Test Location: APC Outlet No. 1	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
1	0	77.13	.82	80	278	1.82	3	247	251	60	213
	2.5	79.07	.84	82	279	1.8	3	256	251	57	225
	5	80.88	.76	82	280	1.6	3	256	252	55	229
2	7.5	82.62	.79	82	280	1.8	3	246	252	54	231
	10	84.44	.80	82	280	1.8	3	256	252	53	232
	12.5	86.23	.73	82	280	1.7	3	245	253	52	233
3	15	88.04	.80	82	280	1.8	3	257	252	52	233
	17.5	89.85	.80	82	282	1.8	3	246	253	52	233
	20	91.70	.79	83	283	1.8	3	256	252	51	233
4	22.5	93.49	.77	83	283	1.8	3	249	253	51	233
	25	95.32	.76	83	282	1.7	3	253	252	51	232
	27.5	97.10	.76	84	283	1.7	3	249	252	50	232
5	30	98.89	.72	84	283	1.65	3	252	252	49	231
	32.5	100.64	.72	84	282	1.65	3	250	252	48	231
	35	102.41	.73	85	282	1.7	3	250	252	48	230
6	37.5	104.23	.69	85	282	1.6	3	253	252	48	231
	40	106.02	.70	85	281	1.55	3	248	252	48	229
	42.5	107.74	.69	86	281	1.55	3	255	252	47	230
7	45	109.46	.67	86	281	1.45	3	247	252	47	230
	47.5	111.12	.66	86	281	1.4	2.5	256	252	47	230
	50	112.75	.73	87	281	1.6	2.5	246	252	47	230

Traverse:	Start Time: 11:12	Initial Leak Check: cfm@ .004 "Hg	Final Leak Check: cfm@ 21 "Hg
	Finish Time:		

Project No.: AST-2025-2049
Operator:

Field Data Sheet

Date: May 13 2025	Plant: Reworld	Test No.: 3	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 ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
8	52.5	114.47	.73	87	281	1.6	2.5	258	252	47	231
	55	116.25	.70	87	281	1.5	2.5	246	254	47	231
	57.5	117.95	.73	87	281	1.6	2.5	257	253	47	231
9	60	119.61	.75	88	282	1.6	2.5	246	252	48	230
	62.5	121.36	.74	88	282	1.6	2.5	255	252	48	230
	65	123.10	.75	88	283	1.65	2.5	246	251	48	230
10	67.5	124.87	.95	89	283	2.1	3	256	252	48	230
	70	126.84	.93	89	284	2.1	3	248	253	48	232
	72.5	128.79	.93	90	284	2.1	3	254	253	48	233
11	75	130.77	.95	90	284	2.1	3	249	255	48	233
	77.5	132.73	.93	91	285	2.1	3	253	254	49	234
	80	134.70	.94	90	284	2.1	3	250	253	49	233
12	82.5	136.66	.89	91	284	1.95	3	251	253	49	233
	85	138.58	.90	91	284	1.95	3	252	252	49	232
	87.5	140.49	.89	91	284	1.95	3	250	253	50	232
1	90	142.47	.83	91	283	1.8	3	254	253	50	232
	92.5	144.65	.85	90	282	1.9	3	245	254	51	220
	95	146.56	.86	90	283	1.95	3	258	258	48	234
2	97.5	148.48	.85	91	283	1.95	3	249	256	48	237
	100	150.41	.85	91	283	1.85	3	254	252	48	236
	102.5	152.30	.85	91	283	1.85	3	248	250	49	233

Traverse:	Initial Leak Check: ~	Final Leak Check: ~	Initial Leak Check: 1004	Final Leak Check: 15
Start Time: ~	Finish Time: 16:42	Start Time: 16:48	Finish Time: ~	

Project No.: AST-2025-2049
Operator :

Field Data Sheet

Date: May 13 2015	Plant: Courtice, Ontario	Reword: Courtice, Ontario	Test No.: 3	Page 4 of 5
Plant Location:		Test Location: APC Outlet No. 1		

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
3	105	154.17	.87	91	283	1.95	3	254	249	49	232
	107.5	156.09	.87	92	283	1.95	3	248	252	49	234
	110	157.99	.90	91	283	2.0	3	255	254	49	235
	112.5	159.95	.82	92	283	1.8	3	248	255	49	236
4	115	161.81	.82	92	284	1.9	3	255	255	50	236
	117.5	163.66	.84	92	284	1.85	3	250	253	50	236
	120	165.51	.86	92	284	1.7	3	253	252	50	235
	122.5	167.40	.83	92	284	1.85	3	250	251	49	235
5	125	169.29	.83	92	284	1.85	3	252	253	50	235
	127.5	171.17	.66	93	284	1.45	3	254	253	51	236
	130	172.85	.64	92	284	1.4	3	250	254	51	235
	132.5	174.48	.64	92	283	1.4	3	252	254	51	234
7	135	176.13	.74	92	283	1.65	3	249	253	50	233
	137.5	177.78	.76	92	283	1.7	3	254	253	50	233
	140	179.56	.76	92	283	1.7	3	250	252	50	233
	142.5	181.35	.72	92	283	1.6	3	255	251	49	233
8	145	183.11	.72	93	283	1.6	3	247	252	50	233
	147.5	184.87	.73	93	283	1.7	3	256	252	50	233
	150	186.68	.76	93	283	1.7	3	246	253	50	233
	152.5	188.48	.75	93	282	1.7	3	256	253	50	234
	155	190.28	.73	93	282	1.65	3	246	253	50	234

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

Project No.: AST-2025-2049
Operator:

Field Data Sheet

Date: May 13 2015	Plant: Reworld	Test No.: 3	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. _____	

[illegible]

Traverse: 		Traverse: 	
Start Time:	Initial Leak Check:	Start Time:	Initial Leak Check:
Finish Time:	Final Leak Check:	Finish Time:	Final Leak Check:

Project No.: AST-2025-2049

Operator: TY/TL

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	1 Particulate/Metals
Test Date	May 12 2025
Test Location	APC Outlet No. 2
Operator	

Project No.:	AST-2025-2049
Page	1 of 5
Probe No.:	6-Series
Meter Box No.:	MB 18
Impinger Box No.:	

Pitot Factor	1.840
DGMCF (V)	1.990
Barometric Pressure	29.79 "Hg
Static Pressure	-9.5 "H2O
Nozzle Size	1.2462 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	506.1 g

Combustion Gas Concentration	
Oxygen	8.17 %
Carbon Dioxide	10.72 %
Carbon Monoxide	19.6 ppm

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB 18
Control Box	MB 18
Incline Manometer	MB 18
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Reading Interval	2.5 min
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other

Nozzle Glass / Metal / Other

Union None / Metal / Teflon / Other

Pitot Leak Checked? Yes No

Site Diagram

Nozzle Measurements	
1	
2	
3	
Average:	

Notes:

Field Data Sheet

Date: May 12 2025	Plant: Courtoice, Ontario	Reword: Courtoice, Ontario	Test No.: 1	Particulate & Metals	Page 2 of 5
Plant Location:		Test Location: APC Outlet No. 2			

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F
1	0	844.07	.78	78	282	1.7	3	252	255	75	275
	2.5	845.84	.78	78	283	1.7	3	252	252	69	280
	5	847.64	.75	78	282	1.6	2.5	252	249	66	281
	7.5	849.38	.75	78	283	1.6	2.5	252	252	66	220
2	10	851.13	.75	78	282	1.6	2.5	252	254	66	223
	12.5	852.88	.71	79	283	1.5	2.5	252	255	67	225
	15	854.57	.72	79	280	1.6	2.5	252	253	67	226
	17.5	856.30	.72	79	282	1.5	2.5	252	252	66	226
3	20	858.02	.72	79	282	1.5	2.5	252	251	65	226
	22.5	859.72	.75	80	283	1.6	2.5	252	251	64	225
	25	861.48	.80	80	283	1.7	3	252	252	63	226
	27.5	863.27	.80	80	283	1.7	3	252	253	63	227
4	30	865.10	.73	81	283	1.6	3	252	253	62	227
	32.5	866.91	.73	81	283	1.6	3	252	252	62	227
	35	868.71	.75	81	283	1.6	3	252	252	62	225
	37.5	870.45	.71	81	283	1.5	2.5	252	252	61	227
5	40	872.15	.71	82	283	1.5	2.5	252	252	59	227
	42.5	873.88	.71	82	282	1.5	2.5	252	252	58	228
	45	875.62	.60	83	282	1.3	2.0	252	252	57	228
	47.5	877.23	.60	83	282	1.3	2	252	252	56	226
6	50	878.79	.60	83	281	1.3	2	252	252	55	227

Traverse: Start Time: 16:34 Finish Time: —	Initial Leak Check: cfm@ Final Leak Check: cfm@	Start Time: 15:02 Finish Time: —	Initial Leak Check: cfm@ Final Leak Check: cfm@	"Hg "Hg

Project No.: AST-2025-2049

Operator: TTT

Field Data Sheet

Date: May 12 2025	Plant: Reworld	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 ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp	
										Outlet °F	Inlet/Trap °F
8	52.5	880.38	.61	83	281	1.3	2	253	253	55	227
	55	881.97	.61	84	281	1.3	2	252	252	54	227
	57.5	883.55	.67	84	281	1.45	2	253	252	54	227
	60	885.21	.67	84	281	1.45	2	252	252	53	228
9	62.5	886.27	.67	84	280	1.5	2	252	252	53	228
	65	889.55	.66	85	280	1.45	2	252	252	52	229
	67.5	890.23	.75	85	210	1.65	3	252	252	52	228
	70	891.99	.73	85	279	1.6	3	252	252	51	229
10	72.5	893.74	.73	85	279	1.6	3	252	252	51	230
	75	895.50	.76	86	278	1.7	3	252	252	50	229
	77.5	897.29	.76	86	278	1.7	3	252	252	50	230
	80	899.10	.76	86	277	1.7	3	252	252	50	230
11	82.5	900.90	.76	87	277	1.7	3	252	252	50	230
	85	902.71	.76	87	277	1.7	3	252	252	50	231
	87.5	904.51	.78	87	277	1.75	3	253	253	50	231
	90	906.35	.85	87	277	1.75	3	253	253	50	231
12	92.5	908.58	.85	88	280	1.9	3	252	249	53	219
	95	910.52	.86	88	280	1.9	3	252	251	50	228
	97.5	912.39	.84	88	280	1.9	3	252	253	49	230
	100	914.29	.84	88	281	1.9	3	252	254	48	231
	102.5	916.18	.82	88	281	1.8	3	252	253	48	231

Traverse:		Traverse:	
Start Time: 18:17	Initial Leak Check: .003	Start Time: 18:17	Initial Leak Check: .003
Finish Time: 18:17	Final Leak Check: .003	Finish Time: 18:17	Final Leak Check: .003

Project No.: AST-2025-2049

Operator :

Field Data Sheet

Date: May 12 2015	Plant: Courtice, Ontario	Reword: Courtice, Ontario	Test No.: 1	Particulate / Metals	Page 4 of 5
Plant Location:		Test Location: APC Outlet No. 2			

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
3	105	918, 10	.82	88	281	1.8	3	252	251	48	231
	107.5	919, 95	.84	89	281	1.85	3	252	251	49	230
	110	921, 82	.84	89	281	1.85	3	253	252	49	230
	112.5	923, 70	.74	89	281	1.6	3	253	252	49	231
4	115	925, 49	.74	89	281	1.6	3	253	253	49	231
	117.5	927, 27	.74	89	281	1.6	3	253	253	49	230
	120	929, 03	.69	89	281	1.5	3	252	252	49	230
	122.5	930, 75	.70	89	281	1.55	3	253	252	49	230
5	125	932, 46	.70	90	281	1.55	3	253	253	49	230
	127.5	934, 17	.70	90	282	1.55	3	253	253	49	230
	130	935, 89	.73	90	282	1.6	3	253	252	48	230
	132.5	937, 66	.73	90	283	1.65	3	253	253	48	231
6	135	939, 46	.78	90	284	1.7	3.5	253	253	49	231
	137.5	941, 27	.78	90	284	1.7	3.5	253	253	48	231
	140	943, 12	.71	91	284	1.55	3.5	253	253	47	231
	142.5	944, 86	.71	91	284	1.55	3.5	253	253	46	230
7	145	946, 59	.70	91	283	1.55	3.5	253	252	46	230
	147.5	948, 34	.72	91	283	1.6	3.5	253	252	45	230
	150	950, 11	.72	91	284	1.6	3.5	253	253	45	230
	152.5	951, 88	.72	91	284	1.6	3.5	253	253	45	231
8	155	953, 65	.74	91	281	1.65	3.5	253	253	44	231

Traverse:		Initial Leak Check:		Final Leak Check:		Start Time:		Finish Time:		Initial Leak Check:		Final Leak Check:		Start Time:		Finish Time:	
Start Time:		Initial Leak Check:		Final Leak Check:		Start Time:		Finish Time:		Initial Leak Check:		Final Leak Check:		Start Time:		Finish Time:	
Finish Time:		Initial Leak Check:		Final Leak Check:		Start Time:		Finish Time:		Initial Leak Check:		Final Leak Check:		Start Time:		Finish Time:	

Project No.: AST-2025-2049
Operator :

Field Data Sheet

Date: May 12 2015	Plant: Reworld	Test No.:	Particle Size / Materials	Page 5 of 5
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2		

[illegible]

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

Project No.: AST-2025-2049

Operator:

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.: 2 M29	Particulate/Metals
Test Date May 13, 2025	
Test Location	APC Outlet No. 2
Operator BCP	

Project No.:	AST-2025-2049
Page	1 of 5
Probe No.:	6-8005
Meter Box No.:	MB18
Impinger Box No.:	

Pitot Factor	0.840
DGMCF (Y)	0.90
Barometric Pressure	29.78
Static Pressure	-9.1
Nozzle Size	2462
Stack Diameter	54
Length	
Width	
Port length:	11

Moisture Gain	
Total	469.6
	g

Combustion Gas Concentration	
Oxygen	8.37
Carbon Dioxide	10.53
Carbon Monoxide	14.2
	ppm

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB18
Control Box	11
Incline Manometer	11
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	141-2

Reading Interval	2.5
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other _____

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

Site Diagram

Nozzle Measurements	
1	27465
2	2466
3	2460
Average:	2462

Notes:

Field Data Sheet

Date: <u>May 13, 2025</u>	Plant: <u></u>	Reworked	Test No.: <u>2 H29</u>	Page 2 of 5
Plant Location: <u>Courice, Ontario</u>			Test Location: <u>APC Outlet No. 2</u>	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F
1	0	71.77	.85	74	282	1.95	4	252	252	60	
	2.5	73.66	.85	74	281	1.95	4	250	250	60	
	5	75.53	.88	80	282	2.05	4	252	250	59	
2	7.5	77.4.5	.85	80	282	1.95	4	252	251	58	
	10	79.34	.83	80	282	1.9	4	252	253	59	
	12.5	81.21	.83	80	281	1.9	4	252	255	59	
3	15	83.06	.79	80	281	1.8	4	252	255	58	
	17.5	84.89	.79	81	282	1.8	4	252	253	58	
	20	86.72	.80	81	282	1.85	4	252	252	57	
4	22.5	88.54	.76	81	282	1.75	3	253	250	56	
	25	90.35	.72	82	282	1.65	3	253	250	56	
	27.5	92.09	.73	82	282	1.7	3	252	252	54	
5	30	93.86	.66	82	283	1.5	3	252	253	54	
	32.5	95.51	.66	83	283	1.5	3	252	254	53	
	35	97.18	.65	83	283	1.5	3	252	254	52	
6	37.5	98.87	.60	83	283	1.4	3	252	252	51	
	40	100.48	.60	83	283	1.4	3	252	251	51	
	42.5	102.04	.60	84	282	1.4	3	252	251	51	
7	45	103.69	.61	84	282	1.4	3	253	251	50	
	47.5	105.31	.61	84	282	1.4	3	252	253	50	
	50	106.90	.60	84	282	1.4	3	252	254	49	

Traverse: <u>8</u> Start Time: <u>7:56</u> Finish Time: <u></u>	Initial Leak Check: <u>605</u> Final Leak Check: <u></u>	cfm@ <u>17</u> cfm@ <u></u>	"Hg "Hg

Project No.: AST-2025-2049
Operator: BCP

Field Data Sheet

Date: <u>May 13, 2026</u>	Plant: <u>Reworld</u>	Test No.: <u>2 1428</u>	Page 3 of 5
Plant Location: <u>Courteice, Ontario</u>		Test Location: <u>APC Outlet No. 2</u>	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F
8	52.5	108.50	.61	84	281	1.4	3	252	254	49	
	55	110.10	.61	84	281	1.45	3	252	253	49	
	57.5	111.72	.61	84	281	1.45	3	252	252	49	
9	60	113.86	.62	84	280	1.45	3	252	251	49	
	62.5	115.00	.59	84	280	1.35	3	252	252	49	
	65	116.59	.57	85	280	1.3	3	253	252	49	
10	67.5	118.15	.59	85	280	1.4	3	253	252	50	
	70	119.76	.59	85	280	1.35	3	253	253	49	
	72.5	121.37	.60	85	280	1.4	3	253	253	50	
11	75	122.99	.67	85	280	1.55	3	253	253	50	
	77.5	124.68	.69	85	280	1.6	3	253	253	50	
	80	126.40	.69	85	281	1.6	3	253	252	50	
12	82.5	128.13	.70	85	281	1.65	3	253	252	50	
	85	128.88	.68	85	281	1.6	3	253	252	50	
	87.5	131.62	.70	85	281	1.65	3	253	252	50	
1	90	133.36	.93	85	284	2.15	4	253	253	60	
	92.5	135.84	.94	84	284	2.2	4	252	252	52	
	95	137.86	.90	85	284	2.1	4	252	252	50	
2	97.5	139.84	.88	85	284	2.1	4	253	252	49	
	100	141.78	.87	85	284	2.05	4	252	253	49	
	102.5	143.73	.85	85	283	2.05	4	252	253	49	

Traverse: <u>2</u> Start Time: <u>9:26</u> Finish Time: <u>9:26</u>	Initial Leak Check: <u>003</u> cfm@ <u>15</u> "Hg Final Leak Check: <u>003</u> cfm@ <u>15</u> "Hg

Project No.: AST-2025-2049
 Operator: BCP

Field Data Sheet

Date: <u>May 13, 2025</u>	Plant: <u>Reworld</u>	Test No.: <u>2-1427</u>
Plant Location: <u>Courtoice, Ontario</u>	Test Location: <u>APC Outlet No. 2</u>	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F
3	105	145.65	.84	84	282	2.0	4	252	253	49	
	107.5	147.54	.78	85	281	1.95	4	253	253	49	
	110	149.4	.77	85	281	1.8	4	253	253	50	
4	112.5	151.23	.75	85	280	1.8	4	252	252	50	
	115	153.02	.75	85	280	1.8	4	253	252	50	
	117.5	154.83	.74	85	280	1.75	4	253	252	50	
5	120	156.63	.70	85	280	1.65	4	252	253	50	
	122.5	158.37	.70	85	280	1.65	4	253	253	50	
	125	160.13	.70	85	280	1.65	4	253	253	50	
6	127.5	161.86	.62	85	280	1.45	3	253	253	50	
	130	163.50	.61	86	280	1.4	3	253	253	51	
	132.5	165.13	.61	86	280	1.4	3	253	253	51	
7	135	166.75	.65	86	280	1.5	3	253	253	51	
	137.5	168.43	.68	86	280	1.6	4	253	253	51	
	140	170.15	.67	86	280	1.6	4	253	253	51	
8	142.5	171.88	.70	86	280	1.65	4	253	253	51	
	145	173.64	.70	86	281	1.65	4	253	252	51	
	147.5	175.38	.73	86	281	1.7	4	253	253	51	
9	150	177.15	.76	86	281	1.75	4	253	251	51	
	152.5	178.97	.76	86	282	1.75	4	253	252	51	
	155	180.77	.74	87	281	1.75	4	253	253	51	

Traverse: ☒	Initial Leak Check: ☒	Final Leak Check: ☒
Start Time:	Start Time:	Start Time:
Finish Time:	Finish Time:	Finish Time:

Page 5 of 5

[illegible]

Project No.: AST-2025-2049
Operator: BCP

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.: 3129	Particulate/Metals
Test Date May 13, 2025	
Test Location	APC Outlet No. 2
Operator BCP	

Project No.:	AST-2025-2049
Page	1 of 5
Probe No.:	6 Sensors
Meter Box No.:	H1318
Impinger Box No.:	

Pitot Factor	.840
DGMCF (V)	.990
Barometric Pressure	29.76 ~~29.76~~ "Hg
Static Pressure	9.1 "H2O
Nozzle Size	.2462 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	523.4 g

Combustion Gas Concentration	
Oxygen	8.26 %
Carbon Dioxide	10.50 %
Carbon Monoxide	12.2 ppm

Measuring Device	ID
Probe / Pitot	H1318 S8
Trendicator	H1318
Control Box	1
Incline Manometer	1
Comb. Gas Analyzer	CEMS
Micromanometer	
Barometer	ENV. CAN.
Calipers	CAL-2

Reading Interval	2.5 min
Number of Ports	2
Number of Points/Port	12

Site Diagram

Nozzle Measurements
1 .2465
A. 2 .2460
3 .2460
Average: .2462

Probe Liner	Glass / Metal / Teflon / Other
Nozzle	Glass / Metal / Other
Union	None / Metal / Teflon / Other
Pitot Leak Checked?	Yes No

Notes:

Field Data Sheet

Date: May 13, 2005	Plant: Reworld	Test No.: 3 M29
Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F
1	0	98.25	.85	86	281	2	3	252	256	60	
	2.5	100.16	.83	86	282	1.95	3	252	253	60	
	5	102.08	.84	87	282	1.95	3	252	253	59	
2	7.5	103.98	.82	87	282	1.9	3	252	254	58	
	10	105.86	.82	87	282	1.9	3	252	252	57	
	12.5	107.73	.82	87	281	1.9	3	252	252	57	
3	15	109.59	.78	87	281	1.8	3	252	272	57	
	17.5	111.41	.78	87	282	1.8	3	252	252	57	
	20	113.25	.78	87	281	1.8	3	252	252	56	
4	22.5	115.08	.77	87	282	1.8	3	252	252	56	
	25	116.90	.73	87	282	1.7	3	252	252	55	
	27.5	118.65	.75	88	282	1.75	3	252	252	55	
5	30	120.47	.68	88	282	1.6	3	252	252	54	
	32.5	122.18	.74	88	282	1.7	3	252	252	54	
	35	123.98	.79	88	282	1.85	3	252	252	54	
6	37.5	125.83	.77	88	282	1.8	3	252	252	53	
	40	127.66	.70	89	283	1.6	3	252	252	53	
	42.5	129.41	.68	89	284	1.6	3	253	252	53	
7	45	131.14	.72	89	283	1.7	3	253	253	53	
	47.5	132.95	.70	89	284	1.65	3	253	253	53	
	50	134.76	.70	90	283	1.65	3	253	252	53	

Traverse: 1	Start Time: 11:46	Initial Leak Check: .002	cfm@ 15	"Hg
Finish Time:		Final Leak Check:	cfm@	"Hg

Field Data Sheet

Date: <u>May 13, 2025</u>	Plant: <u>Reworld</u>	Test No.: <u>3129</u>
Plant Location: <u>Courtice, Ontario</u>	Test Location: <u>APC Outlet No. 2</u>	

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
8	52.5	136.44	.72	90	283	1.7	3	253	252	53	
	55	138.23	.72	90	283	1.7	3	253	252	54	
	57.5	140.00	.72	90	284	1.7	3	253	253	54	
9	60	141.79	.76	90	283	1.8	3	253	252	53	
	62.5	143.65	.76	91	283	1.75	3	253	253	53	
	65	145.47	.77	91	284	1.8	3	253	253	53	
10	67.5	147.30	.75	91	284	1.75	3	253	252	53	
	70	149.12	.75	91	284	1.75	3	253	253	53	
	72.5	150.91	.75	91	284	1.75	3	253	253	53	
11	75	152.74	.71	91	280	1.65	3	253	253	53	
	77.5	154.49	.72	91	280	1.7	3	253	253	53	
	80	156.28	.74	91	280	1.75	3	253	253	53	
12	82.5	158.10	.72	91	280	1.7	3	253	253	52	
	85	159.90	.72	91	280	1.7	3	253	253	52	
	87.5	161.68	.72	92	280	1.7	3	253	253	53	
1	90	163.48	.84	91	282	1.95	4	252	253	60	
	92.5	165.82	.85	90	282	2	4	252	250	55	
	95	167.76	.87	90	282	2.05	4	252	250	53	
2	97.5	169.73	.87	91	283	2.05	4	252	251	51	
	100	171.68	.87	91	282	2.05	4	252	254	51	
	102.5	173.63	.88	91	283	2.05	4	252	254	50	

13:35

Traverse: <u>1</u>	Traverse: <u>2</u>
Start Time: <u>13:16</u>	Start Time: <u>13:23</u>
Initial Leak Check: <u>.002</u> cfm@ <u>15</u> "Hg	Initial Leak Check: <u>.002</u> cfm@ <u>15</u> "Hg
Final Leak Check: <u>.002</u> cfm@ <u>15</u> "Hg	Final Leak Check: <u>.002</u> cfm@ <u>15</u> "Hg

Project No.: AST-2025-2049
Operator: BCP

Field Data Sheet

Date: May 3, 2025	Plant: Reworld	Test No.: 3129
Plant Location: Courtice, Ontario		Test Location: APC Outlet No. 2

Point	Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Impinger Temp Inlet/Trap °F
3	105	175.63	.85	91	282	2.0	3	253	253	50	
	107.5	177.57	.81	91	284	2.0	3	252	251	50	
	110	179.47	.84	91	285	1.9	3	253	251	50	
4	112.5	181.43	.72	91	285	1.98	3	253	252	50	
	115	183.23	.72	91	284	1.7	3	253	253	50	
	117.5	185.0	.70	91	284	1.7	3	253	254	50	
5	120	186.77	.66	91	284	1.65	3	253	253	50	
	122.5	188.47	.68	91	284	1.55	3	253	252	50	
	125	190.18	.69	91	284	1.6	3	253	251	50	
6	127.5	191.92	.66	91	285	1.6	3	253	252	50	
	130	193.63	.67	91	285	1.55	3	252	252	50	
	132.5	195.34	.68	91	285	1.6	3	253	253	50	
7	135	197.05	.75	91	285	1.6	3	252	253	50	
	137.5	198.83	.75	91	285	1.75	3	252	252	50	
	140	200.64	.74	91	285	1.8	3	252	252	50	
8	142.5	202.46	.78	91	285	1.75	3	253	251	50	
	145	204.31	.77	91	285	1.85	3	253	252	50	
	147.5	206.15	.76	91	285	1.8	3	252	253	50	
9	150	208.0	.75	92	284	1.8	3	252	253	50	
	152.5	209.8	.75	92	284	1.75	3	253	253	50	
	155	211.63	.73	92	284	1.8	3	252	252	50	

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

Project No.: AST-2025-2049
Operator: BCP

Field Data Sheet

Date: May 3 2026	Plant: Reworld	Test No.: 3 H29	Page 5 of 5
	Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 8	

[illegible]

Traverse: 2			
Start Time:	Initial Leak Check:	cfm@	"Hg
Finish Time: 14:53	Final Leak Check: 207	cfm@ 15	"Hg

Project No.: AST-2025-2049

Operator: BCP

APPENDIX 5

Particle Size Distribution Field Data Sheets (12 pages)

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	PM10 / 2.5 - M202
Test Date	MAY 13/25
Test Location	APC Outlet No. 1
Operator	DW

Pitot Factor	.24
DGMCF (Y)	1.000
Barometric Pressure	29.6
Static Pressure	-9.5
Nozzle Size	.175
Stack Diameter	54
Length	
Width	
Port length:	11

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	6

Probe Liner Glass / Metal / Teflon / Other PT

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

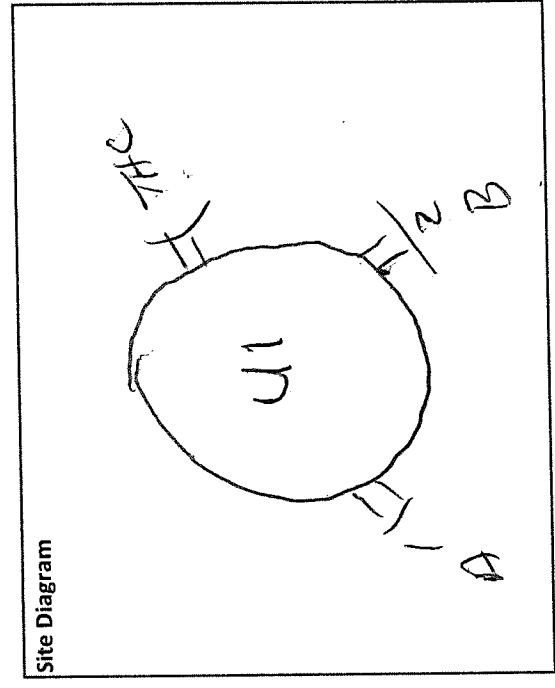
Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	PM10/2.5
Meter Box No.:	TEAM 2
Impinger Box No.:	10

Measuring Device	ID
Probe / Pitot	PM10/2.5
Trendicator	TEAM 2
Control Box	TEAM 2
Incline Manometer	
Comb. Gas Analyzer	PANT CENS
Micromanometer	DM-4
Barometer	ENV. CAN.
Calipers	CAL-2

Nozzle Measurements
1 .175
2 .170
3 .170
Average:

Moisture Gain	14.2	g
Total		

Combustion Gas Concentration	%
Oxygen	9.10
Carbon Dioxide	10.14
Carbon Monoxide	10.0
	ppm



Notes:

Date: MAY 13/25	Plant:	Reworld	Test No.: PM10 / 2.5 - M202	Page 2 of 2
			Test Location:	ADC Outlet No.

Date: MAY 13/25	Plant: Reworld	Test No.: PM10 / 2.5 - M202	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. _____	

[illegible]

Traverse:	2				
Start Time:	8:07	Initial Leak Check:	cfm@	12	"Hg
Finish Time:	8:11	Final Leak Check:	cfm@		"Hg

Project No.: ~~AST-2024-4547~~ / ~~22330~~

Operator: SW

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	2 PM10 / 2.5 - M202
Test Date	MAY 13/25
Test Location	APC Outlet No. 1
Operator	QAT

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	AN10/2.5
Meter Box No.:	TEAM 2
Impinger Box No.:	

Pitot Factor	.84
DGMCF (Y)	1.000
Barometric Pressure	29.78 "Hg
Static Pressure	-9.5 "H2O
Nozzle Size	.1715 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	152.7 g

Combustion Gas Concentration	
Oxygen	9.13 %
Carbon Dioxide	10.10 %
Carbon Monoxide	10.5 ppm

Measuring Device	ID
Probe / Pitot	see
Trendicator	
Control Box	1037
Incline Manometer	
Comb. Gas Analyzer	1
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	6

Site Diagram

Nozzle Measurements	
1	
2	
3	
Average:	

Probe Liner Glass / Metal / Teflon / Other PTFE

Nozzle Glass / Metal / Other Metal

Union None / Metal / Teflon / Other Metal

Pitot Leak Checked? Yes No

Notes:

Field Data Sheet

Date: MAY 13/25	Plant: Reworld	Test No.: Z-PM10 / 2.5 - M202	Page 2 of 2
	Courteice, Ontario	Test Location: APC Outlet No. 1	

[illegible]

Traverse:	2				
Start Time:	10:50	Initial Leak Check:	0.02	cfm@	14 "Hg
Finish Time:	11:50	Final Leak Check:		cfm@	"Hg

Project No.: AST-2024-4547 / 22330
Operator: *[Signature]*

Alliance Technical Group

Plant	Reworld
Plant Location	Courice, Ontario
Test No.:	3 PM10 / 2.5 - M202
Test Date	MAY 13/25
Test Location	APC Outlet No. 1
Operator	DWT

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	AN10K-5
Meter Box No.:	TEAM 2
Impinger Box No.:	

Pitot Factor	84
DGMCF (Y)	1.000
Barometric Pressure	29.6 29.75 "Hg
Static Pressure	-9.5 "H2O
Nozzle Size	1.775 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	183.3 g

Combustion Gas Concentration	
Oxygen	9.48 %
Carbon Dioxide	9.73 %
Carbon Monoxide	8.2 ppm

Measuring Device	ID
Probe / Pitot	SEE
Trendicator	
Control Box	TEST
Incline Manometer	1
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV. CAN.
Calipers	

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	6

Site Diagram

Nozzle Measurements	
1	
2	
3	
Average:	

Probe Liner Glass / Metal / Teflon / Other PA

Nozzle Glass / Metal / Other

Union None / Metal / Teflon / Other

Pitot Leak Checked? Yes No

Notes:

Field Data Sheet

Date: MAY 13/25	Plant: Reworld	Test No.: 3	PM10 / 2.5 - M202	Page 2 of 2
	Plant Location: Courice, Ontario	Test Location:	APC Outlet No. 1	

[illegible]

Traverse:					
Start Time:	13 35	Initial Leak Check:	004	cfm@	"Hg
Finish Time:	14 35	Final Leak Check:		cfm@	"Hg

Project No.: AST-2024-4547-1-22552
Operator: DUT

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	PM10 / 2.5 - M202
Test Date	MAY 12/25
Test Location	APC Outlet No. 2
Operator	DAVI

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	PM10/2.5
Meter Box No.:	TEAM 2
Impinger Box No.:	

Pitot Factor	.54
DGMCF (Y)	1.000
Barometric Pressure	29.94 29.93 "Hg
Static Pressure	-9.5 "H2O
Nozzle Size	.175 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	155.7 g

Combustion Gas Concentration	
Oxygen	8.46 %
Carbon Dioxide	10.31 %
Carbon Monoxide	14.8 ppm

Measuring Device	ID
Probe / Pitot	PM10/2.5
Trendicator	3
Control Box	TEAM 2
Incline Manometer	3
Comb. Gas Analyzer	RAUT 4045
Micromanometer	DM-4
Barometer	ENV. CAN.
Calipers	CH-2

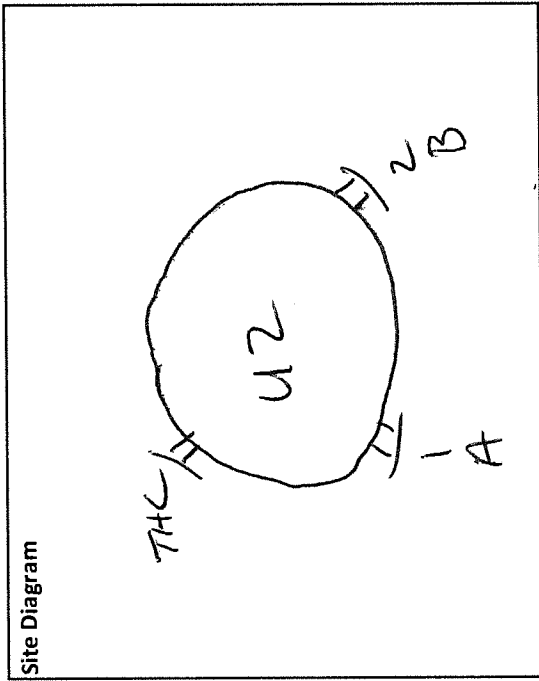
Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	6

Probe Liner Glass / Metal / Teflon / Other PPA

Nozzle Glass ☒ Metal ☐ Other _____

Union None ☒ Metal ☐ Teflon / Other _____

Pitot Leak Checked? ☒ Yes ☐ No



Nozzle Measurements	
1	1770
2	1750
3	175
Average:	

Notes: PPA CORRECTED FOR ELEVATION FROM ENV. CAN. WEBSITE

Date: 5/12/25	Plant: Reworld	Test No.: PM10 / 2.5 - M202	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 7	

[illegible]

Traverse:	2	Initial Leak Check:	0.002	cfm@	14	"Hg
Start Time:	9:40	Final Leak Check:	0.007	cfm@	15	"Hg
Finish Time:	10:38					

Project No.: ASI 2024-4547-22330
Operator: *but*

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	2 PM10 / 2.5 - M202
Test Date	MAY 12 2025
Test Location	APC Outlet No. 2
Operator	DUT

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	PM10/2.5
Meter Box No.:	TEAM 2
Impinger Box No.:	

Pitot Factor	1.84
DGMCF (Y)	1.000
Barometric Pressure	29.87
Static Pressure	-9.5
Nozzle Size	1.75
Stack Diameter	54
Length	
Width	
Port length:	11

Moisture Gain	
Total	151.9 g

Combustion Gas Concentration	
Oxygen	8.55 %
Carbon Dioxide	10.42 %
Carbon Monoxide	19.9 ppm

Measuring Device	ID
Probe / Pitot	SEE
Trendicator	
Control Box	TEST
Incline Manometer	
Comb. Gas Analyzer	1
Micromanometer	
Barometer	ENV. CAN.
Calipers	

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	6

Site Diagram

Nozzle Measurements	
1	
2	
3	
Average:	

Probe Liner	Glass / Metal / Teflon / Other	RA
Nozzle	Glass / Metal / Other	
Union	None / Metal / Teflon / Other	
Pitot Leak Checked?	Yes No	

Notes:

Field Data Sheet

Date: <u>MAY 12/25</u>	Plant: <u>Reworld</u>	Test No.: <u>2</u>	PM10 / 2.5 - M202	Page 2 of 2
Plant Location: <u>Courice, Ontario</u>	Test Location: <u>APC Outlet No. 2</u>			

Point	Clock Time	Meter ft ³	Pilot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp	
										Outlet °F	Aux °F
1	0	81.92	.86	84	284	.37	4	258	248	75	71
2	10:29	85.55	.79	83	284	.37	4	246	250	58	72
3	20:32	89.08	.81	83	283	.37	4	258	250	57	72
4	30:42	92.49	.78	83	283	.37	4	259	251	57	71
5	40:48	95.80	.76	84	283	.37	4	256	248	57	71
6	50:07	99.12	.64	84	283	.37	4	257	250	58	72
	59:04	102.20	.85	85	282	.37	4	256	247	58	71
1	59:04	102.20	.86	85	282	.37	4	256	247	58	71
2	109:43	105.94	.85	85	282	.37	4	256	248	57	72
3	120:09	109.55	.83	85	282	.37	4	256	248	59	73
4	130:27	113.12	.80	86	281	.37	4	255	250	59	73
5	140:33	116.60	.75	87	281	.37	4	256	250	62	73
6	150:36	120.07	.68	87	281	.37	4	256	251	62	73
	158:55	123.29									

Traverse: <u>2</u> Start Time: <u>12:30</u> Finish Time: <u>13:28</u>	Initial Leak Check: <u>002</u> cfm@ Final Leak Check: <u>15</u> "Hg	Traverse: <u>1</u> Start Time: <u>13:33</u> Finish Time: <u>14:33</u>	Initial Leak Check: <u>249</u> cfm@ Final Leak Check: <u>249</u> "Hg
Project No.: <u>ASI-2024-0547/22330</u>		Operator: <u>BM</u>	

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	3 PM10 / 2.5 - M202
Test Date	MAR 12/25
Test Location	APC Outlet No. 2
Operator	DWT

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	AM10/2.5
Meter Box No.:	TEAM 2
Impinger Box No.:	

Pitot Factor	6.4
DGMCF (V)	1.00
Barometric Pressure	29.91
Static Pressure	-9.5
Nozzle Size	1.75
Stack Diameter	54
Length	
Width	
Port length:	11

Moisture Gain	
Total	155.0

Combustion Gas Concentration	
Oxygen	8.43
Carbon Dioxide	10.50
Carbon Monoxide	17.1

Measuring Device	ID
Probe / Pitot	3.5
Trendicator	7.5
Control Box	1
Incline Manometer	
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV. CAN.
Calipers	

Reading Interval	Dwell
Number of Ports	2
Number of Points/Port	6

Site Diagram

Nozzle Measurements
1
2
3
Average:

Probe Liner	Glass / Metal / Teflon / Other
Nozzle	Glass / Metal / Other
Union	None / Metal / Teflon / Other
Pitot Leak Checked?	Yes No

Notes:

Field Data Sheet

Date: 5/12/23	Plant: Reworld	Test No.: 3	PM10 / 2.5 - M202	Page 2 of 2
	Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2		

[illegible]

Traverse:	2	Initial Leak Check:	cfm@	"Hg
Start Time:	15:10	Final Leak Check:	cfm@	"Hg
Finish Time:	16:09			

Traverse:	1	Initial Leak Check:	cfm@	"Hg
Start Time:	16:10	Final Leak Check:	cfm@	"Hg
Finish Time:	15:08			

17-08-1710

Project No.: AST-2024-4547-22330

Operator: DUT

APPENDIX 6

SVOC Data Sheets (24 pages)

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	Semi-Volatile Organic Compounds
Test Date	May 14 2015
Test Location	APC Outlet No. 1
Operator	TT

Project No.:	AST-2025-2049
Page	1 of 4
Probe No.:	
Meter Box No.:	MB 18
Impinger Box No.:	

Pitot Factor	0.840	
DGMCF (V)	0.990	
Barometric Pressure	29.73	"Hg
Static Pressure	-8.7	"H2O
Nozzle Size	0.2462	inches
Stack Diameter	54	inches
Length		feet
Width		feet
Port length:	11	inches

Moisture Gain	
Total	680.6 g

Combustion Gas Concentration	
Oxygen	9.03 %
Carbon Dioxide	10.10 %
Carbon Monoxide	9.6 ppm

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB18
Control Box	MB18
Incline Manometer	MB18
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Reading Interval	5 min
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other _____

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

Site Diagram

Nozzle Measurements	
1	0.2465
2	0.2460
3	0.2460
Average:	0.2462

Notes:

Field Data Sheet

Date: May 14 2023	Plant: Reworld	Test No.: 1	Page 2 of 4
Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 1		

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp	
										Outlet °F	Inlet/Trap °F
1	0	229.67	.80	83	280	1.8	4.1	252	266	76	79
	5	233.35	.80	84	281	1.8	4.1	252	252	46	41
2	10	236.43	.82	84	281	1.85	5	252	257	44	40
	15	240.64	.85	84	281	1.95	5.5	252	251	43	41
3	20	244.43	.79	84	281	1.8	5.5	252	249	43	43
	25	248.11	.84	84	282	1.9	5.5	252	254	43	45
4	30	251.88	.77	85	282	1.75	6.5	252	255	43	45
	35	255.51	.73	85	283	1.65	5	252	250	43	45
5	40	258.02	.69	86	283	1.55	5	252	249	44	45
	45	262.41	.66	86	283	1.5	5	252	256	43	42
6	50	265.78	.62	87	284	1.4	4.5	252	254	40	42
	55	269.02	.66	87	284	1.5	4.5	252	248	39	41
7	60	272.40	.65	87	285	1.55	5	252	251	40	42
	65	275.83	.74	88	285	1.7	5	252	256	39	42
8	70	279.38	.73	89	285	1.65	5	252	251	40	41
	75	282.90	.71	89	285	1.65	5	252	250	40	41
9	80	286.40	.73	90	284	1.65	5	253	254	41	41
	85	289.97	.73	90	285	1.65	5	253	256	41	42
10	90	293.50	.74	89	285	1.7	5	252	249	41	41
	95	297.09	.71	90	285	1.6	5	252	248	41	42
11	100	300.61	.64	90	285	1.45	4.5	252	255	42	41

Traverse:	Start Time: 8:11	Initial Leak Check: cfm@ .004 "Hg	Final Leak Check: cfm@
Finish Time:			

Project No.: AST-2025-2049

Operator: T. 149

Field Data Sheet

Date: May 14 2015	Plant: Reworld	Test No.: (
Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 1	

Point	Clock Time	Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Inlet/Trap °F
	105	303.94	.70	90	282	1.6	5	252	254	42	41
12	110	307.41	.70	90	282	1.6	5	252	248	42	43
	115	310.89	.70	90	282	1.6	5	252	251	42	44
1	120	314.39	.85	89	285	1.95	6	252	248	47	52
	125	318.38	.91	89	285	2.1	6.5	252	244	40	48
2	130	322.39	.90	89	285	2.05	6.5	252	259	38	43
	135	326.26	.90	89	284	2.05	6	252	259	38	40
3	140	330.12	.90	89	285	2.05	6	252	251	38	40
	145	333.99	.85	89	285	1.95	6	252	250	39	40
4	150	337.97	.79	89	285	1.8	5.2	252	254	39	41
	155	341.66	.81	89	281	1.85	5.5	252	254	40	41
5	160	345.41	.90	89	285	2.05	6	252	249	40	41
	165	349.34	.86	89	286	1.95	6	252	250	40	42
6	170	353.23	.78	90	286	1.8	6	252	256	41	39
	175	357.11	.76	90	286	1.75	6	252	252	41	39
7	180	360.80	.80	90	288	1.8	6	252	248	42	40
	185	364.51	.80	90	288	1.8	6	252	253	42	41
8	190	368.15	.80	90	288	1.8	6	252	253	42	41
	195	371.89	.77	90	287	1.75	5.5	252	250	42	43
9	200	375.53	.74	90	287	1.7	5.5	252	249	43	43
	205	379.14	.74	90	286	1.7	5.5	252	256	43	42

Traverse: Start Time: 10:16 Finish Time: 10:23	Initial Leak Check: ~ cfm@ ~ "Hg Final Leak Check: ~ cfm@ ~ "Hg	Initial Leak Check: 100 cfm@ 19.5 "Hg Final Leak Check: ~ cfm@ ~ "Hg

Project No.: AST-2025-2049
Operator: [Signature]

Field Data Sheet

Date: <u>May 14 2023</u>	Plant: <u>Reworld</u>	Test No.: <u>1</u>	Page 4 of 4
	Plant Location: <u>Courtside, Ontario</u>	Test Location: <u>APC Outlet No. 1</u>	

[illegible]

Traverse:					
Start Time:	—	Initial Leak Check:	—	"Hg	—
Finish Time:	00:07:44	Final Leak Check:	000	"Hg	15

Project No.: AST-2025-2049

Operator: 

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	2 Semi-Volatile Organic Compounds
Test Date	May 14 2025
Test Location	APC Outlet No. 1
Operator	YJ/BP

Pitot Factor	.860
DGMCF (V)	.990
Barometric Pressure	29.666 "Hg
Static Pressure	-8.7 "H2O
Nozzle Size	.2462 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Reading Interval	5 min
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

Notes:

Project No.:	AST-2025-2049
Page	1 of 4
Probe No.:	
Meter Box No.:	
Impinger Box No.:	

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB18
Control Box	MB18
Incline Manometer	MB18
Comb.Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Moisture Gain	
Total	759.3 g

Combustion Gas Concentration	
Oxygen	9.12 %
Carbon Dioxide	10.04 %
Carbon Monoxide	7.6 ppm

Nozzle Measurements	
1	
2	
3	
Average:	

Site Diagram

Field Data Sheet

Date: May 14 2015	Plant: Reworld	Test No.: 2	Page 2 of 4
Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 1		

Point	Clock Time	Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
1	0	404.33	.89	88	282	2.0	5	258	249	80	48
	5	408.22	.90	88	284	2.0	6	252	251	62	49
2	10	412.10	.93	88	285	2.1	6	252	255	59	47
	15	416.05	.92	87	285	2.1	6	252	252	57	48
3	20	420.02	.92	87	286	2.1	6	252	249	56	50
	25	424.02	.89	87	286	2.0	6	252	250	56	50
4	30	427.87	.89	88	286	2.0	6	252	254	57	51
	35	431.80	.76	88	286	1.7	5.5	252	251	56	52
5	40	435.41	.70	88	286	1.6	5.5	252	251	58	54
	45	438.89	.67	88	286	1.5	5.5	252	254	57	51
6	50	442.31	.70	89	286	1.6	5.5	252	252	59	55
	55	445.78	.68	89	286	1.55	5.5	252	250	58	44
7	60	449.24	.79	89	286	1.85	6	252	251	57	44
	65	452.94	.80	90	287	1.85	6	252	254	56	45
8	70	456.67	.79	90	286	1.85	6	252	252	54	45
	75	460.42	.80	90	286	1.8	5.5	254	251	53	45
9	80	464.13	.76	90	285	1.75	5.5	252	252	52	44
	85	467.80	.73	90	285	1.65	5.5	252	253	52	45
10	90	471.39	.71	90	284	1.6	5.5	252	251	52	43
	95	474.97	.73	90	283	1.65	5.5	252	251	53	45
11	100	478.53	.71	90	285	1.6	5.5	252	253	53	45

420.02

Traverse:	Start Time: 13:09	Initial Leak Check: 0.02 cfm@ 15 "Hg	Final Leak Check: 0.02 cfm@ 15 "Hg
Traverse:	Start Time:	Initial Leak Check:	Final Leak Check:

Project No.: AST-2025-2049

Operator:

Field Data Sheet

Date: May 14 2015	Plant: Reworld	Test No.: 2	Page 3 of 4
Plant Location: Courtyce, Ontario	Test Location: APC Outlet No. 1		

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
	105	481.99	1.59	90	283	1.7	5.5	252	252	54	46
12	110	485.63	.71	90	283	1.6	5.5	252	252	54	46
	115	489.23	.71	91	283	1.6	5.5	252	252	54	47
1	120	492.81	.91	90	283	2.1	6.5	252	250	73	50
	125	497.08	.95	90	285	2.2	7	252	251	51	44
2	130	501.14	.95	90	286	2.2	7	252	254	50	43
	135	505.22	.90	90	285	2.05	6.5	252	252	50	43
3	140	509.17	.91	89	285	2.0	6.5	252	251	50	43
	145	513.10	.88	89	285	2.0	6.5	252	252	50	43
4	150	517.02	.80	89	284	1.85	6	252	253	50	43
	155	520.66	.81	89	283	1.85	6	252	251	50	43
5	160	524.59	.77	89	284	1.75	6	252	251	50	43
	165	528.23	.77	89	283	1.7	6	252	253	50	44
6	170	531.85	.66	89	283	1.5	5.5	252	252	50	45
	175	535.28	.66	89	283	1.45	5.5	252	252	50	45
7	180	538.67	.66	90	283	1.45	5.5	252	252	51	45
	185	542.02	.68	90	282	1.5	5.5	252	253	50	46
8	190	545.39	.69	90	281	1.55	5.5	252	251	49	44
	195	548.43	.70	90	281	1.55	5.5	252	251	48	44
9	200	552.30	.70	90	281	1.55	5.5	252	251	48	44
	205	555.73	.73	89	281	1.6	5.5	252	252	48	42

Traverse:	Start Time: 15:09	Initial Leak Check: 151.23	Initial Leak Check: .002 cfm@	14 "Hg
Finish Time: 15:09	Final Leak Check:	Finish Time:	Final Leak Check:	"Hg

Project No.: AST-2025-2049

Operator: [Signature]

Page 4 of 4

	*
	*
	*
	*
	*

Traverse:		Traverse:	
Start Time:	Initial Leak Check: — cfm@ — "Hg —	Start Time:	Initial Leak Check: cfm@ "Hg
Finish Time:	Final Leak Check: 002 cfm@ 1 "Hg	Finish Time:	Final Leak Check: cfm@ "Hg

Operator: DLK

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	B Semi-Volatile Organic Compounds
Test Date	May 15 2025
Test Location	APC Outlet No. 1
Operator	TT/BP

Project No.:	AST-2025-2049
Page	1 of 4
Probe No.:	
Meter Box No.:	MB 18 - 2612
Impinger Box No.:	

Pitot Factor	.840
DGMCF (V)	.990
Barometric Pressure	29.57 "Hg
Static Pressure	-9.1 "H2O
Nozzle Size	1.2462 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	682.3 g

Combustion Gas Concentration	
Oxygen	8.98 %
Carbon Dioxide	9.96 %
Carbon Monoxide	5.9 ppm

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB 18
Control Box	MB 18
Incline Manometer	MB 18
Comb.Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Reading Interval	5 min
Number of Ports	2
Number of Points/Port	12

Probe Liner Glass / Metal / Teflon / Other _____

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

Site Diagram

Nozzle Measurements	
1	_____
2	_____
3	_____
Average:	_____

Notes:

Field Data Sheet

Date: 6/15/2023	Plant: Reworld	Test No.: 3	Page 2 of 4
Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 1		

Point	Clock Time	Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
1	0	581.36	.84	80	282	1.9	6	252	252	74	576
	5	585.03	.85	80	280	1.9	6	252	254	60	49
2	10	588.78	.87	80	280	1.95	6.5	252	252	56	48
	15	592.58	.87	81	280	1.95	6.5	252	251	54	49
3	20	596.39	.81	81	280	1.8	6	252	253	53	48
	25	600.08	.81	81	281	1.8	6.5	252	253	53	50
4	30	603.76	.73	82	282	1.65	6	252	252	52	48
	35	607.27	.73	82	282	1.65	6	252	252	53	49
5	40	610.78	.67	82	281	1.55	6	252	253	52	46
	45	614.17	.68	83	281	1.55	6	252	252	52	48
6	50	617.61	.65	84	281	1.4	5.5	252	252	52	45
	55	620.89	.65	83	282	1.4	5.5	252	253	52	47
7	60	624.19	.71	84	282	1.6	5.5	252	252	52	44
	65	627.51	.73	84	282	1.7	5.5	252	252	52	44
8	70	630.80	.74	84	282	1.75	5.5	252	252	52	44
	75	634.13	.75	85	281	1.8	6.5	252	252	52	44
9	80	637.76	.76	85	282	1.75	6.5	252	252	51	46
	85	641.29	.76	85	282	1.75	6.5	252	252	52	47
10	90	645.04	.77	85	282	1.75	6.5	252	251	52	49
	95	648.70	.77	86	282	1.6	6.5	252	253	53	47
11	100	652.25	.63	86	282	1.4	5.5	252	252	53	44

Traverse:		Initial Leak Check:		Final Leak Check:	
Start Time: 7:51	cfm@ 100	"Hg 15	Start Time:	cfm@	"Hg
Finish Time:	cfm@	"Hg	Finish Time:	cfm@	"Hg

Project No.: AST-2025-2049

Operator :

Field Data Sheet

Date: May 15 2007	Plant: Reworld	Test No.: 3	Page 3 of 4
Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 1		

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp	
										Outlet °F	Inlet/Trap °F
	105	655.59	.60	86	282	1.3	5	252	252	53	43
12	110	658.73	.58	86	282	1.7	5	252	252	54	42
	115	661.86	.60	86	282	1.3	5	252	252	54	42
1	120	665.08	.87	86	282	1.95	6.5	252	252	63	44
	125	669.14	.91	86	283	2.0	6.5	252	250	54	43
2	130	673.02	.88	86	284	1.95	7	252	251	51	46
	135	676.88	.88	86	284	2.0	7	252	254	50	43
3	140	680.76	.91	87	284	2.05	7	252	252	50	46
	145	684.68	.87	87	285	1.95	7	252	249	50	46
4	150	688.54	.85	87	285	1.9	7	252	253	50	43
	155	692.38	.81	87	285	1.8	6.5	252	252	50	43
5	160	696.09	.76	87	285	1.7	6.1	252	251	50	45
	165	699.74	.74	87	285	1.65	6.5	252	252	51	46
6	170	703.25	.69	87	285	1.5	6.0	252	253	51	46
	175	706.69	.64	87	285	1.4	5.5	252	251	51	45
7	180	709.96	.71	87	285	1.6	6	252	253	50	45
	185	713.43	.70	87	284	1.55	6	252	252	49	43
8	190	716.89	.70	87	284	1.55	6	252	251	49	42
	195	720.32	.71	88	285	1.55	6	252	251	49	43
9	200	723.76	.75	88	285	1.65	6	252	252	49	43
	205	727.37	.75	88	285	1.65	6	252	252	49	44

Traverse:	Start Time: 9:52	Initial Leak Check: 1004 cfm@	Final Leak Check: 1004 cfm@	"Hg
Finish Time: 9:52	Final Leak Check: 1004 cfm@	"Hg		

Project No.: AST-2025-2049

Operator: [Signature]

Field Data Sheet

Date: May 15 2025	Plant: Reworld	Test No.: 3	Page 4 of 4
	Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 1	

[illegible]

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

Project No.: AST-2025-2049

Operator:

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	1 Semi-Volatile Organic Compounds
Test Date	May 14, 2025
Test Location	APC Outlet No. 2
Operator	TJC

Pitot Factor	0.840
DGMCF (V)	0.983
Barometric Pressure	29.72 in Hg
Static Pressure	-8.5 in H ₂ O
Nozzle Size	0.2442 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Reading Interval	5 min
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

Project No.:	AST-2025-2049
Page	1 of 4
Probe No.:	GA series
Meter Box No.:	MB 17
Impinger Box No.:	12

Measuring Device	ID
Probe / Pitot	30510
Trendicator	MB 17
Control Box	MB 17
Incline Manometer	11
Comb. Gas Analyzer	CEMS
Micromanometer	
Barometer	ENV. CAN.
Calipers	CAL-2

Moisture Gain	
Total	716.3 g

Combustion Gas Concentration	
Oxygen	8.59 %
Carbon Dioxide	10.38 %
Carbon Monoxide	9.7 ppm

Nozzle Measurements	
1	0.2440
2	0.2445
3	0.2440
Average:	0.2442

Site Diagram

Notes:

Field Data Sheet

Date: May 14, 2005.	Plant: Reworld	Test No.: 1	Page 2 of 4
Plant Location: Courtoice, Ontario		Test Location: APC Outlet No. 2	

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp	
										Outlet °F	Inlet/Trap °F
1	0	208.645.	.90	82.	276	2.2	7	257	254	60	52.
	5	210.78.	.98	82	280	2.2	7	254	257	44	70.
2	10	216.65.	.94	83	280	2.2	7.	248	250	42	65.
	15	220.61	1.1	83	280	2.1	7.	247	251	41	52.
3	20	224.84	1.1	83	281	2.45.	7.	247	257	40	51
	25	229.1.	1.1	84	283	2.45.	8.	246	252	40	53.
4	30	233.355	.92.	84	283	2.45	8.	248	249	40	51
	35	237.32	.88	85	283	2.05	7.	247	256	41	48.
5	40	241.12	.73.	85	283	2.0	6.	248	254	42	46.
	45	244.64	.72.	86	283	1.65.	5.	248	249	42	45.
6	50	248.11	.67.	86	282	1.6	5.	249	253	43	45.
	55	251.475.	.66	87	281	1.5	5.	241	256	43	45.
7	60	254.83	.75.	87	280	1.5.	5.	248	249	44	46.
	65	258.35.	.74	88	280	1.7	6	252	252	44	45.
8	70	261.93.	.78	88	280	1.7	6.	255	256	45	44
	75	265.57.	.71	88	279	1.8.	6.	255	252	45	47
9	80	269.18.	.68	89	278	1.6.	5.	254	250	46	47
	85	272.48.	.67	89	277	1.55	5.	258	256	47	46
10	90	275.88.	.69	89	277	1.55.	5.	258	254	47	48
	95	279.33.	.70.	90	276	1.6.	5.	256	248	46	45.
11	100	282.89.	.66.	90	276	1.6.	5.	255	254	44	45.

Traverse: 1 Start Time: 8:10. Finish Time:	Initial Leak Check: .025 cfm@ 17 "Hg Final Leak Check: cfm@ "Hg

Project No.: AST-2025-2049 Operator: T40

Field Data Sheet

Date: May 14, 2025	Plant: Reworld	Test No.: (	Page 3 of 4
Plant Location: Courtice, Ontario		Test Location: APC Outlet No. 2	

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
	105	286.215	.68	90	251	1.5	5.2	256	256	44	44
12	110	289.48	.71	90	251	1.6	5	256	249	45	46
	115	293.22	.73	90	251	1.7	6	254	251	46	47
1	120	297.345	.90	90	279	2.1	7	247	248	57	48
	125	301.255	.91	90	281	2.1	7	250	259	46	58
2	130	305.9	.86	90	279	2.1	7	249	252	44	55
	135	309.05	.81	90	279	2.0	6	248	248	44	50
3	140	310.78	.78	90	277	1.9	6	247	250	44	43
	145	316.5	.81	90	277	1.8	6	248	254	45	42
4	150	320.245	.77	90	276	1.9	6	250	248	45	42
	155	323.995	.78	90	276	1.8	6	252	253	45	42
5	160	327.6	.74	90	277	1.85	6	254	256	46	45
	165	331.24	.74	90	278	1.8	6	254	250	47	45
6	170	334.85	.68	91	278	1.7	6	256	251	48	45
	175	338.31	.73	91	278	1.6	6	256	257	48	45
7	180	341.85	.77	91	279	1.7	6	257	251	48	48
	185	345.48	.71	91	280	1.8	6	256	250	49	46
8	190	349.08	.75	91	279	1.6	6	257	250	49	44
	195	352.56	.72	91	279	1.7	6	255	252	49	46
9	200	356.095	.75	91	278	1.7	6	255	248	49	44
	205	359.71	.81	91	278	1.75	6	255	255	50	45

Traverse: 1	Initial Leak Check: cfm@	Final Leak Check: cfm@	"Hg
Start Time: 10:10	Initial Leak Check: -003	Final Leak Check: cfm@	"Hg
Finish Time: 10:10	Initial Leak Check: -003	Final Leak Check: cfm@	"Hg

* Thermocouple came loose from trap

Project No.: AST-2025-2049

Operator: TJC

Field Data Sheet

Date: May 14, 2005	Plant: Reworld	Test No.: 1	Page 4 of 4
	Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 2	

[illegible]

Traverse:	2		
Start Time:		Initial Leak Check:	"Hg cfm@
Finish Time:	10:00	Final Leak Check:	"Hg cfm@ 1/8

Project No.: AST-2025-2049

Operator: T4C.

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	2
Test Date	May 14, 2025
Test Location	APC Outlet No. 2
Operator	TUC

Project No.:	AST-2025-2049
Page	1 of 4
Probe No.:	6A Series
Meter Box No.:	MB 17
Impinger Box No.:	

Pitot Factor	.840
DGMCF (V)	.983
Barometric Pressure	29.66
Static Pressure	-8.5
Nozzle Size	.2440
Stack Diameter	54
Length	
Width	
Port length:	11

Moisture Gain	
Total	695.3

Combustion Gas Concentration	
Oxygen	9.00
Carbon Dioxide	10.00
Carbon Monoxide	9.8

Reading Interval	5 min
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

Measuring Device	ID
Probe / Pitot	SIO
Trendicator	
Control Box	MB 17
Incline Manometer	
Comb. Gas Analyzer	GENS
Micromanometer	
Barometer	ENV. CAN.
Calipers	CAL-2

Nozzle Measurements	
1	.2440
2	.2445
3	.2440
Average:	.2440

Site Diagram

Notes:

Field Data Sheet

Date: May 14, 2025.	Plant: Reworld	Test No.: 2	Page 2 of 4
Plant Location: Courtyce, Ontario	Test Location: APC Outlet No. 2		

Point	Clock Time	Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
1	0	386.83	.98	88	275	2.25	4	262	266	63	52
	5	390.88	1.0	87	280	2.25	4	250	254	56	46
2	10	395.09	.95	88	280	2.3	5	250	253	50	46
	15	399.06	.92	88	279	2.2	5	250	252	46	43
3	20	403.05	.86	88	278	2.1	5	251	253	45	44
	25	406.93	.85	88	278	2.0	4	253	254	44	44
4	30	410.73	.83	88	278	1.95	4	255	251	44	45
	35	414.48	.83	88	278	1.9	4	255	253	44	44
5	40	418.22	.72	87	278	1.65	4	256	254	44	46
	45	421.73	.72	87	278	1.65	4	257	251	45	47
6	50	425.28	.63	90	278	1.45	4	257	252	45	47
	55	428.48	.62	90	278	1.4	4	256	254	45	47
7	60	431.72	.72	90	278	1.65	4	257	252	40-46	45
	65	435.21	.70	90	277	1.65	4	256	252	46	46
8	70	438.72	.70	91	277	1.6	4	255	253	47	47
	75	442.23	.73	91	276	1.6	4	253	252	48	48
9	80	445.81	.76	91	276	1.7	4	252	251	49	49
	85	449.45	.73	91	276	1.75	4	251	254	47	48
10	90	452.99	.71	92	273	1.7	4	251	254	46	49
	95	456.52	.73	92	274	1.65	4	249	252	44	49
11	100	460.11	.69	92	274	1.7	4	249	253	44	49

Traverse:	Initial Leak Check:	Final Leak Check:
Start Time: 3:04	Start Time:	Finish Time:
Finish Time:	cfm@	cfm@
	"Hg	"Hg

Project No.: AST-2025-2049
Operator: Tylor

Field Data Sheet

Date: May 14, 2025	Plant: Reworld	Test No.: 2	Page 3 of 4
Plant Location: Courtyce, Ontario	Test Location: APC Outlet No. 2		

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Impinger Temp Outlet °F	Inlet/Trap °F
	105	463.6.	.72	92	264	1.6	4.	248	253	43	49.
12	110	467.21	.74	92	266	1.7	4.	247	252	44	49.
	115	470.83	.73	92	265	1.75	4	246	253	44	49
1	120	474.9	.92	91	277	2.15	5.	250	254	57	44
	125	478.96.	.96.	91	280	2.15	5.	250	254	41	44
2	130	483.05.	.97.	91	281	2.2	5.	249	250	40	44
	135	487.15.	.97	91	281	2.2	5.	249	252	41	46.
3	140	491.26.	.96	91	281	2.2	5.	248	256	41	47
	145	495.37	.95.	91	281	2.2	5.	247	253	42	45.
4	150	499.43	.87.	92	281	2.15.	5.	247	252	43	45.
	155	503.31	.88	91	281	2.0	5.	247	255	43	45.
5	160	507.22.	.83	91	281	2.0	5.	247	253	43	46.
	165	510.07	.82.	91	282	1.9	5.	248	253	44	43.
6	170	514.86.	.77	92	282	1.9	5.	247	254	44	43.
	175	518.58.	.72	91	282	1.8	5.	248	253	44	43.
7	180	522.1	.71	91	281	1.65	4.	248	252	45	43
	185	525.63	.72.	91	280	1.65	4	249	253	44	43
8	190	529.15.	.75.	91	280	1.65	4.	250	253	45	44
	195	532.76.	.81	91	280	1.75.	4.	250	253	44	42.
9	200	536.52.	.84	91	281	1.9	5.	256	252	44	44.
	205	540.355	.84	91	281	2.0	5.	252	253	45	42.

Traverse: 1	Traverse: 2
Start Time: 16:04	Start Time: 16:17
Initial Leak Check: .005 cfm@	Initial Leak Check: .004 cfm@
Final Leak Check: .005 cfm@	Final Leak Check: cfm@
"Hg	"Hg
"Hg	"Hg

Project No.: AST-2025-2049
Operator: TJC

Field Data Sheet

Date: May 14, 2025	Plant: Reworld	Test No.: 2	Page 4 of 4
	Plant Location: Courtrice, Ontario	Test Location: APC Outlet No. 2	

[illegible]

Traverse: 2	Initial Leak Check:	cfm@	"Hg
Start Time:			
Finish Time:	17:17	602 cfm@	15 "Hg

Project No.: AST-2025-2049

Operator: TYC.

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	3
Test Date	May 15, 2025
Test Location	APC Outlet No. 3
Operator	TYC

Project No.:	AST-2025-2049
Page	1 of 4
Probe No.:	GA-series
Meter Box No.:	MB 17
Impinger Box No.:	13

Pitot Factor	.840
DGMCF (V)	.983
Barometric Pressure	29.57
Static Pressure	-9.8
Nozzle Size	.2440
Stack Diameter	54
Length	feet
Width	feet
Port length:	11

Moisture Gain	
Total	680.7

Combustion Gas Concentration	
Oxygen	8.25
Carbon Dioxide	10.41
Carbon Monoxide	15.2

Reading Interval	5 min
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

Measuring Device	ID
Probe / Pitot	SIO
Trendicator	
Control Box	MB 17
Incline Manometer	"
Comb. Gas Analyzer	CMS
Micromanometer	
Barometer	ENV.CAN.
Calipers	CAL-2

Site Diagram

Nozzle Measurements	
1	.2440
2	.2445
3	.2440
Average: .2442	

Notes:

Field Data Sheet

Date: May 15, 2025	Plant: Reworld	Test No.: 3	Page 2 of 4
Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 2		

Point	Clock Time	Meter ft ³	Pitot Δ P "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Impinger Temp Inlet/Trap °F
1	0	567.74	.94	79	275	2.1	5	250	252	70	59
	5	571.72	.92	79	277	2.1	5	254	254	57	42
2	10	575.55	.96	79	277	2.05	5	254	249	52	42
	15	579.51	.97	80	278	2.15	5	253	255	49	41
3	20	583.49	.89	80	279	2.15	5	252	252	49	42
	25	587.355	.85	81	279	2.0	5	251	251	49	43
4	30	591.18	.77	81	279	1.95	5	250	255	49	45
	35	594.81	.80	82	278	1.7	4	250	251	49	44
5	40	598.46	.76	82	279	1.8	5	248	252	49	44
	45	601.88	.69	83	279	1.55	4	247	254	48	44
6	50	605.295	.69	84	279	1.55	4	246	251	48	44
	55	608.68	.62	84	279	1.55	4	246	253	48	45
7	60	611.98	.69	85	279	1.4	4	246	254	48	45
	65	615.37	.72	85	278	1.55	4	247	251	47	42
8	70	618.865	.71	86	279	1.6	4	247	253	47	44
	75	622.38	.69	86	279	1.6	4	249	253	47	41
9	80	625.83	.75	86	276	1.55	4	251	251	47	40
	85	629.39	.78	87	278	1.7	5	249	253	47	40
10	90	633.01	.80	87	278	1.75	5	254	253	47	41
	95	636.715	.75	88	279	1.8	5	254	251	47	43
11	100	640.31	.63	88	278	1.7	5	257	253	48	43

Traverse: 1	Initial Leak Check: 07:46	Final Leak Check:	Start Time: 07:46	Finish Time:
	cfm@ 15	cfm@	Initial Leak Check: cfm@	Final Leak Check: cfm@
	"Hg	"Hg	"Hg	"Hg

Project No.: AST-2025-2049
Operator: TYC

Field Data Sheet

Date: May 15, 2005.	Plant: Reworld	Test No.: 3	Page 3 of 4
Plant Location: Courtice, Ontario	Test Location: APC Outlet No. 2		

Point	Clock Time	Meter ft ³	Pitot ΔP "H ₂ O	DGM Temp AVG. °F	Stack Temp °F	Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge	Probe Temp °F	Oven Temp °F	Outlet °F	Inlet/Trap °F
	105	643.605.	.61	88	264	1.4	4.	258	253	49	43.
12	110	646.86	.63	88	263	1.4	4	259	251	49	44
	115	650.14	.62.	88	263	1.45	4.	257	253	49	46
1	120	653.857	.85	88	275	1.95	5	245	253	60	40.
	125	657.75.	.82	88	278	1.95	5.	250	256	46	38
2	130	661.49	.81	88	278	1.85	5.	252	249	46	38.
	135	665.195.	.79.	88	278	1.8	5.	254	252	45	39
3	140	668.855	.80.	88	278	1.8	5.	257	257	45	39.
	145	672.56	.82	89	248	1.85	5.	257	250	45	40
4	150	676.27	.76.	89	278	1.85	5.	257	253	46	40.
	155	679.9	.77	89	278	1.7	5.	257	256	46	40.
5	160	683.5.	.75	89	279	1.7	5.	256	249	46	42.
	165	687.095.	.72.	89	279	1.7	5.	255	253	46	40
6	170	690.6.	.67.	89	279	1.6	4.	254	256	47	39
	175	694.075.	.65.	89	279	1.5	4	253	250	47	39
7	180	697.38	.69	89	279	1.45.	4.	251	253	48	40.
	185	700.77	.69	89	280	1.55.	4.	252	255	45	39
8	190	704.17	.75.	90	280	1.55.	4	248	250	44	38
	195	707.725.	.73	90	280	1.7	5.	246	252	43	38.
9	200	711.25.	.75.	90	280	1.65	4.	246	255	43	38.
	205	714.78.	.78	90	281	1.7	5.	246	249	43	38.

Traverse: 1	Traverse: 2
Start Time: 09:46.	Start Time: 09:55.
Initial Leak Check: cfm@	Initial Leak Check: .003 cfm@
Final Leak Check: .003 cfm@	Final Leak Check: cfm@
"Hg	"Hg
"Hg	"Hg

Project No.: AST-2025-2049

Operator: JYC

Field Data Sheet

Date: May 15, 2005.	Plant: Reworld	Test No.: 3	Page 4 of 4
	Plant Location: Courtrice, Ontario	Test Location: APC Outlet No. 2	

[illegible]

Traverse: 2	Traverse:	
Start Time:	Initial Leak Check:	"Hg
Finish Time: 11:55	Final Leak Check: 0.03	"Hg

Project No.: AST-2025-2049

Operator: TYC.

APPENDIX 7

Acid Gas Field Data Sheets (12 pages)

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	Hydrogen Fluoride (HF) M26A
Test Date	12 May 05
Test Location	APC Outlet No. 1
Operator	TF

Pitot Factor	0.840
DGMCF (Y)	0.990
Barometric Pressure	29.94 "Hg
Static Pressure	-8.4 "H2O
Nozzle Size	.2462 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	143.0 g

Combustion Gas Concentration	
Oxygen	8.79 %
Carbon Dioxide	10.39 %
Carbon Monoxide	15.2 ppm

Reading Interval	5 min
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

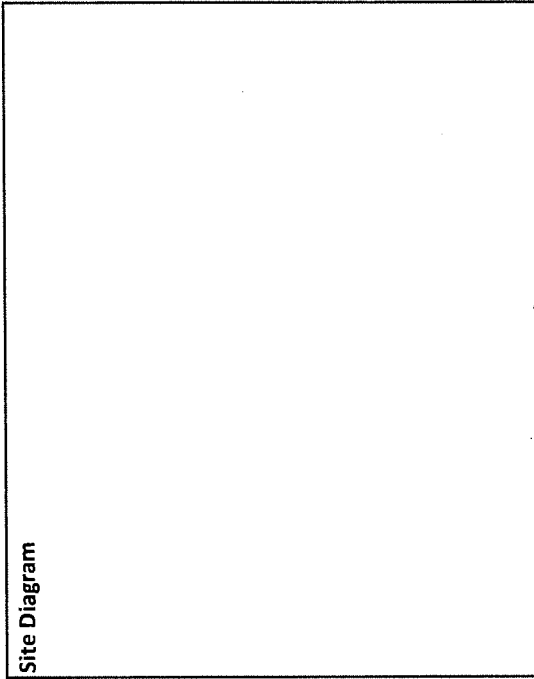
Notes:

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	6 series
Meter Box No.:	MB 18
Impinger Box No.:	

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB 18
Control Box	MB 18
Incline Manometer	MB 18
Comb.Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Nozzle Measurements	
1	_____
2	_____
3	_____
Average:	_____

Site Diagram



Field Data Sheet

Date: May 12, 2021	Plant: Covanta DYEC	Test No.: /	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 ₂ O	Desired cfm	Stack Temp °F	Probe Temp °F	Over: Temp °F	Impinger Temp		Meter Temp		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
1	0	716.66	.70	.69	292	250	252	68	71	70	70	1.6	3
	5	720.16	.71	.69	287	251	251	55	72	72	72	1.6	3
	10	723.56	.72	.68	287	251	250	53		72	72	1.55	3
	15	726.95	.72	.68	287	251	257	54		72	72	1.55	3
	20	730.24	.76	.67	287	251	251	56		73	73	1.65	3
	25	733.65	.76	.67	287	251	251	60		73	73	1.65	3.5
	30	737.13	.76	.68	288	251	250	65		74	74	1.65	3.5
	35	740.62	.76	.68	288	251	250	66		75	75	1.65	3.5
	40	744.13	.77	.68	288	251	257	64		76	76	1.65	3.5
	45	747.63	.68	.68	289	251	251	63		76	76	1.5	3
	50	750.95	.62	.68	288	251	250	61		77	77	1.35	3
	55	754.12	.62	.67	287	251	257	60		78	78	1.35	3
	60	757.26											

Traverse:		Initial Leak Check:		cfm @	"Hg
Start Time: 9:34	Initial Leak Check: .005	cfm @	15.1	"Hg	
Finish Time: 10:34	Final Leak Check: .002	cfm @	14.5	"Hg	

Project No.: AST-2025-2049
Operator: 

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	2 Hydrogen Fluoride (HF) M26A
Test Date	
Test Location	APC Outlet No. 1
Operator	TT/TC

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	6-Series
Meter Box No.:	M1318
Impinger Box No.:	

Pitot Factor	.840
DGMCF (V)	.990
Barometric Pressure	29.90 "Hg
Static Pressure	-8.4 "H2O
Nozzle Size	.2462 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	170.5 g

Combustion Gas Concentration	
Oxygen	9.36 %
Carbon Dioxide	9.94 %
Carbon Monoxide	6.5 ppm

Measuring Device	ID
Probe / Pitot	SP
Trendicator	M1318
Control Box	M1318
Incline Manometer	M1318
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV. CAN.
Calipers	

Reading Interval	5 min
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

Site Diagram

Nozzle Measurements	
1	_____
2	_____
3	_____
Average:	_____

Notes:

Field Data Sheet

Date: May 12 2025	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 ₂ O	Desired cfm	Stack Temp °F	Probe Temp °F	Over Temp °F	Impinger Temp		Meter Temp		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
1	0	757.64	.70	.67	286	251	249	73		78	78	1.1	2.5
	5	760.03	.71	.67	286	251	251	57		78	78	1.55	2.5
	10	764.43	.71	.67	285	251	250	53		78	78	1.55	2.5
	15	767.82	.74	.67	287	251	251	52		78	78	1.6	3
	20	771.27	.80	.68	287	251	251	53		78	78	1.7	3
	25	774.88	.80	.69	287	251	251	53		79	79	1.7	3
	30	778.51	.86	.70	288	251	251	53		79	79	1.9	3.5
	35	782.24	.86	.71	289	251	252	53		79	79	1.9	3.5
	40	786.14	.79	.71	289	251	251	54		80	80	1.7	3
	45	789.73	.79	.71	289	251	251	55		80	80	1.7	3
	50	793.27	.79	.71	289	251	251	55		81	81	1.7	3
	55	796.89	.75	.71	289	251	251	56		81	81	1.65	3
	60	800.45											

Traverse:	Initial Leak Check:		Initial Leak Check:	
Start Time: 11:11	104	cfm @ 14	cfm @	"Hg
Finish Time:	106	cfm @ 15	cfm @	"Hg

Project No.: AST-2025-2049
Operator: <i>[Signature]</i>

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	3 Hydrogen Fluoride (HF) M26A
Test Date	May 12 2021
Test Location	APC Outlet No. 1
Operator	IT TC

Pitot Factor	840
DGMCF (V)	990
Barometric Pressure	29.86 "Hg
Static Pressure	84 "H2O
Nozzle Size	54 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	164.2 g

Combustion Gas Concentration	
Oxygen	9.57 %
Carbon Dioxide	9.38 %
Carbon Monoxide	14.6 ppm

Reading Interval	5 min
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

Notes:

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	6 - Series
Meter Box No.:	MB 18
Impinger Box No.:	

Measuring Device	ID
Probe / Pitot	58
Trendicator	MB 18
Control Box	MB 18
Incline Manometer	MB 18
Comb. Gas Analyzer	
Micromanometer	
Barometer	ENV. CAN.
Calipers	

Nozzle Measurements	
1	
2	
3	
Average:	

Site Diagram

Field Data Sheet

Date: May 11 2025	Plant: Covanta DYEC	Test No.: 3	M26A	Page 2 of 2
Plant Location: Courtoice, Ontario	Test Location: APC Outlet No. 1			

Point	M26A Clock Time	Dry Gas Meter ft ³	Pitot Δ P "H ₂ O	Desired cfm	Stack Temp °F	Probe Temp °F	Over: Temp °F	Impinger Temp		Meter Temp		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge	
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F			
1	0	800.93	.81	.73	288	251	251	71			80	80	1.8	3.5
	5	804.61	.81	.73	288	253	253	53			80	80	1.8	3.5
	10	808.29	.79	.72	287	253	254	52			79	79	1.7	3.5
	15	811.86	.77	.71	287	253	252	52			79	79	1.65	3.5
	20	815.36	.77	.71	286	253	253	53			79	79	1.7	3.5
	25	818.86	.77	.71	286	253	252	53			79	79	1.7	3.5
	30	822.51	.80		285	253	253	54			80	80	1.75	3.5
	35	826.08	.81		286	253	253	56			80	80	1.75	3.5
	40	829.68	.78		285	253	252	56			81	81	1.7	3.5
	45	833.26	.75		285	253	253	58			81	81	1.65	3.5
	50	836.77	.71		284	253	253	60			81	81	1.55	3
	55	840.22	.71		283	253	253	62			82	82	1.55	3
	60	843.64												

Traverse:	Initial Leak Check:	Final Leak Check:	cfm @	"Hg
Start Time: 13:07	0.02	0.02	cfm @	14.5
Finish Time: 14:07	0.02	0.02	cfm @	15

Project No.: AST-2025-2049
Operator: 17/16

3

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	1 Hydrogen Fluoride (HF) M26A
Test Date	May 13 2023
Test Location	APC Outlet No. 2
Operator	

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	6-Series
Meter Box No.:	MB17
Impinger Box No.:	2

Pitot Factor	840
DGMCF (Y)	983
Barometric Pressure	29.78
Static Pressure	-9.1
Nozzle Size	2442
Stack Diameter	54
Length	
Width	
Port length:	11

Moisture Gain	
Total	154.5 g
Combustion Gas Concentration	
Oxygen	8.39 %
Carbon Dioxide	10.56 %
Carbon Monoxide	13.2 ppm

Measuring Device	ID
Probe / Pitot	S10
Trendicator	MB17
Control Box	MB17
Incline Manometer	MB17
Comb.Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Reading Interval	5 min
Number of Ports	1
Number of Points/Port	1

Site Diagram

Nozzle Measurements
1
2
3
Average:

Probe Liner Glass / Metal / Teflon / Other _____

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

Notes:

Field Data Sheet

Date: May 13 2021	Plant: Covanta DYEC	Test No.: 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 ₂ O	Stack Temp °F	Probe Temp °F	Over Temp °F	Impinger Temp		Meter Temp		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
							Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
1	0	955.36	.73	282	250	251	75	/	78	78	1.6	3
	5	958.85	.74	282	256	251	54	/	78	78	1.6	3
	10	962.25	.71	281	255	253	51	/	78	78	1.55	3
	15	965.66	.71	280	256	253	51	/	79	79	1.55	3
	20	969.05	.71	280	254	252	51	/	79	79	1.55	3
	25	972.39	.73	280	254	253	52	/	79	79	1.55	3
	30	975.84	.71	281	253	252	28	/	80	80	1.62	3
	35	979.19	.67	281	252	253	53	/	81	81	1.6	3
	40	982.53	.66	280	249	252	54	/	81	81	1.5	3
	45	985.805	.67	279	249	253	54	/	82	82	1.5	3
	50	989.21	.66	280	247	252	55	/	83	83	1.5	3
	55	992.62	.63	279	246	253	56	/	83	83	1.5	3
	60	995.855										

Traverse: Start Time: 7:57 Finish Time: 8:57	Initial Leak Check: .002 Final Leak Check: .002	Initial Leak Check: Final Leak Check:	cfm @ cfm @	"Hg "Hg

Project No.: AST-2025-2049
 Operator: TT/TC

Alliance Technical Group

Plant	Reworld
Plant Location	Courtoice, Ontario
Test No.:	2 Hydrogen Flouride (HF) M26A
Test Date	
Test Location	APC Outlet No. 2
Operator	TT/TC

Pitot Factor	1.840	
DGMCF (Y)	1.983	
Barometric Pressure	29.78	"Hg
Static Pressure	-9.1	"H2O
Nozzle Size	1.2442	inches
Stack Diameter	54	inches
Length		feet
Width		feet
Port length:	11	inches

Reading Interval	5 min
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

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	6 - Series
Meter Box No.:	MB17
Impinger Box No.:	2

Measuring Device	ID
Probe / Pitot	S 10
Trendicator	MB 17
Control Box	MB 17
Incline Manometer	MB 17
Comb.Gas Analyzer	
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Moisture Gain	
Total	153.7 g

Combustion Gas Concentration	
Oxygen	8.38 %
Carbon Dioxide	10.48 %
Carbon Monoxide	16.1 ppm

Site Diagram

Nozzle Measurements
1 _____
2 _____
3 _____
Average: _____

Notes:

Field Data Sheet

Date: May 13 2025	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 ₂ O	Desired cfm	Stack Temp °F	Probe Temp °F	Oven Temp °F	Impinging Temp		Meter Temp		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
1	0	996.54	.72		282	251	252	72		83	83	1.55	2.5
	5	999.98	.72		282	254	253	55		83	83	1.55	2.5
	10	1003.41	.68		281	255	253	52		83	83	1.45	2.5
	15	1006.75	.66		279	256	251	51		83	83	1.4	2.5
	20	1010.08	.65		278	257	253	52		93	83	1.4	2.5
	25	1013.45	.67		278	256	252	52		83	83	1.45	2.5
	30	1016.68	.65		278	258	252	52		83	83	1.45	2.5
	35	1019.98	.65		278	255	253	53		84	84	1.45	2.5
	40	1023.31	.66		278	255	253	53		84	84	1.45	2.5
	45	1026.59	.69		277	252	252	54		84	84	1.5	2.5
	50	1029.97	.64		278	251	252	54		85	85	1.5	2.5
	55	1033.35	.66		278	249	252	55		85	85	1.45	2.5
	60	1036.65											

Traverse:		Initial Leak Check:		cfm @		"Hg	
Start Time: 9:38	Initial Leak Check: .003	cfm @	15	"Hg			
Finish Time: 10:38	Final Leak Check: .004	cfm @	15	"Hg			

Project No.: AST-2025-2049
Operator: T/T

Alliance Technical Group

Plant	Reworld
Plant Location	Courtice, Ontario
Test No.:	3 Hydrogen Fluoride (HF) M26A
Test Date	May 13 2013
Test Location	APC Outlet No. 2
Operator	TJ/TG

Project No.:	AST-2025-2049
Page	1 of 2
Probe No.:	6-Service
Meter Box No.:	M1317
Impinger Box No.:	2

Pitot Factor	1.40
DGMCF (Y)	1.93
Barometric Pressure	29.78 "Hg
Static Pressure	-9.1 "H2O
Nozzle Size	1/2" 54 inches
Stack Diameter	54 inches
Length	feet
Width	feet
Port length:	11 inches

Moisture Gain	
Total	155.6 g

Combustion Gas Concentration	
Oxygen	8.30 %
Carbon Dioxide	10.60 %
Carbon Monoxide	30.3 ppm

Measuring Device	ID
Probe / Pitot	310
Trendicator	M17
Control Box	M17
Incline Manometer	M17
Comb. Gas Analyzer	M17
Micromanometer	
Barometer	ENV.CAN.
Calipers	

Reading Interval	5 min
Number of Ports	1
Number of Points/Port	1

Site Diagram

Nozzle Measurements	
1	
2	
3	
Average:	

Probe Liner Glass / Metal / Teflon / Other _____

Nozzle Glass / Metal / Other _____

Union None / Metal / Teflon / Other _____

Pitot Leak Checked? Yes No

Notes:

Field Data Sheet

Date: May 17 2021	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 ₂ O	Desired cfm	Stack Temp °F	Probe Temp °F	Over Temp °F	Impinger Temp		Meter Temp		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
								Outlet °F	Inlet/Trap °F	Outlet °F	Inlet °F		
1	0	37.12	.65		278	249	251	72		86	86	1.4	2.0
	5	40.40	.65		279	250	253	59		86	86	1.4	2.0
	10	43.69	.65		279	248	252	56		86	86	1.4	2.0
	15	46.98	.65		280	253	252	56		86	86	1.4	2.0
	20	50.26	.65		280	246	253	56		86	86	1.4	2.0
	25	53.54	.66		280	246	253	57		86	86	1.4	2.0
	30	56.84	.63		280	246	252	58		87	87	1.35	2.0
	35	60.09	.64		279	247	252	59		87	87	1.4	2.0
	40	63.34	.64		280	248	252	60		87	87	1.4	2.0
	45	66.59	.64		279	249	252	62		88	88	1.4	3
	50	69.89	.63		279	252	252	65		88	88	1.4	3
	55	73.22	.68		279	251	252	66		88	88	1.5	3
	60	76.58											

Traverse:		Initial Leak Check:		Final Leak Check:	
Start Time: 10:51	Initial Leak Check: .004	cfm @ 15	"Hg	cfm @	"Hg
Finish Time: 11:51	Final Leak Check: .004	cfm @ 21	"Hg	cfm @	"Hg

Project No.: AST-2025-2049
Operator: TT/TC

APPENDIX 8

VOC Field Data Sheets (2 pages)

Summa Cannister Data Sheet

Company:	Reworld
Location:	UNIT 1
Date:	MAY 14. 2026
Canister ID:	06000-0396
VRF ID:	CS1200-0044
Test:	1

Project:	AST-2025-2049

Time On:	0814
Time Off:	1006.
Total Time:	

Initial Pressure:	30	(in. Hg)
Final Pressure:	5.0	(in. Hg)

Operator:	Jay [Signature]

Company:	Reworld
Location:	UNIT #1
Date:	MAY 14 2025
Canister ID:	06000-0695
VRF ID:	CS1200-0187
Test:	2.

Time On:	1008.
Time Off:	1220
Total Time:	

Initial Pressure:	30	(in. Hg)
Final Pressure:	5	(in. Hg)

Operator:	Jay [Signature]

Company:	Reworld
Location:	UNIT #1
Date:	MAY 14. 2026
Canister ID:	06000-0589
VRF ID:	CS1200-0190
Test:	3

Time On:	1416
Time Off:	1613
Total Time:	

Initial Pressure:	29	(in. Hg)
Final Pressure:	6	(in. Hg)

Operator:	Jay [Signature]

Company:	
Location:	
Date:	
Canister ID:	
VRF ID:	
Test:	

Time On:	
Time Off:	
Total Time:	

Initial Pressure:		(in. Hg)
Final Pressure:		(in. Hg)

Operator:	

Summa Cannister Data Sheet

Company:	Reworld
Location:	OUTLET 2
Date:	MAY 14/25
Canister ID:	06000-0449
VRF ID:	CS1200-0183
Test:	1

Project:	AST-2025-2049

Time On:	8:12
Time Off:	10:20
Total Time:	

Initial Pressure:	29	(in. Hg)
Final Pressure:	5	(in. Hg)

Operator:	DWT

Company:	Reworld
Location:	OUTLET 2
Date:	MAY 14/25
Canister ID:	06000-0017
VRF ID:	CS1200-0600984
Test:	2

Initial Pressure:	29	(in. Hg)
Final Pressure:	5	(in. Hg)

Time On:	10:22-10:45
Time Off:	13:06
Total Time:	

Operator:	DWT

Company:	Reworld
Location:	OUTLET 2
Date:	MAY 14/25
Canister ID:	06000-0399
VRF ID:	CS1200-060
Test:	3

Initial Pressure:	30	(in. Hg)
Final Pressure:	9	(in. Hg)

Time On:	13:07
Time Off:	16:14
Total Time:	

Operator:	1306

Company:	
Location:	
Date:	
Canister ID:	
VRF ID:	
Test:	

Initial Pressure:		(in. Hg)
Final Pressure:		(in. Hg)

Time On:	
Time Off:	
Total Time:	

Operator:	

APPENDIX 9

Aldehydes Field Data Sheets (8 pages)

Location **Reworld Durham York Renewable Energy L.P - Courtice, ON**
Source **APC Outlet No. 1**
Project No. **AST-2025-2049**
Parameter(s) **Aldehydes**
Console Type **Low Flow**

Run No.	1	2	3
Date	7-10-25	7-10-25	7-10-25
Status	VALID	VALID	VALID
Start Time	10:30	11:51	13:14
End Time	11:30	12:51	14:14
Run Time, min (θ)	60	60	60
Meter ID	VOST 4	VOST 4	VOST 4
Meter Correction Factor (Y)	1.0101	1.0101	1.0101
Max Vacuum, in. Hg	2	2	2
Pre Leak Check, L/min	0.001	0.001	0.001
Post Leak Check, L/min (at max vac.)	0.001	0.001	0.001
Meter Volume, L			
0	63.8	94.7	26.7
5	66.7	97.1	29.2
10	69.0	99.7	31.8
15	71.4	102.4	34.7
20	73.8	105.1	37.4
25	76.5	107.6	39.8
30	79.0	110.3	42.2
35	81.6	112.6	44.4
40	84.0	115.2	46.8
45	86.6	117.5	49.2
50	89.0	120.1	52.0
55	91.5	122.4	54.7
60	94.0	125.0	57.3
Total Meter Volume, L (Vm)	30.200	30.300	30.600
Temperature, °C	Probe Stack Imp. Exit Meter ΔH Vacuum	Probe Stack Imp. Exit Meter ΔH Vacuum	Probe Stack Imp. Exit Meter ΔH Vacuum
0	130 136 11 26 0.8 2	130 140 12 32 0.8 2	131 141 13 33 0.8 2
5	138 139 11 29 0.8 2	136 141 12 34 0.8 2	135 141 13 35 0.8 2
10	132 139 10 31 0.8 2	136 141 12 35 0.8 2	132 142 12 36 0.8 2
15	131 139 10 31 0.8 2	132 141 11 35 0.8 2	134 142 11 36 0.8 2
20	134 139 10 32 0.8 2	136 141 11 35 0.8 2	132 142 12 36 0.8 2
25	136 139 11 32 0.8 2	136 141 12 35 0.8 2	135 142 12 36 0.8 2
30	135 139 12 33 0.8 2	134 141 10 36 0.8 2	135 142 11 37 0.8 2
35	134 139 12 34 0.8 2	136 141 10 36 0.8 2	136 142 11 37 0.8 2
40	132 140 12 34 0.8 2	136 141 10 36 0.8 2	134 141 11 38 0.8 2
45	135 140 11 35 0.8 2	136 141 11 36 0.8 2	131 141 10 38 0.8 2
50	135 140 11 35 0.8 2	136 141 11 37 0.8 2	131 142 10 38 0.8 2
55	135 140 12 36 0.8 2	133 141 11 37 0.8 2	132 141 12 38 0.8 2
60	136 140 12 36 0.8 2	136 141 11 37 0.8 2	133 141 12 38 0.8 2
Average Temperature, °C (Tm)	134 139 -- 33 -- --	135 141 -- 35 -- --	133 142 -- 37 -- --
Average Temperature, °K (Tm)	407 412 -- 306 -- --	408 414 -- 309 -- --	406 415 -- 310 -- --
Minimum Temperature, °C	130 136 10 -- -- --	130 140 10 -- -- --	131 141 10 -- -- --
Maximum Temperature, °C	138 140 12 -- -- --	136 141 12 -- -- --	136 142 13 -- -- --
Barometric Pressure, in. Hg (Pb)	29.56	29.56	29.56
Meter Orifice Pressure, in. WC (ΔH)	0.8	0.8	0.8
Meter Pressure, in. Hg (Pm)	29.62	29.62	29.62
Reference Meter Volume, L (Vmref)	29.45	29.27	29.45
Reference Meter Volume, Rm³ (Vmref)	0.0294	0.0293	0.0295

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Location **Reworld Durham York Renewable Energy L.P - Courtice, ON**
Source **APC Outlet No. 2**
Project No. **AST-2025-2049**
Parameter(s) **Aldehydes**
Console Type **Low Flow**

Run No.	1	2	3
Date	7-10-25	7-10-25	7-10-25
Status	VALID	VALID	VALID
Start Time	10:29	11:51	13:17
End Time	11:29	12:51	14:17
Run Time, min (θ)	60	60	60
Meter ID	Vost5	Vost5	Vost5
Meter Correction Factor (Y)	0.9884	0.9884	0.9884
Max Vacuum, in. Hg	1	1	1
Pre Leak Check, L/min	0.005	0.005	0.004
Post Leak Check, L/min (at max vac.)	0.005	0.005	0.006
Meter Volume, L			
0	87.10	214.70	247.50
5	90.40	217.65	249.90
10	92.40	220.65	252.30
15	94.40	223.70	255.00
20	96.65	226.70	257.45
25	98.85	229.65	259.85
30	100.90	231.95	262.45
35	103.10	233.15	265.05
40	105.35	234.25	268.00
45	107.55	236.65	271.00
50	109.40	239.70	274.15
55	110.80	242.85	277.20
60	112.30	244.75	280.45
Total Meter Volume, L (Vm)	25.200	30.050	32.950
Temperature, °C	Probe Stack Imp. Exit Meter ΔH Vacuum	Probe Stack Imp. Exit Meter ΔH Vacuum	Probe Stack Imp. Exit Meter ΔH Vacuum
0	127 136 26 25 0.5 1	126 142 23 28 0.5 1	126 140 20 28 0.5 1
5	128 137 18 26 0.5 1	124 140 18 28 0.5 1	127 138 16 28 0.5 1
10	129 137 16 26 0.5 1	126 139 18 27 0.5 1	127 138 16 28 0.5 1
15	129 140 16 26 0.5 1	127 140 16 28 0.5 1	128 139 15 28 0.5 1
20	128 136 15 27 0.5 1	127 140 16 28 0.5 1	128 140 15 28 0.5 1
25	126 137 15 27 0.5 1	127 140 16 28 0.5 1	128 139 15 28 0.5 1
30	126 136 15 27 0.5 1	127 140 15 28 0.5 1	128 138 15 28 0.5 1
35	127 137 15 28 0.5 1	126 140 15 28 0.5 1	126 138 15 28 0.5 1
40	127 139 15 28 0.5 1	127 140 15 28 0.5 1	127 137 14 28 0.5 1
45	126 137 15 28 0.5 1	128 140 15 28 0.5 1	127 137 14 28 0.5 1
50	126 136 15 28 0.5 1	127 140 16 28 0.5 1	127 137 14 28 0.5 1
55	126 137 16 28 0.5 1	128 140 16 28 0.5 1	127 136 15 28 0.5 1
60	126 136 16 28 0.5 1	128 140 16 28 0.5 1	126 137 15 28 0.5 1
Average Temperature, °C (Tm)	127 137 -- 27 -- --	127 140 -- 28 -- --	127 138 -- 28 -- --
Average Temperature, °K (Tm)	400 410 -- 300 -- --	400 413 -- 301 -- --	400 411 -- 301 -- --
Minimum Temperature, °C	126 136 15 -- --	124 139 15 -- --	126 136 14 -- --
Maximum Temperature, °C	129 140 26 -- --	128 142 23 -- --	128 140 20 -- --
Barometric Pressure, in. Hg (Pb)	29.56	29.56	29.56
Meter Orifice Pressure, in. WC (ΔH)	0.5	0.5	0.5
Meter Pressure, in. Hg (Pm)	29.60	29.60	29.60
Reference Meter Volume, L (Vmref)	24.47	29.10	31.90
Reference Meter Volume, Rm³ (Vmref)	0.0245	0.0291	0.0319

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Alliance Technical Group
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC	
Plant Location:	Courtice, Ontario	
Test No.: <u>1</u>		
Test location:	APC Outlet No. <u>1</u>	
Date: <u>July 10, 2025</u>		
Project No.: <u>AST-2025-2049</u>		

Measuring Device	ID
Control Module	<u>vest 4</u>
Barometer	Env Canada

Barometric Pressure: <u>27.56</u>	"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 ₂ O	Pump Vacuum "Hg Gauge
0	63.8	130	136	11	26	0.8	2
5	66.7	138	139	11	29	0.8	2
10	69.0	137	139	10	31	0.8	2
15	71.4	131	139	10	31	0.8	2
20	73.8	134	139	10	32	0.8	2
25	76.5	136	139	11	32	0.8	2
30	79.0	135	139	12	33	0.8	2
35	81.5	134	139	12	34	0.8	2
40	84.0	132	140	12	34	0.8	2
45	86.6	135	140	11	35	0.8	2
50	87.9	135	140	11	35	0.8	2
55	91.5	132	140	12	36	0.8	2
60	94.0	136	140	12	36	0.8	2

Start Time: <u>10:30</u>	
Finish Time: <u>11:30</u>	
Initial Leak Check: <u>0.07</u>	Lpm @ <u>15</u> "Hg
Final Leak Check: <u>0.07</u>	Lpm @ <u>15</u> "Hg

DGMCF: <u>1.0101</u>
Sample Volume: <u>30.2</u>
Average DGM Temp: <u>33</u>
Average DGM Δ H: <u>0.8</u>

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: BEP

Alliance Technical Group
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC		
Plant Location:	Courtice, Ontario		
Test No.:	2		
Test location:	APC Outlet No. 1		
Date:	July 10, 2025		
Project No.:	AST-2025-2049		

Measuring Device	ID
Control Module	105T 4
Barometer	Env Canada

Barometric Pressure:	29.56
	"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 ₂ O	Pump Vacuum "Hg Gauge
0	94.7	130	140	12	32	0.8	2
5	97.1	136	141	12	34	0.8	2
10	99.7	136	141	12	35	0.8	2
15	102.4	132	141	11	35	0.8	2
20	105.1	136	141	11	35	0.8	2
25	107.6	136	141	12	35	0.8	2
30	110.3	134	141	10	36	0.8	2
35	112.6	136	141	10	36	0.8	2
40	115.2	136	141	10	36	0.8	2
45	117.5	136	141	11	36	0.8	2
50	120.1	136	141	11	37	0.8	2
55	122.4	133	141	11	37	0.8	2
60	122	136	141	11	37	0.8	2

Start Time:	11:51		
Finish Time:	12:51		
Initial Leak Check:	2.01	Lpm @ 15	" Hg
Final Leak Check:	2.01	Lpm @ 15	" Hg

DGMCF:	1.6101
Sample Volume:	30.3
Average DGM Temp:	35
Average DGM Δ H:	0.8

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: BCP

Alliance Technical Group
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC
Plant Location:	Courtice, Ontario
Test No.: 3	
Test location:	APC Outlet No. 1
Date: July 10, 2025	
Project No.: AST-2025-2049	

Measuring Device	ID
Control Module	10ST 41
Barometer	Env Canada

Barometric Pressure:	29.56
	"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 ₂ O	Pump Vacuum "Hg Gauge
0	26.7	131	141	13	33	0.8	2
5	29.2	135	141	13	35	0.8	2
10	31.8	132	142	12	36	0.8	2
15	34.7	134	142	11	36	0.8	2
20	37.4	132	142	12	36	0.8	2
25	39.8	135	142	12	36	0.8	2
30	42.2	135	142	11	37	0.8	2
35	44.4	136	142	11	37	0.8	2
40	46.8	139	141	11	38	0.8	2
45	49.2	131	141	10	38	0.8	2
50	52.0	131	142	10	38	0.8	2
55	54.7	132	141	12	38	0.8	2
60	57.3	133	141	12	38	0.8	2

Start Time: 13:14	
Finish Time: 14:14	
Initial Leak Check:	0.1 > Lpm @ 15 "Hg
Final Leak Check:	0.1 > Lpm @ 15 "Hg

DGMCF: 1.0/01	
Sample Volume:	30.6
Average DGM Temp:	37
Average DGM Δ H:	0.8

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: BCP

Alliance Technical Group
NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC		
Plant Location:	Courtice, Ontario		
Test No.:			
Test location:	APC Outlet No. <u>2</u>		
Date:	<u>July 10, 2025.</u>		
Project No.:	AST-2025-2049		

Measuring Device	ID
Control Module	<u>V05T 5.</u>
Barometer	Env Canada

Barometric Pressure:	<u>29.56.</u>	"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 ₂ O	Pump Vacuum "Hg Gauge
0	87.1	127	136	26	25.	0.5	1
5	90.4	128	137	18	26	0.5.	1
10	92.4	129	137	16	26	0.5	1
15	94.4	129	140	16	26	0.5.	1
20	96.65.	128	136	15.	27	0.5.	1
25	98.85.	126	137	15.	28	0.5	1
30	100.7	126	136	15.	27	0.5.	1.
35	103.1	127	137	15	28	0.5	1
40	105.35	127	139	15.	28	0.5.	1.
45	107.55.	126	137	15.	28	0.5.	1
50	109.4	126	136	15	28	0.5	1
55	110.8	126	137	16	28	0.5.	1
60	112.3	126	136	16	28	0.5	1

Start Time:	<u>10:29</u>
Finish Time:	<u>4:29</u>
Initial Leak Check:	<u>-005</u> Lpm @ <u>15.</u> "Hg
Final Leak Check:	<u>-005</u> Lpm @ <u>15</u> "Hg

DGMCF:	<u>.9884</u>
Sample Volume:	<u>25.2</u>
Average DGM Temp:	<u>27</u>
Average DGM Δ H:	<u>0.5.</u>

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: Tye.

Alliance Technical Group NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC	
Plant Location:	Courtice, Ontario	
Test No.:	2	
Test location:	APC Outlet No. 2	
Date:	July 10, 2025	
Project No.:	AST-2025-2049	

Measuring Device	ID
Control Module	V057 S
Barometer	Env Canada

Barometric Pressure:	29.56	"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 ₂ O	Pump Vacuum "Hg Gauge
0	214.7	126	143	23	28	0.5	1
5	217.65	124	140	18	28	0.5	1
10	220.65	126	139	18	27	0.5	1
15	223.7	127	140	16	28	0.5	1
20	226.7	127	140	16	28	0.5	1
25	229.65	127	140	16	28	0.5	1
30	231.95	127	140	15	28	0.5	1
35	233.15	126	140	15	28	0.5	1
40	234.25	127	140	15	28	0.5	1
45	236.65	128	140	15	28	0.5	1
50	237.7	127	140	16	28	0.5	1
55	240.85	128	140	16	28	0.5	1
60	244.75	128	140	16	28	0.5	1

Start Time:	11:51
Finish Time:	12:51
Initial Leak Check:	.005 Lpm @ 10 "Hg
Final Leak Check:	.005 Lpm @ 10 "Hg

DGMCF:	.9885
Sample Volume:	30.05
Average DGM Temp:	28
Average DGM Δ H:	0.5

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: TYC

Alliance Technical Group NCASI Method ISS/FP-A105.01

Plant:	Covanta DYEC	
Plant Location:	Courtice, Ontario	
Test No.:	3	
Test location:	APC Outlet No. 2	
Date:	July 10, 2025	
Project No.:	AST-2025-2049	

Measuring Device	ID
Control Module	VOST 5
Barometer	Env Canada

Barometric Pressure:	29.56	"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 ₂ O	Pump Vacuum "Hg Gauge
0	247.5	126	140	20	28	0.5	1
5	249.9	127	138	16	28	0.5	1
10	252.3	127	138	16	28	0.5	1
15	255.0	128	139	15	28	0.5	1
20	257.45	128	140	15	28	0.5	1
25	259.85	128	139	15	28	0.5	1
30	262.45	128	138	15	28	0.5	1
35	265.05	126	138	15	28	0.5	1
40	268.0	127	137	14	28	0.5	1
45	271.6	127	137	14	28	0.5	1
50	274.14	127	137	14	28	0.5	1
55	277.2	127	136	15	28	0.5	1
60	280.45	126	137	15	28	0.5	1

Start Time:	13:17
Finish Time:	14:17
Initial Leak Check:	.004 Lpm @ 10. " Hg
Final Leak Check:	- .006 Lpm @ 10. " Hg

DGMCF:	0.9884
Sample Volume:	
Average DGM Temp:	
Average DGM Δ H:	

Comments:

: sample @ ~0.5 lpm for 60 minutes.

Operator: Tyc

APPENDIX 10

Sample Log/Chain of Custody Forms (9 pages)

Alliance Technical Group North, Inc. - Sample Log
 Particulate and Metals Samples
 Reworld

Client: Reworld
 Project Number: AST-2025-2049
 Received By: C Belore
 How Received: Train Recovery
 Job Assigned To: ALS
 QUOTE/PO:

Alliance Sample ID 25-2049-PM-	Sample Date	Location	Test No.	Sample Description	Sample Media	Sample Analysis
1	12-May-25	#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	12-May-25	#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	13-May-25	#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	13-May-25	Blank	Blank	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

Alliance Technical Group North, Inc. - Sample Log
Particulate and Metals Samples
Reworld

Client: Reworld
Project Number: AST-2025-2049
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
QUOTE/PO:

Alliance Sample ID 25-2049-PM-	Sample Date	Location	Test No.	Sample Description	Sample Media	Sample Analysis
25	12-May-25	#2 APC Outlet	1	Probe Rinse Acetone	Acetone	Particulate & Metals
26				Probe Rinse Nitric	0.1N Nitric	Metals
27				Filter	Particulate	Particulate & Metals
28				Impinger 1-4 Solution	Nitric/Peroxide	Metals
29				Impinger 5-6 Solution	Acid. KMnO4	Mercury
30				Impinger 5-6 Rinse	8N HCl	Mercury
31	13-May-25	#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	13-May-25	#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
Relinquished By:				Date: MAY 14, 2025		
Relinquished To:				Date: 14-MAY-2025 15:15		

40°C

Client: Reworld
Job/Report Number: AST-2025-2049
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote/ PO:

Alliance Sample ID	Date	Test No.	Location	Sample Description	Sample Media	Sample Analysis
25-2049-M201A-						
1	13-May-25	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	13-May-25	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	13-May-25	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	12-May-25	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	12-May-25	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

Client: Reworld
Job/Report Number: AST-2025-2049
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote/ PO:

Alliance Sample ID	Date	Test No.	Location	Sample Description	Sample Media	Sample Analysis
25-2049-M201A-						
36	12-May-25	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	13-May-25	Blank		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

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

Relinquished To:

Alex Burtan

Date:

14-MAY-2025 15:15

Relinquished By:

Chris Belore

Date:

MAY 14, 2025

Alliance Technical Group North, Inc. - Sample Log

Acid Gases

Reworld

Client: Reworld

Job/Report Number: AST-2025-2049

Received By: C Before

How Received: Train Recovery

Job Assigned To: ALS

Quote / PO #:

Alliance Sample ID 25-2049-W26A-	Sample Date	Location	Sample Description	Media	Initial Volume(ml)	Final Volume(ml)	Sample Analysis
1	12-May-25	APC Outlet # 1	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	453	HCl, HF & Ammonia
2	↓	APC Outlet # 1	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	446	HCl, HF & Ammonia
3		APC Outlet # 1	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	469	HCl, HF & Ammonia
4	13-May-25	APC Outlet # 2	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	476	HCl, HF & Ammonia
5	↓	APC Outlet # 2	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	443	HCl, HF & Ammonia
6		APC Outlet # 2	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	461	HCl, HF & Ammonia
Blank		Blank	Impinger Soln & rinse	0.1N H ₂ SO ₄ + DH ₂ O	200	303	HCl, HF & Ammonia

Analyze for HCl, HF and Ammonia

Relinquished By:

Date: MAY 14, 2025

Relinquished To:

Date: 14-MAY-2025

15°F
4.0°C

Alliance Technical Group North, Inc. - Sample Log
Semi-Volatile Organics Samples
Reworld

Client: Reworld
Job/Report Number: AST-2025-2049
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO:

Alliance Sample ID 25-2049-SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
1	MAY 24/25 14	Test 1	# 1 APC Outlet	Hexane/Acetone	SVOC
2		Probe Rinse		Particulate	SVOC
3		Test 1		N.A.	SVOC
4		XAD-II Trap		Ethylene Glycol	SVOC
5		Test 1		Hexane/Acetone	SVOC
		Impinger Rinse			
6	MAY 24/25 14	Test 2	# 1 APC Outlet	Hexane/Acetone	SVOC
7		Probe Rinse		Particulate	SVOC
8		Test 2		N.A.	SVOC
9		XAD-II Trap		Ethylene Glycol	SVOC
10		Test 2		Hexane/Acetone	SVOC
		Impinger Rinse			
11	MAY 24/25 15	Test 3	# 1 APC Outlet	Hexane/Acetone	SVOC
12		Probe Rinse		Particulate	SVOC
13		Test 3		N.A.	SVOC
14		XAD-II Trap		Ethylene Glycol	SVOC
15		Test 3		Hexane/Acetone	SVOC
		Impinger Rinse			
16	MAY 24/25 14	Blank	Blank	Hexane/Acetone	SVOC
17		Probe Rinse		Particulate	SVOC
18		Blank		N.A.	SVOC
19		XAD-II Trap		Ethylene Glycol	SVOC
20		Blank		Hexane/Acetone	SVOC
		Impinger Rinse			

Environmental Division
Burlington
Work Order Reference
BU2501330



Telephone : +1 905 331 3111

Alliance Technical Group North, Inc. - Sample Log
Semi-Volatile Organics Samples
Reworld

Client: Reworld
Job/Report Number: AST-2025-2049
Received By: C Belore
How Received: Train Recovery
Job Assigned To: ALS
Quote / PO:

Alliance Sample ID 25-2049-SVOC-	Date	Sample Description	Location	Sample Media	Sample Analysis
21	MAY 14/25	Test 1	# 2 APC Outlet	Hexane/Acetone	SVOC
		Probe Rinse			
22		Test 1		Particulate	SVOC
		Filter			
23		Test 1		N.A.	SVOC
		XAD-II Trap			
24		Test 1		Ethylene Glycol	SVOC
		Impinger Solution			
25		Test 1		Hexane/Acetone	SVOC
		Impinger Rinse			
26	MAY 14/25	Test 2	# 2 APC Outlet	Hexane/Acetone	SVOC
		Probe Rinse			
27		Test 2		Particulate	SVOC
		Filter			
28		Test 2		N.A.	SVOC
		XAD-II Trap			
29		Test 2		Ethylene Glycol	SVOC
		Impinger Solution			
30		Test 2		Hexane/Acetone	SVOC
		Impinger Rinse			
31	MAY 15/25	Test 3	# 2 APC Outlet	Hexane/Acetone	SVOC
		Probe Rinse			
32		Test 3		Particulate	SVOC
		Filter			
33		Test 3		N.A.	SVOC
		XAD-II Trap			
34		Test 3		Ethylene Glycol	SVOC
		Impinger Solution			
35		Test 3		Hexane/Acetone	SVOC
		Impinger Rinse			

Relinquished To: ARAC BURTAN
Relinquished By: LSH

12:35
Date: 20-MAY-2025 S.Y.C
Date: MAY 20/25

Alliance Technical Group North, Inc. - Recovery & Sample Log
NCASI Method ISS/FP-A105.01

Client: Reworld DYEC
 Job/Report Number: AST-2025-2049
 Received By: Chris Belore
 How Received: Train Recovery
 Job Assigned To: ALS
 Quote / PO #:

Environmental Division
 Burlington
 Work Order Reference
BU2501886



Telephone : +1 905 331 3111

Test Number	Test Location	Alliance Sample ID	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-101	July 10/25	ALD-1	114.9	160.0	164.7	177.0	186.4
2	APC Outlet #1	ALD-102		ALD-2	114.2	161.0	162.8	172.2	182.4
3	APC Outlet #1	ALD-103		ALD-3	113.6	157.2	158.7	165.7	184.4
Blank		Blank		ALD-4	113.8	159.1	159.0	173.2	181.0
1	APC Outlet #2	ALD-105		ALD-5	113.5	157.8	158.9	165.0	178.5
2	APC Outlet #2	ALD-106		ALD-6	113.4	161.4	164.1	174.4	184.5
3	APC Outlet #2	ALD-107		ALD-7	113.6	158.7	162.0	177.5	192.6
	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:

[Signature]

Relinquished to:

AKAR Burton

Date:

July 11/25

Date:

12th 11-July-2025 9:30

6.2°C

Alliance Technical Group North, Inc. - Sample Log
VOCs

Client: Reworld

Project Number: AST-2025-2049

Received By: C Belore

Job Assigned To: ALS

Quote / PO :

Test Location	Test Number	Alliance Sample ID	Sample Date	Sample Description	Sample Analysis
25-2049-TO15-					
# 1 APC Outlet	1	1 ✓	May 15, 2025	Canister	VOCs
	2	2 ✓	May 15, 2025	Canister	VOCs
	3	3 ✓	May 15, 2025	Canister	VOCs
# 2 APC Outlet	1	4 ✓	May 15, 2025	Canister	VOCs
	2	5 ✓	May 15, 2025	Canister	VOCs
	3	6 ✓	May 15, 2025	Canister	VOCs
Blank		Blank	May 15, 2025	Canister	VOC

Refer to letter dated April 14, 2025 for lists of analytes.

Custody Relinquished by: DRJ

Date: 5-15-25

Custody Received by: Robert Ch...

Date: 14/15 - 15/25

15-May-2025

APPENDIX 11

Particulate and Metals Train Recovery Data Sheets (7 pages)

Alliance Technical Group
 Particulate and Metals Train Recovery Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Date: MAY 12 / 23
 Test No.: 1
 Test Location: U1

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

Filter
 Filter ID: 664

Impingers 1, 2, 3, and 4

Impinger 5 & 6

Impinger 5 & 6

Impinger 7

CONTAINER TS1

Container TS1 Weights
 Empty Wt: 222.5
 After Act. Rinse: 324.5
 Total TS1: 102.0

MARK FLUID LEVEL
 SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights
 Empty Wt: 280.0
 After 0.1N HNO₃ Rinse: 468.0
 Total TS2: 188.0

MARK FLUID LEVEL
 SEAL AND LABEL TS2

SAMPLE IDENTIFICATION	25-2049-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

CONTAINER TS3

Initial Wt:
 Final Wt:
 Gain:
 Colour: WHITE

Seal and label container TS3

CONTAINER TS4

Impinger #1 Empty
 Empty Wt: 626.0
 Final Wt: 957.5
 Gain: 231.5
 Colour: clear

Impinger #2 HNO₃/H₂O₂
 Empty Wt: 363.7
 Initial Wt: 673.3
 Final Wt: 833.6
 Gain: 160.4
 Colour: clear

Impinger #3 HNO₃/H₂O₂
 Empty Wt: 646.0
 Initial Wt: 743.0
 Final Wt: 739.5
 Gain: 41.5
 Colour: clear

Impinger #4 Empty
 Empty Wt: 608.7
 Final Wt: 612.2
 Gain: 3.5
 Colour: clear

CONTAINER TS4 WEIGHTS
 Empty Wt: 404.3
 w/ Imp. 1-4 Soln: 1040.9
 After HNO₃ Rinse: 1128.5
 Total TS4: 724.2

CONTAINER TS5-A
 Empty Wt: 409.3
 With Imp. 5&6 Soln: 677.5
 After KMnO₄ Rinse: 748.2
 After 100g H₂O Rinse: 849.5
 Total TS5-A: 440.0

CONTAINER TS5-B
 Empty Wt: 281.0
 With 150 mL DI H₂O: 431.0
 After HCl Rinse: 456.0
 After DI H₂O Rinse: 644.5
 Total TS5-B: 363.5

MARK FLUID LEVEL
 SEAL AND LABEL TS5-B

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A
 Empty Wt: 409.3
 With Imp. 5&6 Soln: 677.5
 After KMnO₄ Rinse: 748.2
 After 100g H₂O Rinse: 849.5
 Total TS5-A: 440.0

MARK FLUID LEVEL
 SEAL & LABEL TS5-A

CONTAINER TS5-B
 Empty Wt: 281.0
 With 150 mL DI H₂O: 431.0
 After HCl Rinse: 456.0
 After DI H₂O Rinse: 644.5
 Total TS5-B: 363.5

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

Total Moisture Gain
 1+2+3+4+5+6+7: 477.6

Train Loaded By: DT
 Train Recovered By:

Impinger Box ID: 3

Alliance Technical Group Particulate and Metals Train Recovery Data Sheet

Client: Reworld
Project No.: AST-2025-2049
Date: 12 Nov 25
Test No.: 2
Test Location: W1

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

Filter
Filter ID: 670

Impingers 1, 2, 3, and 4

Impinger 5 & 6

Impinger 5 & 6

Impinger 7

CONTAINER TS1

Container TS1 Weights
Empty Wt: 230.0
After Act. Rinse: 336.5
Total TS1: 116.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights
Empty Wt: 281.0
After 0.1N HNO₃ Rinse: 452.5
Total TS2: 171.5

MARK FLUID LEVEL
SEAL AND LABEL TS2

CONTAINER TS4

Impinger #1 Empty
Empty Wt: 589.5
Final Wt: 646.0
Gain: 56.5
Colour: clear

Impinger #2 HNO₃/H₂O₂
Empty Wt: 532.5
Initial Wt: 635.2
Final Wt: 868.3
Gain: 228.6
Colour: clear

Impinger #3 HNO₃/H₂O₂
Empty Wt: 629.2
Initial Wt: 840.0
Final Wt: 830.3
Gain: 90.3
Colour: clear

Impinger #4 Empty
Empty Wt: 606.0
Final Wt: 612.8
Gain: 6.8
Colour: clear

CONTAINER TS4 WEIGHTS
Empty Wt: 902.8
w/ Imp. 1-4 Soln: 985.5
After HNO₃ Rinse: 1090.5
Total TS4: 677.7

MARK FLUID LEVEL
SEAL AND LABEL TS4

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A
Empty Wt: 411.5
With Imp. 5&6 Soln: 674.3
After KMnO₄ Rinse: 791.3
After 100g H₂O Rinse: 892.0
Total TS5-A: 481.5

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B
Empty Wt: 281.0
With 150 mL DI H₂O: 431.0
After HCl Rinse: 467.4
After DI H₂O Rinse: 633.0
Total TS5-B: 352.0

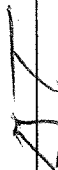
MARK FLUID LEVEL
SEAL & LABEL TS5-B

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

Total Moisture Gain
1+2+3+4+5+6+7: 761.4

Impinger Box ID: 7

SAMPLE IDENTIFICATION	25-2049-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

Train Loaded By: 
Train Recovered By:

Alliance Technical Group Particulate and Metals Train Recovery Data Sheet

Client: Reworld
Project No.: AST-2025-2049
Date: MAY 19/25
Test No.:
Test Location: UNIT 1

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

Filter
Filter ID: 675

Impingers 1, 2, 3, and 4

Impinger 5 & 6

Impinger 5 & 6

Impinger 7

CONTAINER TS1

Container TS1 Weights
Empty Wt: 280.5
After Act. Rinse: 382.5
Total TS1: 102.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights
Empty Wt: 281.0
After 0.1N HNO₃ Rinse: 528.0
Total TS2: 239.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

SAMPLE IDENTIFICATION	25-2049-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
TSS-A (Impinger 5,6 Sol'n-KMnO ₄)	17
TSS-B (Impinger 5,6 Rinse-HCl)	18

Train Loaded By:
Train Recovered By:

CONTAINER TS4

Impinger #1 Empty
Empty Wt: 590.5
Final Wt: 743.2
Final Gain: 152.7
Colour:

Impinger #2 HNO₃/H₂O₂
Empty Wt: 533.5
Initial Wt: 643.0
Final Wt: 864.5
Gain: 221.5
Colour:

Impinger #3 HNO₃/H₂O₂
Empty Wt: 630.0
Initial Wt: 732.5
Final Wt: 832.5
Gain: 100.0
Colour:

Impinger #4 Empty
Empty Wt: 806.5
Final Wt: 611.0
Gain: 4.5
Colour:

CONTAINER TS4 WEIGHTS
Empty Wt: 400.5
w/ Imp. 1-4 Sol'n: 1082.5
After HNO₃ Rinse: 1183.5
Total TS4: 783.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

CONTAINER TSS-A & TSS-B

CONTAINER TSS-A
Empty Wt: 404.0
With Imp. 5&6 Sol'n: 630.0
After KMnO₄ Rinse: 742.0
After 100g H₂O Rinse: 843.7
Total TSS-A: 439.7

MARK FLUID LEVEL
SEAL & LABEL TSS-A

CONTAINER TSS-B
Empty Wt: 282.0
With 150 mL DI H₂O: 432.0
After HCl Rinse: 481.2
After DI H₂O Rinse: 620.0
Total TSS-B: 338.0

MARK FLUID LEVEL
SEAL & LABEL TSS-B

TS1, TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TSS-A - 1000 ml Amber Glass Bottle
TSS-B - 500 ml Amber Glass Bottle

Total Moisture Gain
1+2+3+4+5+6+7: 507.7

Impinger #7 Silica Gel
Initial Wt: 445.5
Final Wt: 969.5
Gain: 524.0

Impinger Box ID: 7

Alliance Technical Group Particulate and Metals Train Recovery Data Sheet

Client: Reworld
Project No.: AST-2025-2049
Date: MAY 12/25
Test No.: 1
Test Location: 40517 D

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

Filter
Filter ID: 672

Impingers 1, 2, 3, and 4

Impinger 5 & 6

Impinger 5 & 6

Impinger 7

CONTAINER TS1

Container TS1 Weights
Empty Wt: 221.5
After Act. Rinse: 315.0
Total TS1: 93.5

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights
Empty Wt: 280.0
After 0.1N HNO₃ Rinse: 426.0
Total TS2: 146.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

SAMPLE IDENTIFICATION	25-2049-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

CONTAINER TS3

Initial Wt:
Final Wt:
Gain:
Colour: WHITE

Seal and label container TS3

CONTAINER TS4

Impinger #1 Empty
Empty Wt: 627.5
Final Wt: 671.0
Gain: 154.5
Colour:

Impinger #2 HNO₃/H₂O₂
Empty Wt: 565.5
Initial Wt: 671.0
Final Wt: 914.6
Gain: 243.6
Colour:

Impinger #3 HNO₃/H₂O₂
Empty Wt: 647.0
Initial Wt: 757.3
Final Wt: 824.0
Gain: 76.7
Colour:

Impinger #4 Empty
Empty Wt: 610.0
Final Wt: 614.5
Gain: 4.5
Colour:

CONTAINER TS4 WEIGHTS
Empty Wt: 408.5
w/ Imp. 1-4 Soln: 1095.6
After HNO₃ Rinse: 1191.0
Total TS4: 782.5

MARK FLUID LEVEL
SEAL AND LABEL TS4

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A
Empty Wt: 407.5
With Imp. 5&6 Soln: 630.7
After KMnO₄ Rinse: 750.2
After 100g H₂O Rinse: 855.7
Total TS5-A: 448.2

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B
Empty Wt: 281.5
With 150 ml DI H₂O: 431.5
After HCl Rinse: 472.0
After DI H₂O Rinse: 644.0
Total TS5-B: 362.5

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

Total Moisture Gain
1+2+3+4+5+6+7: 506.1

Impinger #7 Silica Gel
Initial Wt: 965.8
Final Wt: 995.6
Gain: 19.8

Impinger Box ID: 3

Train Loaded By:
Train Recovered By:

Alliance Technical Group Particulate and Metals Train Recovery Data Sheet

Client: Reworld
Project No.: AST-2025-2049
Date: MAY 13/25
Test No.: 2
Test Location: 42

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

Filter
Filter ID: 673

Impingers 1, 2, 3, and 4

Impinger 5 & 6

Impinger 5 & 6

Impinger 7

CONTAINER TS1

Container TS1 Weights
Empty Wt: 221.0
After Act. Rinse: 310.0
Total TS1: 89.0

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights
Empty Wt: 282.0
After 0.1N HNO₃ Rinse: 511.0
Total TS2: 231.0

MARK FLUID LEVEL
SEAL AND LABEL TS2

CONTAINER TS4

Impinger #1 Empty
Empty Wt: 590.5
Final Wt: 715.0
Gain: 124.5
Colour: clear

Impinger #2 HNO₃/H₂O₂
Empty Wt: 533.5
Initial Wt: 640.2
Final Wt: 835.5
Gain: 245.3
Colour: clear

Impinger #3 HNO₃/H₂O₂
Empty Wt: 630.5
Initial Wt: 736.5
Final Wt: 798.8
Gain: 62.3
Colour: clear

Impinger #4 Empty
Empty Wt: 607.0
Final Wt: 619.0
Gain: 6.0
Colour: clear

CONTAINER TS4 WEIGHTS
Empty Wt: 411.5
w/ Imp. 1-4 Soln: 1056.3
After HNO₃ Rinse: 1174.5
Total TS4: 763.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

CONTAINER TS5-A & TS5-B

CONTAINER TS5-A
Empty Wt: 408.0
With Imp. 5&6 Soln: 641.7
After KMnO₄ Rinse: 755.8
After 100g H₂O Rinse: 888.8
Total TS5-A: 447.8

MARK FLUID LEVEL
SEAL & LABEL TS5-A

CONTAINER TS5-B
Empty Wt: 282.0
With 150 ml DI H₂O: 432.0
After HCl Rinse: 492.8
After DI H₂O Rinse: 666.8
Total TS5-B: 384.8

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

Total Moisture Gain
1+2+3+4+5+6+7: 469.6

Impinger Box ID: 7

SAMPLE IDENTIFICATION	25-2049-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

Train Loaded By: 
Train Recovered By:

Alliance Technical Group Particulate and Metals Train Recovery Data Sheet

Client: Reworld
Project No.: AST-2025-2049
Date: 08/13/23
Test No.: 3
Test Location: 42

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

Filter
Filter ID: 674

Impingers 1, 2, 3, and 4

Impinger 5 & 6

Impinger 5 & 6

Impinger 7

CONTAINER TS1

Container TS1 Weights
Empty Wt: 220.0
After Act. Rinse: 320.3
Total TS1: 100.3

MARK FLUID LEVEL
SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights
Empty Wt: 280.0
After 0.1N HNO₃ Rinse: 447.0
Total TS2: 167

MARK FLUID LEVEL
SEAL AND LABEL TS2

CONTAINER TS4

Impinger #1 Empty
Empty Wt: 627.0
Initial Wt: 781.7
Final Wt: 154.7
Gain:
Colour:

Impinger #2 HNO₃/H₂O₂
Empty Wt: 565.5
Initial Wt: 663.7
Final Wt: 902.0
Gain: 238.3
Colour:

Impinger #3 HNO₃/H₂O₂
Empty Wt: 647.5
Initial Wt: 762.8
Final Wt: 862.4
Gain: 99.6
Colour:

Impinger #4 Empty
Empty Wt: 610.0
Final Wt: 617.0
Gain: 7.0
Colour:

CONTAINER TS4 WEIGHTS
Empty Wt: 411.0
w/ Imp. 1-4 Soln: 118.5
After HNO₃ Rinse: 1228.0
Total TS4: 817.0

MARK FLUID LEVEL
SEAL AND LABEL TS4

CONTAINER TSS-A & TSS-B

CONTAINER TSS-A
Empty Wt: 409.0
With Imp. 5&6 Soln: 635.6
After KMnO₄ Rinse: 748.0
After 100g H₂O Rinse: 849.0
Total TSS-A: 440.0

MARK FLUID LEVEL
SEAL & LABEL TSS-A

CONTAINER TSS-B
Empty Wt: 282.5
With 150 mL DI H₂O: 432.5
After HCl Rinse: 470.0
After DI H₂O Rinse: 635.0
Total TSS-B: 352.5

MARK FLUID LEVEL
SEAL & LABEL TSS-B

TS1, TS2- 500 ml Glass Bottle
TS3- Petri Dish
TS4- 1000 ml Amber Glass Bottle
TSS-A - 1000 ml Amber Glass Bottle
TSS-B - 500 ml Amber Glass Bottle

Total Moisture Gain
1+2+3+4+5+6+7: 533.4

Impinger #7 Silica Gel
Initial Wt: 985.6
Final Wt: 1002.4
Gain: 16.8

Impinger Box ID: 3

Train Loaded By: DT
Train Recovered By:

Alliance Technical Group
 Particulate and Metals Train Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: MAY 13 2025

Test No.: 606012

Test Location:

Nozzle, Probe Liner

Cyclone Bypass & F.H.

Filter Housing

Filter

Filter ID: 2212676

Impingers 1, 2, 3, and 4

CONTAINER TS1

Container TS1 Weights

Empty Wt: 282.5

After Act. Rinse: 453.5

Total TS1: 171.0

MARK FLUID LEVEL

SEAL AND LABEL TS1

CONTAINER TS2

Container TS2 Weights

Empty Wt: 282.5

After 0.1N HNO₃ Rinse: 493.0

Total TS2: 210.5

MARK FLUID LEVEL

SEAL AND LABEL TS2

SAMPLE IDENTIFICATION	25-2049-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

Train Loaded By: 

Train Recovered By:

Impinger 5 & 6

Impinger #5 KMnO₄/H₂SO₄

Empty Wt:

Initial Wt:

Final Wt:

Gain:

Colour:

Impinger #6 KMnO₄/H₂SO₄

Empty Wt:

Initial Wt:

Final Wt:

Gain:

Colour:

Impinger #1 Empty

Empty Wt:

Initial Wt:

Final Wt:

Gain:

Colour:

Impinger #2 HNO₃/H₂O₂

Empty Wt:

Initial Wt:

Final Wt:

Gain:

Colour:

Impinger #3 HNO₃/H₂O₂

Empty Wt:

Initial Wt:

Final Wt:

Gain:

Colour:

Impinger #4 Empty

Empty Wt:

Initial Wt:

Final Wt:

Gain:

Colour:

Impinger 5 & 6

CONTAINER TS5-A

Empty Wt: 407.7

With Imp. 5&6 Soln: 631.0

After KMnO₄ Rinse: 742.6

After 100g H₂O Rinse: 842.8

Total TS5-A: 435.0

MARK FLUID LEVEL

SEAL & LABEL TS5-A

CONTAINER TS5-B

Empty Wt: 282.0

With 150 mL DI H₂O: 432.0

After HCl Rinse: 477.0

After DI H₂O Rinse: 466.3

Total TS5-B: 334.3

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

Total Moisture Gain

1+2+3+4+5+6+7:

Impinger 7

Impinger #7 Silica Gel

Initial Wt:

Final Wt:

Gain:

Impinger Box ID:

APPENDIX 12

Inorganics Analytical Reports (76 pages)



CERTIFICATE OF ANALYSIS

Work Order	: BU2501297	
Client	: Alliance Technical Group North Inc.	
Contact	: Chris Belore	Laboratory
Address	: 804 Southdown Road	Account Manager
	: Mississauga Ontario Canada L5J 2Y4	Address
Telephone	: 905 822 4120	E-mail
Project	: AST-2025-2049 Reworld	Telephone
PO	: ****	Date Samples Received
C-O-C number	: ****	Date Analysis Commenced
Sampler	: ****	Issue Date
Site	: ****	
Quote number	: Reworld	
No. of samples received	: 35	
No. of samples analysed	: 35	

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
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
g	grams
mg	milligrams

<: 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: Impinger
 (Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID				
		Client sampling date / time				
Analyte	CAS Number	Method/Lab	LOR	Unit		
Particulates						
Condensable particulates, extractable [organic] Condensable particulates, non-extractable [aqueous] mass, acetone [FRONT] Mass, deionized water [aqueous] Mass, solvent [organic] particulate matter, acetone impinger [FRONT] Particulate matter, filter	n/a	E902S/BU	0.4	mg		1.7
	n/a	E902W/BU	0.4	mg		1.3
		E898A/BU	0.40	g	42.0 44.9	28.9
	n/a	E901W/BU	0.40	g		220
	n/a	E901S/BU	0.40	g		136
		E897A/BU	0.4	mg	<0.4	
		E890/BU	0.6	mg		<0.6

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID		Client sampling date / time		25-2049-M201A-8 Test 2 #1 APC Outlet		25-2049-M201A-9 Test 2 #1 APC Outlet		25-2049-M201A-10 Test 2 #1 APC Outlet		25-2049-M201A-11 Test 2 #1 APC Outlet		25-2049-M201A-12 Test 2 #1 APC Outlet	
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Particulates													
Condensable particulates, extractable [organic]	n/a	E902S/BU	0.4	mg	---	---	---	---	---	---	---	---	1.3
Condensable particulates, non-extractable [aqueous]	n/a	E902W/BU	0.4	mg	---	---	---	---	---	---	---	---	1.0
mass, acetone [FRONT]	---	E898A/BU	0.40	g	59.2	39.9	17.6	---	---	---	---	---	---
Mass, deionized water [aqueous]	n/a	E901W/BU	0.40	g	---	---	---	---	---	---	---	---	261
Mass, solvent [organic]	n/a	E901S/BU	0.40	g	---	---	---	---	---	---	---	---	137
particulate matter, acetone impinger [FRONT]	---	E897A/BU	0.4	mg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	---
Particulate matter, filter	---	E890/BU	0.6	mg	---	---	---	---	---	<0.6	---	---	---

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID		Client sampling date / time		Client sample ID		Client sample ID		Client sample ID		Client sample ID		Client sample ID	
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-M201A-15 Test 3 #1 APC Outlet	25-2049-M201A-16 Test 3 #1 APC Outlet	25-2049-M201A-17 Test 3 #1 APC Outlet	25-2049-M201A-18 Test 3 #1 APC Outlet	25-2049-M201A-19 Test 3 #1 APC Outlet	25-2049-M201A-15 Test 3 #1 APC Outlet	25-2049-M201A-16 Test 3 #1 APC Outlet	25-2049-M201A-17 Test 3 #1 APC Outlet	25-2049-M201A-18 Test 3 #1 APC Outlet
Particulates													
Condensable particulates, extractable [organic]	n/a	E902S/BU	0.4	mg	38.4	36.1	20.0			38.4	36.1	20.0	
Condensable particulates, non-extractable [aqueous]	n/a	E902W/BU	0.4	mg									
mass, acetone [FRONT]	----	E898A/BU	0.40	g									
Mass, deionized water [aqueous]	n/a	E901W/BU	0.40	g									
Mass, solvent [organic]	n/a	E901S/BU	0.40	g									
particulate matter, acetone impinger [FRONT]	----	E897A/BU	0.4	mg	<0.4	<0.4	<0.4	<0.6	<0.6	<0.4	<0.4	<0.4	<0.6
Particulate matter, filter	----	E890/BU	0.6	mg									

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID		Client sampling date / time		Client sample ID		Client sample ID		Client sample ID		Client sample ID	
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-M201A-22 Test 1 #2 APC Outlet	25-2049-M201A-23 Test 1 #2 APC Outlet	25-2049-M201A-24 Test 1 #2 APC Outlet	25-2049-M201A-25 Test 1 #2 APC Outlet	25-2049-M201A-26 Test 1 #2 APC Outlet	25-2049-M201A-27 Test 1 #2 APC Outlet	25-2049-M201A-28 Test 1 #2 APC Outlet
Particulates											
Condensable particulates, extractable [organic]	n/a	E902S/BU	0.4	mg	72.4	42.4	13.5	<0.4	<0.4	<0.6	1.3
Condensable particulates, non-extractable [aqueous]	n/a	E902W/BU	0.4	mg							1.4
mass, acetone [FRONT]	----	E898A/BU	0.40	g							----
Mass, deionized water [aqueous]	n/a	E901W/BU	0.40	g							248
Mass, solvent [organic]	n/a	E901S/BU	0.40	g							165
particulate matter, acetone impinger [FRONT]	----	E897A/BU	0.4	mg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	----
Particulate matter, filter	----	E890/BU	0.6	mg							----

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID		Client sampling date / time		Client sample ID		Client sample ID		Client sample ID		Client sample ID	
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-M201A-29 Test 2 #2 APC Outlet	25-2049-M201A-30 Test 2 #2 APC Outlet	25-2049-M201A-31 Test 2 #2 APC Outlet	25-2049-M201A-32 Test 2 #2 APC Outlet	25-2049-M201A-33 Test 2 #2 APC Outlet	25-2049-M201A-34 Test 2 #2 APC Outlet	25-2049-M201A-35 Test 2 #2 APC Outlet
Particulates											
Condensable particulates, extractable [organic]	n/a	E902S/BU	0.4	mg	53.8	38.6	29.3				2.8
Condensable particulates, non-extractable [aqueous]	n/a	E902W/BU	0.4	mg							1.8
mass, acetone [FRONT]	----	E898A/BU	0.40	g							----
Mass, deionized water [aqueous]	n/a	E901W/BU	0.40	g							233
Mass, solvent [organic]	n/a	E901S/BU	0.40	g							151
particulate matter, acetone impinger [FRONT]	----	E897A/BU	0.4	mg	<0.4	<0.4	<0.4	<0.6	<0.6	<0.6	<0.6
Particulate matter, filter	----	E890/BU	0.6	mg							----

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		Client sampling date / time		Client sample ID		Client sampling date / time		Client sample ID		Client sampling date / time	
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-M201A-36 Test 3 #2 APC Outlet	25-2049-M201A-37 Test 3 #2 APC Outlet	25-2049-M201A-38 Test 3 #2 APC Outlet	25-2049-M201A-39 Test 3 #2 APC Outlet	25-2049-M201A-40 Test 3 #2 APC Outlet				
Particulates													
Condensable particulates, extractable [organic] Condensable particulates, non-extractable [aqueous] mass, acetone [FRONT] Mass, deionized water [aqueous] Mass, solvent [organic] particulate matter, acetone impinger [FRONT] Particulate matter, filter	n/a	E902S/BU	0.4	mg									
	n/a	E902W/BU	0.4	mg									
		E898A/BU	0.40	g	68.3	39.1	18.9						
	n/a	E901W/BU	0.40	g									
	n/a	E901S/BU	0.40	g									
		E897A/BU	0.4	mg	<0.4	<0.4	<0.4						
		E890/BU	0.6	mg				<0.6					

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID			25-2049-M201A-43 Blank	25-2049-M201A-44 Blank	25-2049-M201A-45 Blank	25-2049-M201A-46 Blank	25-2049-M201A-(47-49) Blank
Analyte		CAS Number	Method/Lab	Client sampling date / time		Unit	LOR	Result	
Particulates									
Condensable particulates, extractable [organic] Condensable particulates, non-extractable [aqueous] mass, acetone [FRONT] Mass, deionized water [aqueous] Mass, solvent [organic] particulate matter, acetone impinger [FRONT] Particulate matter, filter	Condensable particulates, extractable [organic]	n/a	E902S/BU	0.4	mg				0.7
	Condensable particulates, non-extractable [aqueous]	n/a	E902W/BU	0.4	mg				<0.4
	mass, acetone [FRONT]	----	E898A/BU	0.40	g	34.3		51.9	-----
	Mass, deionized water [aqueous]	n/a	E901W/BU	0.40	g				157
	Mass, solvent [organic]	n/a	E901S/BU	0.40	g				147
	particulate matter, acetone impinger [FRONT]	----	E897A/BU	0.4	mg	<0.4		<0.4	-----
Particulate matter, filter	----	E890/BU	0.6	mg			<0.6	-----	

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: BU2501297	Page	: 1 of 13
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 14-May-2025 15:15
PO	: -----	Issue Date	: 06-Jun-2025 13:16
C-O-C number	: -----		
Sampler	: -----		
Site	: -----		
Quote number	: Reworld		
No. of samples received	: 35		
No. of samples analysed	: 35		

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 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.



Page : 3 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation			Analysis				
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual			Rec	Actual	
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(12-14) Test 2 - #1 APC Outlet		E902S	13-May-2025					04-Jun-2025			
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(19-21) Test 3 - #1 APC Outlet		E902S	13-May-2025					04-Jun-2025			
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(26-28) Test 1 - #2 APC Outlet		E902S	12-May-2025					04-Jun-2025			
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(33-35) Test 2 - #2 APC Outlet		E902S	12-May-2025					04-Jun-2025			
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(40-42) Test 3 - #2 APC Outlet		E902S	12-May-2025					04-Jun-2025			
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(47-49) Blank		E902S	13-May-2025					04-Jun-2025			
Particulates : Extractable, Condensable Particulates in Stack Emission (organic part. wt.)											
M202: CPM Solvent Fraction 25-2049-M201A-(5-7) Test 1 - #1 APC Outlet		E902S	13-May-2025					04-Jun-2025			



Page : 4 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air									
Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times	
				Rec	Actual			Rec	Actual
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	13-May-2025				30-May-2025		
25-2049-M201A-(12-14) Test 2 - #1 APC Outlet									
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	13-May-2025				30-May-2025		
25-2049-M201A-(19-21) Test 3 - #1 APC Outlet									
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	12-May-2025				30-May-2025		
25-2049-M201A-(26-28) Test 1 - #2 APC Outlet									
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	12-May-2025				30-May-2025		
25-2049-M201A-(33-35) Test 2 - #2 APC Outlet									
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	12-May-2025				30-May-2025		
25-2049-M201A-(40-42) Test 3 - #2 APC Outlet									
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	13-May-2025				30-May-2025		
25-2049-M201A-(47-49) Blank									
Particulates : Extractable, Condensable Particulates in Stack Emission (Solvent wt.)									
M202: CPM Solvent Fraction		E901S	13-May-2025				30-May-2025		
25-2049-M201A-(5-7) Test 1 - #1 APC Outlet									
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)									
M202: CPM Water Fraction		E902W	13-May-2025				04-Jun-2025		
25-2049-M201A-(12-14) Test 2 - #1 APC Outlet									
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)									
M202: CPM Water Fraction		E902W	13-May-2025				04-Jun-2025		
25-2049-M201A-(19-21) Test 3 - #1 APC Outlet									



Page : 5 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)	Eval			Preparation Date	Holding Times		Analysis Date	Holding Times		Eval
					Rec	Actual		Rec	Actual	
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)										
M202: CPM Water Fraction 25-2049-M201A-(26-28) Test 1 - #2 APC Outlet		E902W	12-May-2025					04-Jun-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)										
M202: CPM Water Fraction 25-2049-M201A-(33-35) Test 2 - #2 APC Outlet		E902W	12-May-2025					04-Jun-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)										
M202: CPM Water Fraction 25-2049-M201A-(40-42) Test 3 - #2 APC Outlet		E902W	12-May-2025					04-Jun-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)										
M202: CPM Water Fraction 25-2049-M201A-(47-49) Blank		E902W	13-May-2025					04-Jun-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)										
M202: CPM Water Fraction 25-2049-M201A-(5-7) Test 1 - #1 APC Outlet		E902W	13-May-2025					04-Jun-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(12-14) Test 2 - #1 APC Outlet		E901W	13-May-2025					30-May-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(19-21) Test 3 - #1 APC Outlet		E901W	13-May-2025					30-May-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(26-28) Test 1 - #2 APC Outlet		E901W	12-May-2025					30-May-2025		
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(33-35) Test 2 - #2 APC Outlet		E901W	12-May-2025					30-May-2025		



Page : 6 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times Rec	Actual	Eval	Analysis Date	Holding Times Rec	Actual
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(40-42) Test 3 - #2 APC Outlet		E901W	12-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(47-49) Blank		E901W	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)										
M202: CPM Water Fraction 25-2049-M201A-(5-7) Test 1 - #1 APC Outlet		E901W	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-1 Test 1 - #1 APC Outlet		E897A	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-10 Test 2 - #1 APC Outlet		E897A	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-15 Test 3 - #1 APC Outlet		E897A	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-16 Test 3 - #1 APC Outlet		E897A	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-17 Test 3 - #1 APC Outlet		E897A	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-2 Test 1 - #1 APC Outlet		E897A	13-May-2025	-----	-----	-----	-----	30-May-2025	-----	-----



Page : 7 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times Rec	Actual	Eval	Analysis Date	Holding Times Rec	Actual
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-22 Test 1 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-23 Test 1 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-24 Test 1 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-29 Test 2 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-3 Test 1 - #1 APC Outlet	E897A	13-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-30 Test 2 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-31 Test 2 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-36 Test 3 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-37 Test 3 - #2 APC Outlet	E897A	12-May-2025						30-May-2025	



Page : 8 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times	
				Rec	Actual			Rec	Actual	
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-38 Test 3 - #2 APC Outlet	E897A	12-May-2025							
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-43 Blank	E897A	13-May-2025							
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-44 Blank	E897A	13-May-2025							
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-45 Blank	E897A	13-May-2025							
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-8 Test 2 - #1 APC Outlet	E897A	13-May-2025							
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry										
M5/M29 : Acetone (Probe Rinse)	25-2049-M201A-9 Test 2 - #1 APC Outlet	E897A	13-May-2025							
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter	25-2049-M201A-11 Test 2 - #1 APC Outlet	E890	13-May-2025							
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter	25-2049-M201A-18 Test 3 - #1 APC Outlet	E890	13-May-2025							
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter	25-2049-M201A-25 Test 1 - #2 APC Outlet	E890	12-May-2025							



Page : 9 of 13
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Sampling Date	Method	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter 25-2049-M201A-32 Test 2 - #2 APC Outlet		12-May-2025	E890						27-May-2025	
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter 25-2049-M201A-39 Test 3 - #2 APC Outlet		12-May-2025	E890						27-May-2025	
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter 25-2049-M201A-4 Test 1 - #1 APC Outlet		13-May-2025	E890						27-May-2025	
Particulates : Particulates in Stack Emission Filter by Gravimetry										
M5/M29 : Quartz Filter 25-2049-M201A-46 Blank		13-May-2025	E890						27-May-2025	
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-1 Test 1 - #1 APC Outlet		13-May-2025	E898A						27-May-2025	
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-10 Test 2 - #1 APC Outlet		13-May-2025	E898A						27-May-2025	
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-15 Test 3 - #1 APC Outlet		13-May-2025	E898A						27-May-2025	
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-16 Test 3 - #1 APC Outlet		13-May-2025	E898A						27-May-2025	
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-17 Test 3 - #1 APC Outlet		13-May-2025	E898A						27-May-2025	



Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Sampling Date	Method	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual			Rec	Actual	
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-2 Test 1 - #1 APC Outlet		13-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-22 Test 1 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-23 Test 1 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-24 Test 1 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-29 Test 2 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-3 Test 1 - #1 APC Outlet		13-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-30 Test 2 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-31 Test 2 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-M201A-36 Test 3 - #2 APC Outlet		12-May-2025	E898A					27-May-2025			



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Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Sampling Date	Method	Extraction / Preparation			Analysis		
				Preparation Date	Holding Times Rec	Actual	Analysis Date	Holding Times Rec	Actual
Container / Client Sample ID(s)									
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-37 Test 3 - #2 APC Outlet		12-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-38 Test 3 - #2 APC Outlet		12-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-43 Blank		13-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-44 Blank		13-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-45 Blank		13-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-8 Test 2 - #1 APC Outlet		13-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-9 Test 2 - #1 APC Outlet		13-May-2025	E898A				27-May-2025		
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)									
25-2049-M201A-9 Test 2 - #1 APC Outlet		13-May-2025	E898A				27-May-2025		

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		QC Lot #	Count		Frequency (%)		Evaluation
Analytical Methods	Method		QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)							
Particulates in Stack Emission Filter by Gravimetry	E890	2005153	1	7	14.2	5.0	✓
	E897A	2009775	2	38	5.2	5.0	✓
Stack Emission Acetone Rinse Mass by Gravimetry	E898A	2009771	2	38	5.2	5.0	✓
Extractable, Condensable Particulates in Stack Emission (Solvent wt.)	E901S	2011068	1	7	14.2	5.0	✓
Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)	E901W	2011072	1	7	14.2	5.0	✓
Extractable, Condensable Particulates in Stack Emission (organic part. wt.)	E902S	2011073	1	7	14.2	5.0	✓
Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)	E902W	2011077	1	7	14.2	5.0	✓
Method Blanks (MB)							
Particulates in Stack Emission Filter by Gravimetry	E890	2005153	1	7	14.2	5.0	✓
Particulates in Stack Emission Acetone Rinse by Gravimetry	E897A	2009775	2	38	5.2	5.0	✓
Stack Emission Acetone Rinse Mass by Gravimetry	E898A	2009771	2	38	5.2	5.0	✓
Extractable, Condensable Particulates in Stack Emission (Solvent wt.)	E901S	2011068	1	7	14.2	5.0	✓
Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)	E901W	2011072	1	7	14.2	5.0	✓
Extractable, Condensable Particulates in Stack Emission (organic part. wt.)	E902S	2011073	1	7	14.2	5.0	✓
Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)	E902W	2011077	1	7	14.2	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 Descriptions
Particulates in Stack Emission Filter by Gravimetry		E890 ALS Environmental - Burlington	Air	EPA Method 5 (mod.)	Gravimetric analysis of particulate air samples collected on filters.
		E897A ALS Environmental - Burlington		EPA Method 5 (mod.)	Gravimetric analysis of particulate air samples collected in acetone rinses.
Stack Emission Acetone Rinse Mass by Gravimetry		E898A ALS Environmental - Burlington	Air	EPA Method 5 (mod.)	Gravimetric analysis of acetone mass from rinses.
		E901S ALS Environmental - Burlington		EPA Method 202 (alt. Method EPS 1/RM/55)	Filter samples are extracted using water and hexanes (or dichloromethane, RM/55). Liquids are then separated using liquid-liquid extraction. Each fraction is evaporated to dryness and titration of the water fraction may be required to neutralize residual acids. Particulate weights are determined using gravimetry.
Non-Extractable, Condensable Particulates in Stack Emission (Water wt.)		E901W ALS Environmental - Burlington	Air	EPA Method 202 (alt. Method EPS 1/RM/55)	Filter samples are extracted using water and hexanes (or dichloromethane, RM/55). Liquids are then separated using liquid-liquid extraction. Each fraction is evaporated to dryness and titration of the water fraction may be required to neutralize residual acids. Particulate weights are determined using gravimetry.
		E902S ALS Environmental - Burlington		EPA Method 202 (alt. Method EPS 1/RM/55)	Filter samples are extracted using water and hexanes (or dichloromethane, RM/55). Liquids are then separated using liquid-liquid extraction. Each fraction is evaporated to dryness and titration of the water fraction may be required to neutralize residual acids. Particulate weights are determined using gravimetry.
Non-Extractable, Condensable Particulates in Stack Emission (Water part. wt.)		E902W ALS Environmental - Burlington	Air	EPA Method 202 (alt. Method EPS 1/RM/55)	Filter samples are extracted using water and hexanes (or dichloromethane, RM/55). Liquids are then separated using liquid-liquid extraction. Each fraction is evaporated to dryness and titration of the water fraction may be required to neutralize residual acids. Particulate weights are determined using gravimetry.



QUALITY CONTROL REPORT

Work Order	: BU2501297	Page	: 1 of 4
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 14-May-2025 15:15
PO	: ----	Date Analysis Commenced	: 27-May-2025
C-O-C number	: ----	Issue Date	: 06-Jun-2025 13:16
Sampler	: ----		
Site	: ----		
Quote number	: Reworld		
No. of samples received	: 35		
No. of samples analysed	: 35		

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
- Method Blank (MB) 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
Milithza Silva	Manager - Inorganics	Burlington Inorganics, Burlington, Ontario



Page : 2 of 4
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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.



Page : 3 of 4
Work Order : BU2501297
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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

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
Particulates (QC Lot: 2005153)											
BU2501297-004	25-2049-M201A-4 Test 1 #1 APC Outlet	Particulate matter, filter	----	E890	0.6	mg	<0.6	<0.6	0	Diff <2x LOR	----
Particulates (QC Lot: 2009758)											
BU2501297-001	25-2049-M201A-1 Test 1 #1 APC Outlet	mass, acetone [FRONT]	----	E898A	0.40	g	42.0	42.0	0.00%	10%	----
Particulates (QC Lot: 2009762)											
BU2501297-001	25-2049-M201A-1 Test 1 #1 APC Outlet	particulate matter, acetone impinger [FRONT]	----	E897A	0.4	mg	<0.4	<0.4	0	Diff <2x LOR	----
Particulates (QC Lot: 2009771)											
BU2501297-033	25-2049-M201A-45 Blank	mass, acetone [FRONT]	----	E898A	0.40	g	51.9	51.9	0.00%	10%	----
Particulates (QC Lot: 2009775)											
BU2501297-033	25-2049-M201A-45 Blank	particulate matter, acetone impinger [FRONT]	----	E897A	0.4	mg	<0.4	<0.4	0	Diff <2x LOR	----
Particulates (QC Lot: 2011068)											
BU2501297-005	25-2049-M201A-(5-7) Test 1 #1 APC Outlet	Mass, solvent [organic]	n/a	E901S	0.40	g	136	136	0.00%	10%	----
Particulates (QC Lot: 2011072)											
BU2501297-005	25-2049-M201A-(5-7) Test 1 #1 APC Outlet	Mass, deionized water [aqueous]	n/a	E901W	0.40	g	220	220	0.00%	10%	----
Particulates (QC Lot: 2011073)											
BU2501297-005	25-2049-M201A-(5-7) Test 1 #1 APC Outlet	Condensable particulates, extractable [organic]	n/a	E902S	0.4	mg	1.7	1.7	0	Diff <2x LOR	----
Particulates (QC Lot: 2011077)											
BU2501297-005	25-2049-M201A-(5-7) Test 1 #1 APC Outlet	Condensable particulates, non-extractable [aqueous]	n/a	E902W	0.4	mg	1.3	1.3	0	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
Particulates (QCLot: 2005153)						
Particulate matter, filter	---	E890	0.6	mg	<0.6	---
Particulates (QCLot: 2009758)						
mass, acetone [FRONT]	---	E898A	0.4	g	25.6	---
Particulates (QCLot: 2009762)						
particulate matter, acetone impinger [FRONT]	---	E897A	0.4	mg	<0.4	---
Particulates (QCLot: 2009771)						
mass, acetone [FRONT]	---	E898A	0.4	g	24.9	---
Particulates (QCLot: 2009775)						
particulate matter, acetone impinger [FRONT]	---	E897A	0.4	mg	<0.4	---
Particulates (QCLot: 2011068)						
Mass, solvent [organic]	n/a	E901S	0.4	g	105	---
Particulates (QCLot: 2011072)						
Mass, deionized water [aqueous]	n/a	E901W	0.4	g	110	---
Particulates (QCLot: 2011073)						
Condensable particulates, extractable [organic]	n/a	E902S	0.4	mg	<0.4	---
Particulates (QCLot: 2011077)						
Condensable particulates, non-extractable [aqueous]	n/a	E902W	0.4	mg	<0.4	---



CERTIFICATE OF ANALYSIS

Work Order	: BU2501295	
Client	: Alliance Technical Group North Inc.	
Contact	: Chris Belore	Laboratory
Address	: 804 Southdown Road	: Lynne Wrona
	: Mississauga Ontario Canada L5J 2Y4	: 1435 Norjohn Court, Unit 1
Telephone	: 905 822 4120	: Burlington ON Canada L7L 0E6
Project	: AST-2025-2049 Reworld	: Lynne.Wrona@ALSGlobal.com
PO	: ****	: +1 905 331 3111
C-O-C number	: ****	: 14-May-2025 15:15
Sampler	: ****	: 21-May-2025
Site	: ****	: Issue Date
Quote number	: Reworld	: 06-Jun-2025 12:08
No. of samples received	: 7	
No. of samples analysed	: 7	

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	Metals, 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
g	grams
mg	milligrams
µg/L	micrograms per litre
µg/sample	micrograms 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: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		Client sampling date / time										25-2049-PM-(19 thru 24) Blank		25-2049-PM-(25 thru 30) Test 1 #2 APC Outlet	
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	BU2501295-001	Result	BU2501295-002	Result	BU2501295-003	Result	BU2501295-004	Result	BU2501295-005			
Particulates																	
mass, acetone [FRONT]	----	E898A/BU	0.40	g		94.9	103	103	103	103	170	90.4					
particulate matter, acetone impinger [FRONT]	----	E897A/BU	0.4	mg		0.4	0.8	0.6	0.6	0.6	<0.4	0.8					
Particulate matter, filter	----	E890/BU	0.6	mg		<0.6	<0.6		<0.6	<0.6	<0.6	<0.6					
Method 29 Metals: Fraction 1A (HF)																	
Antimony	7440-36-0	E457A/BU	0.20	µg/sample		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Arsenic	7440-38-2	E457A/BU	1.0	µg/sample		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
Barium	7440-39-3	E457A/BU	5.0	µg/sample		10.0	9.8	10.0	10.0	10.0	8.1	8.9					
Beryllium	7440-41-7	E457A/BU	0.20	µg/sample		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Cadmium	7440-43-9	E457A/BU	0.10	µg/sample		0.13	0.17	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
Chromium	7440-47-3	E457A/BU	1.0	µg/sample		2.3	5.3	2.1	2.1	2.1	1.9	2.2					
Cobalt	7440-48-4	E457A/BU	0.20	µg/sample		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Copper	7440-50-8	E457A/BU	1.0	µg/sample		3.0	3.1	3.3	3.3	3.3	3.5	3.2					
Lead	7439-92-1	E457A/BU	0.50	µg/sample		0.61	0.58	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			
Molybdenum	7439-98-7	E457A/BU	0.20	µg/sample		17.5	17.0	16.7	16.7	16.7	15.9	16.7					
Nickel	7440-02-0	E457A/BU	0.20	µg/sample		1.77	2.13	1.63	1.63	1.63	1.07	1.43					
Selenium	7782-49-2	E457A/BU	2.0	µg/sample		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0			
Silver	7440-22-4	E457A/BU	0.20	µg/sample		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Thallium	7440-28-0	E457A/BU	0.20	µg/sample		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Vanadium	7440-62-2	E457A/BU	1.0	µg/sample		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		Client sampling date / time										
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet		25-2049-PM-(7 thru 12) Test 2 #1 APC Outlet		25-2049-PM-(13 thru 18) Test 3 #1 APC Outlet		25-2049-PM-(19 thru 24) Blank		25-2049-PM-(25 thru 30) Test 1 #2 APC Outlet	
					Result	BU2501295-001	Result	BU2501295-002	Result	BU2501295-003	Result	BU2501295-004	Result	BU2501295-005
Method 29 Metals: Fraction 1A (HF)														
Zinc	7440-66-6	E457A/BU	6.0	µg/sample	12.2		11.2		9.1		<6.0		7.6	
Method 29 Metals: Fraction 2A (HNO3/H2O2)														
Antimony	7440-36-0	E457B/BU	0.10	µg/sample	<0.10		<0.10		<0.10		<0.10		<0.10	
Arsenic	7440-38-2	E457B/BU	0.50	µg/sample	<0.50		<0.50		<0.50		<0.50		<0.50	
Barium	7440-39-3	E457B/BU	2.5	µg/sample	<2.5		<2.5		<2.5		<2.5		<2.5	
Beryllium	7440-41-7	E457B/BU	0.10	µg/sample	<0.10		<0.10		<0.10		<0.10		<0.10	
Cadmium	7440-43-9	E457B/BU	0.050	µg/sample	<0.050		<0.050		0.057		<0.050		<0.050	
Chromium	7440-47-3	E457B/BU	0.50	µg/sample	<0.50		0.55		0.62		<0.50		<0.50	
Cobalt	7440-48-4	E457B/BU	0.10	µg/sample	0.12		0.18		<0.10		<0.10		<0.10	
Copper	7440-50-8	E457B/BU	0.50	µg/sample	7.92		3.84		3.63		2.63		3.20	
Lead	7439-92-1	E457B/BU	0.25	µg/sample	0.70		0.56		0.79		0.29		1.12	
Molybdenum	7439-98-7	E457B/BU	0.10	µg/sample	<0.10		<0.10		<0.10		<0.10		<0.10	
Nickel	7440-02-0	E457B/BU	0.10	µg/sample	0.35		1.43		0.98		0.10		0.32	
Selenium	7782-49-2	E457B/BU	1.0	µg/sample	2.0		<1.0		<1.0		<1.0		<1.0	
Silver	7440-22-4	E457B/BU	0.10	µg/sample	<0.10		<0.10		<0.10		<0.10		<0.10	
Thallium	7440-28-0	E457B/BU	0.10	µg/sample	<0.10		<0.10		<0.10		<0.10		<0.10	
Vanadium	7440-62-2	E457B/BU	0.50	µg/sample	<0.50		<0.50		<0.50		<0.50		<0.50	
Zinc	7440-66-6	E457B/BU	3.0	µg/sample	4.7		5.4		9.2		<3.0		4.1	

**Sub-Matrix: Impinger
(Matrix: Air)**

Please refer to the General Comments section for an explanation of any qualifiers detected.

**Sub-Matrix: Impinger
(Matrix: Air)**

Page: 5 of 8



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)																	
Analyte	CAS Number	Method/Lab	Client sample ID			Client sampling date / time		25-2049-PM-(31 thru 42) Test 2 #2 APC Outlet		25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet		25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet		25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet		25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet	
			LOR	Unit	Result	Result	Result	Result	Result	Result							
Method 29 Metals: Fraction 1A (HF)																	
Antimony	7440-36-0	E457A/BU	0.20	µg/sample	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	7440-38-2	E457A/BU	1.0	µg/sample	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Barium	7440-39-3	E457A/BU	5.0	µg/sample	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Beryllium	7440-41-7	E457A/BU	0.20	µg/sample	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium	7440-43-9	E457A/BU	0.10	µg/sample	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Chromium	7440-47-3	E457A/BU	1.0	µg/sample	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Cobalt	7440-48-4	E457A/BU	0.20	µg/sample	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Copper	7440-50-8	E457A/BU	1.0	µg/sample	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Lead	7439-92-1	E457A/BU	0.50	µg/sample	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Molybdenum	7439-98-7	E457A/BU	0.20	µg/sample	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Nickel	7440-02-0	E457A/BU	0.20	µg/sample	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Selenium	7782-49-2	E457A/BU	2.0	µg/sample	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silver	7440-22-4	E457A/BU	0.20	µg/sample	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	7440-28-0	E457A/BU	0.20	µg/sample	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium	7440-62-2	E457A/BU	1.0	µg/sample	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	7440-66-6	E457A/BU	6.0	µg/sample	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Method 29 Metals: Fraction 2A (HNO3/H2O2)																	
Antimony	7440-36-0	E457B/BU	0.10	µg/sample	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	7440-38-2	E457B/BU	0.50	µg/sample	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		25-2049-PM-(31 thru 36) Test 2 #2 APC Outlet		25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet		25-2049-PM-(31 thru 36) Test 2 #2 APC Outlet		25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet		25-2049-PM-(31 thru 36) Test 2 #2 APC Outlet		25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet	
Analyte		CAS Number	Method/Lab	LOR	Unit	Client sampling date / time		Result		Result		Result		Result	
Method 29 Metals: Fraction 2A (HNO3/H2O2)															
Barium		7440-39-3	E457B/BU	2.5	µg/sample			<2.5		<2.5		<2.5		<2.5	
Beryllium		7440-41-7	E457B/BU	0.10	µg/sample			<0.10		<0.10		<0.10		<0.10	
Cadmium		7440-43-9	E457B/BU	0.050	µg/sample			<0.050		<0.050		<0.050		<0.050	
Chromium		7440-47-3	E457B/BU	0.50	µg/sample			<0.50		<0.50		<0.50		<0.50	
Cobalt		7440-48-4	E457B/BU	0.10	µg/sample			<0.10		<0.10		<0.10		<0.10	
Copper		7440-50-8	E457B/BU	0.50	µg/sample			3.73		2.82		2.82		2.82	
Lead		7439-92-1	E457B/BU	0.25	µg/sample			1.01		1.31		1.31		1.31	
Molybdenum		7439-98-7	E457B/BU	0.10	µg/sample			<0.10		<0.10		<0.10		<0.10	
Nickel		7440-02-0	E457B/BU	0.10	µg/sample			0.80		0.24		0.24		0.24	
Selenium		7782-49-2	E457B/BU	1.0	µg/sample			<1.0		<1.0		<1.0		<1.0	
Silver		7440-22-4	E457B/BU	0.10	µg/sample			<0.10		<0.10		<0.10		<0.10	
Thallium		7440-28-0	E457B/BU	0.10	µg/sample			<0.10		<0.10		<0.10		<0.10	
Vanadium		7440-62-2	E457B/BU	0.50	µg/sample			<0.50		<0.50		<0.50		<0.50	
Zinc		7440-66-6	E457B/BU	3.0	µg/sample			5.3		<3.0		<3.0		<3.0	
Method 29 Mercury: Fraction 1B (HF)															
Mercury		7439-97-6	E521A/BU	0.022	µg/sample			<0.022		<0.022		<0.022		<0.022	
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4)															
Mercury		7439-97-6	E521B/BU	0.75	µg/L			<0.75		<0.75		<0.75		<0.75	
Mercury		7439-97-6	EC521B/BU	0.0750	µg/sample			<0.562		<0.600		<0.600		<0.600	



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)																	
Analyte	CAS Number	Method/Lab	Client sampling date / time		Client sample ID		25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(37 thru 42) Test 3 #2 APC Outlet	25-2049-PM-(31 thru 42) Test 3 #2 APC Outlet
			LOR	Unit	Result	Result											
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4)																	
Mercury	7439-97-6	E521D/BU	0.075	µg/L	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Mercury	7439-97-6	EC521D/BU	0.0075	µg/sample	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338	<0.0338
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4)																	
Mercury	7439-97-6	E521E/BU	0.75	µg/L	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Mercury	7439-97-6	EC521E/BU	0.075	µg/sample	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: BU2501295	Page	: 1 of 15
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 14-May-2025 15:15
PO	: -----	Issue Date	: 06-Jun-2025 12:08
C-O-C number	: -----		
Sampler	: -----		
Site	: -----		
Quote number	: Reworld		
No. of samples received	: 7		
No. of samples analysed	: 7		

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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Matrix Spike Duplicate (MSD) outliers occur - please see following pages for full details.
- Method Blank value outliers occur - please see following pages for full details.
- 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.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Air

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Method 29 Metals: Fraction 1A (HF)	QC-MRG2-2031770 001	----	Copper	7440-50-8	E457A	3.6 ^B µg/sampl e	3 µg/sample	Blank result exceeds permitted value
Method 29 Metals: Fraction 1A (HF)	QC-MRG2-2031770 001	----	Nickel	7440-02-0	E457A	1.35 ^B µg/sampl e	0.6 µg/sample	Blank result exceeds permitted value

Result Qualifiers

QualifierDescription

BMethod Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



Page : 4 of 15
Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet	E457B	13-May-2025	03-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(19 thru 24) Blank	E457B	13-May-2025	03-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet	E457B	13-May-2025	03-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet	E457B	13-May-2025	03-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet	E457B	12-May-2025	03-Jun-2025	28 days	23 days	✓	04-Jun-2025	28 days	23 days	✓
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet	E457B	12-May-2025	03-Jun-2025	28 days	23 days	✓	04-Jun-2025	28 days	23 days	✓
Metals : Method 29 Metals: Fraction 2A by ICPMS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet	E457B	12-May-2025	03-Jun-2025	28 days	23 days	✓	04-Jun-2025	28 days	23 days	✓



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Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet	E521A	13-May-2025	04-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(19 thru 24) Blank	E521A	13-May-2025	04-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet	E521A	13-May-2025	04-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet	E521A	13-May-2025	04-Jun-2025	28 days	22 days	✓	04-Jun-2025	28 days	22 days	✓
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet	E521A	12-May-2025	04-Jun-2025	28 days	23 days	✓	04-Jun-2025	28 days	23 days	✓
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet	E521A	12-May-2025	04-Jun-2025	28 days	23 days	✓	04-Jun-2025	28 days	23 days	✓
Method 29 Mercury: Fraction 1B (HF) : Method 29 Mercury: Fraction 1B (HF) by CVAAS										
M29 : 0.1N HNO3 (Probe Rinse) 25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet	E521A	12-May-2025	04-Jun-2025	28 days	23 days	✓	04-Jun-2025	28 days	23 days	✓
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet	E521B	13-May-2025	28-May-2025	28 days	16 days	✓	28-May-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS										
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(19 thru 24) Blank	E521B	13-May-2025	28-May-2025	28 days	16 days	✓	28-May-2025	28 days	16 days	✓



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Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual				Rec	
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS											
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet		E521B	13-May-2025	28-May-2025	28 days	16 days	✓	28-May-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS											
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet		E521B	13-May-2025	28-May-2025	28 days	16 days	✓	28-May-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS											
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet		E521B	12-May-2025	28-May-2025	28 days	17 days	✓	28-May-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS											
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet		E521B	12-May-2025	28-May-2025	28 days	17 days	✓	28-May-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 2B by CVAAS											
M29 : 5% HNO3 + 10% H2O2 (Impingers) 25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet		E521B	12-May-2025	28-May-2025	28 days	17 days	✓	28-May-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS											
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet		E521D	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS											
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(19 thru 24) Blank		E521D	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS											
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet		E521D	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS											
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet		E521D	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓



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Client : Alliance Technical Group North Inc.
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Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Sampling Date	Method	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS										
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet	E521D	12-May-2025	28-May-2025	28 days	17 days	✓	02-Jun-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS										
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet	E521D	12-May-2025	28-May-2025	28 days	17 days	✓	02-Jun-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3B by CVAAS										
M29 : 4% KMNO4 + 10% H2SO4 (Impingers) 25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet	E521D	12-May-2025	28-May-2025	28 days	17 days	✓	02-Jun-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS										
M29 : 8N HCl (Impinger Rinse) 25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet	E521E	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS										
M29 : 8N HCl (Impinger Rinse) 25-2049-PM-(19 thru 24) Blank	E521E	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS										
M29 : 8N HCl (Impinger Rinse) 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet	E521E	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS										
M29 : 8N HCl (Impinger Rinse) 25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet	E521E	13-May-2025	28-May-2025	28 days	16 days	✓	02-Jun-2025	28 days	16 days	✓
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS										
M29 : 8N HCl (Impinger Rinse) 25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet	E521E	12-May-2025	28-May-2025	28 days	17 days	✓	02-Jun-2025	28 days	17 days	✓
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS										
M29 : 8N HCl (Impinger Rinse) 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet	E521E	12-May-2025	28-May-2025	28 days	17 days	✓	02-Jun-2025	28 days	17 days	✓



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Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time											
Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis			Eval	
				Preparation Date	Holding Times Rec	Actual	Eval	Analysis Date	Holding Times Rec		Actual
Matrix: Air											
Container / Client Sample ID(s)											
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) : Method 29 Mercury: Fraction 3C by CVAAS											
M29 : 8N HCl (Impinger Rinse)		E521E	12-May-2025	28-May-2025	28 days	17 days	✔	02-Jun-2025	28 days	17 days	✔
25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	13-May-2025	04-Jun-2025	28 days	22 days	✔	05-Jun-2025	28 days	22 days	✔
25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	13-May-2025	04-Jun-2025	28 days	22 days	✔	05-Jun-2025	28 days	22 days	✔
25-2049-PM-(19 thru 24) Blank											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	13-May-2025	04-Jun-2025	28 days	22 days	✔	05-Jun-2025	28 days	22 days	✔
25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	13-May-2025	04-Jun-2025	28 days	22 days	✔	05-Jun-2025	28 days	22 days	✔
25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	12-May-2025	04-Jun-2025	28 days	23 days	✔	05-Jun-2025	28 days	23 days	✔
25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	12-May-2025	04-Jun-2025	28 days	23 days	✔	05-Jun-2025	28 days	23 days	✔
25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet											
Method 29 Metals: Fraction 1A (HF) : Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS											
M29 : 0.1N HNO3 (Probe Rinse)		E457A	12-May-2025	04-Jun-2025	28 days	23 days	✔	05-Jun-2025	28 days	23 days	✔
25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet											
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry											
M5/M29 : Acetone (Probe Rinse)		E897A	12-May-2025	-----	-----	-----		27-May-2025	-----	-----	
25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet											



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Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Sampling Date	Method	Extraction / Preparation			Analysis		
				Preparation Date	Holding Times Rec	Actual	Analysis Date	Holding Times Rec	Actual
Container / Client Sample ID(s)									
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)	25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet	13-May-2025	E897A				27-May-2025		
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)	25-2049-PM-(19 thru 24) Blank	13-May-2025	E897A				27-May-2025		
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)	25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet	12-May-2025	E897A				27-May-2025		
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)	25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet	13-May-2025	E897A				27-May-2025		
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)	25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet	13-May-2025	E897A				27-May-2025		
Particulates : Particulates in Stack Emission Acetone Rinse by Gravimetry									
M5/IM29 : Acetone (Probe Rinse)	25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet	12-May-2025	E897A				27-May-2025		
Particulates : Particulates in Stack Emission Filter by Gravimetry									
M5/IM29 : Quartz Filter	25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet	12-May-2025	E890				27-May-2025		
Particulates : Particulates in Stack Emission Filter by Gravimetry									
M5/IM29 : Quartz Filter	25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet	13-May-2025	E890				27-May-2025		
Particulates : Particulates in Stack Emission Filter by Gravimetry									
M5/IM29 : Quartz Filter	25-2049-PM-(19 thru 24) Blank	13-May-2025	E890				27-May-2025		



Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual			Rec	Actual	
Particulates : Particulates in Stack Emission Filter by Gravimetry											
M5/M29 : Quartz Filter 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet		E890	12-May-2025					27-May-2025			
Particulates : Particulates in Stack Emission Filter by Gravimetry											
M5/M29 : Quartz Filter 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet		E890	13-May-2025					27-May-2025			
Particulates : Particulates in Stack Emission Filter by Gravimetry											
M5/M29 : Quartz Filter 25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet		E890	13-May-2025					27-May-2025			
Particulates : Particulates in Stack Emission Filter by Gravimetry											
M5/M29 : Quartz Filter 25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet		E890	12-May-2025					27-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-PM-(1 thru 6) Test 1 - #1 APC Outlet		E898A	12-May-2025					21-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-PM-(13 thru 18) Test 3 - #1 APC Outlet		E898A	13-May-2025					21-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-PM-(19 thru 24) Blank		E898A	13-May-2025					21-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-PM-(25 thru 30) Test 1 - #2 APC Outlet		E898A	12-May-2025					21-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry											
M5/M29 : Acetone (Probe Rinse) 25-2049-PM-(31 thru 36) Test 2 - #2 APC Outlet		E898A	13-May-2025					21-May-2025			



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Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)	Preparation Date			Holding Times Rec	Actual	Eval	Analysis Date	Holding Times Rec	Actual	Eval
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/IM29 : Acetone (Probe Rinse)		E898A	13-May-2025							
25-2049-PM-(37 thru 42) Test 3 - #2 APC Outlet							21-May-2025			
Particulates : Stack Emission Acetone Rinse Mass by Gravimetry										
M5/IM29 : Acetone (Probe Rinse)		E898A	12-May-2025							
25-2049-PM-(7 thru 12) Test 2 - #1 APC Outlet							21-May-2025			

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



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Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		QC Lot #	Count		Frequency (%)	
Analytical Methods	Method		QC	Regular	Actual	Expected
Laboratory Duplicates (DUP)						
Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS	E457A	2031770	1	7	14.2	5.0
Method 29 Metals: Fraction 2A by ICPMS	E457B	2030122	1	17	5.8	5.0
Method 29 Mercury: Fraction 1B (HF) by CVAAS	E521A	2031771	1	7	14.2	5.0
Method 29 Mercury: Fraction 2B by CVAAS	E521B	2019733	1	20	5.0	5.0
Method 29 Mercury: Fraction 3B by CVAAS	E521D	2019744	1	20	5.0	5.0
Method 29 Mercury: Fraction 3C by CVAAS	E521E	2019745	1	20	5.0	5.0
Particulates in Stack Emission Filter by Gravimetry	E890	2004313	1	7	14.2	5.0
Particulates in Stack Emission Acetone Rinse by Gravimetry	E897A	2004312	1	14	7.1	5.0
Stack Emission Acetone Rinse Mass by Gravimetry	E898A	2004308	1	14	7.1	5.0
Laboratory Control Samples (LCS)						
Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS	E457A	2031770	1	7	14.2	5.0
Method 29 Metals: Fraction 2A by ICPMS	E457B	2030122	1	17	5.8	5.0
Method 29 Mercury: Fraction 1B (HF) by CVAAS	E521A	2031771	1	7	14.2	5.0
Method 29 Mercury: Fraction 2B by CVAAS	E521B	2019733	1	20	5.0	5.0
Method 29 Mercury: Fraction 3B by CVAAS	E521D	2019744	1	20	5.0	5.0
Method 29 Mercury: Fraction 3C by CVAAS	E521E	2019745	1	20	5.0	5.0
Method Blanks (MB)						
Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS	E457A	2031770	1	7	14.2	5.0
Method 29 Metals: Fraction 2A by ICPMS	E457B	2030122	1	17	5.8	5.0
Method 29 Mercury: Fraction 1B (HF) by CVAAS	E521A	2031771	1	7	14.2	5.0
Method 29 Mercury: Fraction 2B by CVAAS	E521B	2019733	1	20	5.0	5.0
Method 29 Mercury: Fraction 3B by CVAAS	E521D	2019744	1	20	5.0	5.0
Method 29 Mercury: Fraction 3C by CVAAS	E521E	2019745	1	20	5.0	5.0
Particulates in Stack Emission Filter by Gravimetry	E890	2004313	1	7	14.2	5.0
Particulates in Stack Emission Acetone Rinse by Gravimetry	E897A	2004312	1	14	7.1	5.0
Stack Emission Acetone Rinse Mass by Gravimetry	E898A	2004308	1	14	7.1	5.0
Matrix Spikes (MS)						
Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS	E457A	2031770	1	7	14.2	5.0
Method 29 Metals: Fraction 2A by ICPMS	E457B	2030122	1	17	5.8	5.0
Method 29 Mercury: Fraction 1B (HF) by CVAAS	E521A	2031771	1	7	14.2	5.0
Method 29 Mercury: Fraction 2B by CVAAS	E521B	2019733	1	20	5.0	5.0
Method 29 Mercury: Fraction 3B by CVAAS	E521D	2019744	1	20	5.0	5.0
Method 29 Mercury: Fraction 3C by CVAAS	E521E	2019745	1	20	5.0	5.0
Matrix Spike Duplicates (MSD)						
Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS	E457A	2031770	1	7	14.2	5.0



Matrix: Air

Evaluation : ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type							
Analytical Methods		Method	QC Lot #	Count		Frequency (%)	
Matrix Spike Duplicates (MSD) - Continued							
Method 29 Metals: Fraction 2A by ICPMS		E457B	2030122	1	17	5.8	5.0
Method 29 Mercury: Fraction 1B (HF) by CVAAS		E521A	2031771	1	7	14.2	5.0
Method 29 Mercury: Fraction 2B by CVAAS		E521B	2019733	1	20	5.0	5.0
Method 29 Mercury: Fraction 3B by CVAAS		E521D	2019744	1	20	5.0	5.0
Method 29 Mercury: Fraction 3C by CVAAS		E521E	2019745	1	20	5.0	5.0



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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 Descriptions
Method 29 Metals: Fraction 1A (hydrofluoric) by ICPMS	E457A ALS Environmental - Burlington	Air	EPA Method 29 (preparation), EPA Method 6020B (analytical)	Front-half (FH) sample fractions are combined for closed-vessel microwave digestion in hydrofluoric acid. After digestion, samples are submitted to instruments for analysis by ICP-MS.
Method 29 Metals: Fraction 2A by ICPMS	E457B ALS Environmental - Burlington	Air	EPA Method 29 (preparation), EPA Method 6020B (analytical)	Back-half (BH) samples are digested using an open vessel procedure. After digestion, samples are submitted to instruments for analysis by ICP-MS.
Method 29 Mercury: Fraction 1B (HF) by CVAAS	E521A ALS Environmental - Burlington	Air	EPA Method 29 (preparation), EPA Method 7470A (analysis)	After microwave digestion, a sub-sample is re-digested in oxidizing reagents, using an open-vessel hotblock method. Samples are treated with a reductant to facilitate analysis by CVAAS.
Method 29 Mercury: Fraction 2B by CVAAS	E521B ALS Environmental - Burlington	Air	EPA Method 29 (preparation), EPA Method 7470A (analytical)	A sub-sample is digested in oxidizing reagents, using an open-vessel hotblock method. Samples are treated with a reductant to facilitate analysis by CVAAS.
Method 29 Mercury: Fraction 3B by CVAAS	E521D ALS Environmental - Burlington	Air	EPA Method 29 (preparation), EPA Method 7470A (analysis)	Samples are filtered, and rinsed, to remove solids. A sub-sample of the filtrate is digested in oxidizing reagents, using an open-vessel hotblock method. Samples are treated with a reductant to facilitate analysis by CVAAS.
Method 29 Mercury: Fraction 3C by CVAAS	E521E ALS Environmental - Burlington	Air	EPA Method 29 (preparation), EPA Method 7470A (analytical)	Filter and solids from the filtration of Fraction 3B are placed into a vessel and covered with 8N HCl. This is then re-filtered and a sub-sample of the filtrate is digested in oxidizing reagents, using an open-vessel hotblock method. Samples are treated with a reductant to facilitate analysis by CVAAS.
Particulates in Stack Emission Filter by Gravimetry	E890 ALS Environmental - Burlington	Air	EPA Method 5 (mod.)	Gravimetric analysis of particulate air samples collected on filters.
Particulates in Stack Emission Acetone Rinse by Gravimetry	E897A ALS Environmental - Burlington	Air	EPA Method 5 (mod.)	Gravimetric analysis of particulate air samples collected in acetone rinses.
Stack Emission Acetone Rinse Mass by Gravimetry	E898A ALS Environmental - Burlington	Air	EPA Method 5 (mod.)	Gravimetric analysis of acetone mass from rinses.
Hg Fraction 2B (Method 29) - CALC	EC521B ALS Environmental - Burlington	Air	unit conversion	Convert ug/L to ug/sample



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Analytical Methods		Method / Lab	Matrix	Method Reference	Method Descriptions
Hg Fraction 3B (Method 29) - CALC		EC521D ALS Environmental - Burlington	Air	unit conversion	Convert ug/L to ug/sample
		EC521E ALS Environmental - Burlington	Air	unit conversion	Convert ug/L to ug/sample
Preparation Methods		Method / Lab	Matrix	Method Reference	Method Descriptions
Sample preparation (HF) for Fraction 1A/1B Stack Metals		EP457A ALS Environmental - Burlington	Air	EPA Method 29 (preparation)	Samples are digested using hydrofluoric acid in a closed vessel procedure. Analysis by ICP-MS (1A) or CVAA (1B) follows.
		EP457B ALS Environmental - Burlington	Air	EPA Method 29 (preparation)	Samples are digested using an open vessel procedure. Analysis by ICP-MS (2A) or CVAA (2B) follows.



QUALITY CONTROL REPORT

Work Order	: BU2501295	Page	: 1 of 12
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 14-May-2025 15:15
PO	: ----	Date Analysis Commenced	: 21-May-2025
C-O-C number	: ----	Issue Date	: 06-Jun-2025 12:08
Sampler	: ----		
Site	: ----		
Quote number	: Reworld		
No. of samples received	: 7		
No. of samples analysed	: 7		

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
- Matrix Spike Duplicate (MSD) Report; Relative Percent Difference (RPD)
- 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
Milithza Silva	Manager - Inorganics	Burlington Metals, Burlington, Ontario



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Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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.



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Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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

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
Particulates (QC Lot: 2004308)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	mass, acetone [FRONT]	----	E898A	0.40	g	94.9	94.9	0.00%	10%	----
Particulates (QC Lot: 2004312)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	particulate matter, acetone impinger [FRONT]	----	E897A	0.4	mg	0.4	0.4	0	Diff <2x LOR	----
Particulates (QC Lot: 2004313)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Particulate matter, filter	----	E890	0.6	mg	<0.6	<0.6	0	Diff <2x LOR	----
Metals (QC Lot: 2030122)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Antimony	7440-36-0	E457B	0.10	µg/sample	<0.10	<0.10	0	Diff <2x LOR	J
		Arsenic	7440-38-2	E457B	0.50	µg/sample	<0.50	<0.50	0	Diff <2x LOR	J
		Barium	7440-39-3	E457B	2.5	µg/sample	<2.5	<2.5	0	Diff <2x LOR	J
		Beryllium	7440-41-7	E457B	0.10	µg/sample	<0.10	<0.10	0	Diff <2x LOR	J
		Cadmium	7440-43-9	E457B	0.050	µg/sample	<0.050	<0.050	0	Diff <2x LOR	J
		Chromium	7440-47-3	E457B	0.50	µg/sample	<0.50	<0.50	0	Diff <2x LOR	J
		Cobalt	7440-48-4	E457B	0.10	µg/sample	0.12	0.13	0.002	Diff <2x LOR	J
		Copper	7440-50-8	E457B	0.50	µg/sample	7.92	7.90	0.247%	20%	----
		Lead	7439-92-1	E457B	0.25	µg/sample	0.70	0.66	0.04	Diff <2x LOR	J
		Nickel	7440-02-0	E457B	0.10	µg/sample	0.35	0.34	0.004	Diff <2x LOR	J
		Selenium	7782-49-2	E457B	1.0	µg/sample	2.0	2.1	0.1	Diff <2x LOR	J
		Silver	7440-22-4	E457B	0.10	µg/sample	<0.10	<0.10	0	Diff <2x LOR	J
		Thallium	7440-28-0	E457B	0.10	µg/sample	<0.10	<0.10	0	Diff <2x LOR	J
		Zinc	7440-66-6	E457B	3.0	µg/sample	4.7	4.8	0.09	Diff <2x LOR	J
Method 29 Metals: Fraction 1A (HF) (QC Lot: 2031770)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Antimony	7440-36-0	E457A	0.20	µg/sample	<0.20	<0.20	0	Diff <2x LOR	J
		Arsenic	7440-38-2	E457A	1.0	µg/sample	<1.0	<1.0	0	Diff <2x LOR	J
		Barium	7440-39-3	E457A	5.0	µg/sample	10.0	9.8	0.2	Diff <2x LOR	J
		Beryllium	7440-41-7	E457A	0.20	µg/sample	<0.20	<0.20	0	Diff <2x LOR	J
		Cadmium	7440-43-9	E457A	0.10	µg/sample	0.13	0.14	0.003	Diff <2x LOR	J
		Chromium	7440-47-3	E457A	1.0	µg/sample	2.3	2.3	0.02	Diff <2x LOR	J
		Cobalt	7440-48-4	E457A	0.20	µg/sample	<0.20	<0.20	0	Diff <2x LOR	J



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Work Order : BU2501295
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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
Method 29 Metals: Fraction 1A (HF) (QC Lot: 2031770) - continued											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Copper	7440-50-8	E457A	1.0	µg/sample	3.0	2.9	0.07	Diff <2x LOR	J
		Lead	7439-92-1	E457A	0.50	µg/sample	0.61	0.60	0.009	Diff <2x LOR	J
		Nickel	7440-02-0	E457A	0.20	µg/sample	1.77	1.75	0.02	Diff <2x LOR	J
		Selenium	7782-49-2	E457A	2.0	µg/sample	<2.0	<2.0	0	Diff <2x LOR	J
		Silver	7440-22-4	E457A	0.20	µg/sample	<0.20	<0.20	0	Diff <2x LOR	J
		Thallium	7440-28-0	E457A	0.20	µg/sample	<0.20	<0.20	0	Diff <2x LOR	J
		Zinc	7440-66-6	E457A	6.0	µg/sample	12.2	12.3	0.1	Diff <2x LOR	J
Method 29 Mercury: Fraction 1B (HF) (QC Lot: 2031771)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521A	0.022	µg/sample	<0.022	<0.022	0	Diff <2x LOR	J
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) (QC Lot: 2019733)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521B	0.75	µg/L	<0.75	<0.75	0	Diff <2x LOR	J
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) (QC Lot: 2019744)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521D	0.075	µg/L	<0.075	<0.075	0	Diff <2x LOR	J
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) (QC Lot: 2019745)											
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521E	0.75	µg/L	<0.75	<0.75	0	Diff <2x LOR	J

Qualifiers

Qualifier

Description

J

Duplicate results and limits are expressed in terms of absolute difference.



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
Particulates (QCLot: 2004308)						
mass, acetone [FRONT]	---	E898A	0.4	g	25.2	---
Particulates (QCLot: 2004312)						
particulate matter, acetone impinger [FRONT]	---	E897A	0.4	mg	<0.4	---
Particulates (QCLot: 2004313)						
Particulate matter, filter	---	E890	0.6	mg	<0.6	---
Metals (QCLot: 2030122)						
Antimony	7440-36-0	E457B	0.1	µg/sample	<0.10	---
Arsenic	7440-38-2	E457B	0.5	µg/sample	<0.50	---
Barium	7440-39-3	E457B	2.5	µg/sample	<2.5	---
Beryllium	7440-41-7	E457B	0.1	µg/sample	<0.10	---
Cadmium	7440-43-9	E457B	0.05	µg/sample	<0.050	---
Chromium	7440-47-3	E457B	0.5	µg/sample	<0.50	---
Cobalt	7440-48-4	E457B	0.1	µg/sample	<0.10	---
Copper	7440-50-8	E457B	0.5	µg/sample	<0.50	---
Lead	7439-92-1	E457B	0.25	µg/sample	<0.25	---
Nickel	7440-02-0	E457B	0.1	µg/sample	<0.10	---
Selenium	7782-49-2	E457B	1	µg/sample	<1.0	---
Silver	7440-22-4	E457B	0.1	µg/sample	<0.10	---
Thallium	7440-28-0	E457B	0.1	µg/sample	<0.10	---
Zinc	7440-66-6	E457B	3	µg/sample	<3.0	---
Method 29 Metals: Fraction 1A (HF) (QCLot: 2031770)						
Antimony	7440-36-0	E457A	0.2	µg/sample	<0.20	---
Arsenic	7440-38-2	E457A	1	µg/sample	<1.0	---
Barium	7440-39-3	E457A	5	µg/sample	<5.0	---
Beryllium	7440-41-7	E457A	0.2	µg/sample	<0.20	---
Cadmium	7440-43-9	E457A	0.1	µg/sample	<0.10	---
Chromium	7440-47-3	E457A	1	µg/sample	2.0	---
Cobalt	7440-48-4	E457A	0.2	µg/sample	<0.20	---
Copper	7440-50-8	E457A	1	µg/sample	# 3.6	B
Lead	7439-92-1	E457A	0.5	µg/sample	<0.50	---
Nickel	7440-02-0	E457A	0.2	µg/sample	# 1.35	B
Selenium	7782-49-2	E457A	2	µg/sample	<2.0	---



Sub-Matrix: Air

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Method 29 Metals: Fraction 1A (HF) (QCLot: 2031770) - continued						
Silver	7440-22-4	E457A	0.2	µg/sample	<0.20	----
Thallium	7440-28-0	E457A	0.2	µg/sample	<0.20	----
Zinc	7440-66-6	E457A	6	µg/sample	<6.0	----
Method 29 Mercury: Fraction 1B (HF) (QCLot: 2031771)						
Mercury	7439-97-6	E521A	0.022	µg/sample	<0.022	----
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) (QCLot: 2019733)						
Mercury	7439-97-6	E521B	0.75	µg/L	<0.75	----
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) (QCLot: 2019744)						
Mercury	7439-97-6	E521D	0.075	µg/L	<0.075	----
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) (QCLot: 2019745)						
Mercury	7439-97-6	E521E	0.75	µg/L	<0.75	----

Qualifiers

Qualifier

Description

B

Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



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 (%)		Qualifier
Target Concentration			LCS	Low	High				
Metals (QCLot: 2030122)									
Antimony	7440-36-0	E457B	0.1	µg/sample	100 µg/sample	94.9	80.0	120	-----
Arsenic	7440-38-2	E457B	0.5	µg/sample	100 µg/sample	96.8	80.0	120	-----
Barium	7440-39-3	E457B	2.5	µg/sample	25 µg/sample	85.4	80.0	120	-----
Beryllium	7440-41-7	E457B	0.1	µg/sample	10 µg/sample	93.6	80.0	120	-----
Cadmium	7440-43-9	E457B	0.05	µg/sample	10 µg/sample	94.7	80.0	120	-----
Chromium	7440-47-3	E457B	0.5	µg/sample	25 µg/sample	94.8	80.0	120	-----
Cobalt	7440-48-4	E457B	0.1	µg/sample	25 µg/sample	89.3	80.0	120	-----
Copper	7440-50-8	E457B	0.5	µg/sample	25 µg/sample	94.0	80.0	120	-----
Lead	7439-92-1	E457B	0.25	µg/sample	50 µg/sample	88.9	80.0	120	-----
Nickel	7440-02-0	E457B	0.1	µg/sample	50 µg/sample	93.7	80.0	120	-----
Selenium	7782-49-2	E457B	1	µg/sample	100 µg/sample	86.4	80.0	120	-----
Silver	7440-22-4	E457B	0.1	µg/sample	10 µg/sample	81.9	80.0	120	-----
Thallium	7440-28-0	E457B	0.1	µg/sample	100 µg/sample	89.4	80.0	120	-----
Zinc	7440-66-6	E457B	3	µg/sample	50 µg/sample	91.1	80.0	120	-----
Method 29 Metals: Fraction 1A (HF) (QCLot: 2031770)									
Antimony	7440-36-0	E457A	0.2	µg/sample	50 µg/sample	90.6	80.0	120	-----
Arsenic	7440-38-2	E457A	1	µg/sample	50 µg/sample	96.4	80.0	120	-----
Barium	7440-39-3	E457A	5	µg/sample	12.5 µg/sample	97.2	80.0	120	-----
Beryllium	7440-41-7	E457A	0.2	µg/sample	5 µg/sample	83.1	80.0	120	-----
Cadmium	7440-43-9	E457A	0.1	µg/sample	5 µg/sample	95.2	80.0	120	-----
Chromium	7440-47-3	E457A	1	µg/sample	12.5 µg/sample	93.3	80.0	120	-----
Cobalt	7440-48-4	E457A	0.2	µg/sample	12.5 µg/sample	91.5	80.0	120	-----
Copper	7440-50-8	E457A	1	µg/sample	12.5 µg/sample	95.6	80.0	120	-----
Lead	7439-92-1	E457A	0.5	µg/sample	25 µg/sample	91.0	80.0	120	-----
Nickel	7440-02-0	E457A	0.2	µg/sample	25 µg/sample	94.6	80.0	120	-----
Selenium	7782-49-2	E457A	2	µg/sample	50 µg/sample	87.9	80.0	120	-----
Silver	7440-22-4	E457A	0.2	µg/sample	5 µg/sample	85.9	80.0	120	-----
Thallium	7440-28-0	E457A	0.2	µg/sample	50 µg/sample	93.9	80.0	120	-----
Zinc	7440-66-6	E457A	6	µg/sample	25 µg/sample	90.9	80.0	120	-----
Method 29 Mercury: Fraction 1B (HF) (QCLot: 2031771)									
Mercury	7439-97-6	E521A	0.022	µg/sample	0.3 µg/sample	97.8	90.0	110	-----



Sub-Matrix: Air

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	LCS	Low	High
Analyte	CAS Number	Method	LOR	Unit	Target Concentration				
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) (QCLot: 2019733)									
Mercury	7439-97-6	E521B	0.75	µg/L	10 µg/L	93.6	90.0	110	-----
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) (QCLot: 2019744)									
Mercury	7439-97-6	E521D	0.075	µg/L	1 µg/L	91.0	90.0	110	-----
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) (QCLot: 2019745)									
Mercury	7439-97-6	E521E	0.75	µg/L	10 µg/L	90.3	80.0	120	-----



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 $\geq 1 \times$ spike level.

Sub-Matrix: Air

Sub-Matrix: Air					Matrix Spike (MS) Report					
					Spike		Recovery (%)		Qualifier	
					Concentration	Target	MS	Low		High
Metals (QCLot: 2030122)										
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Antimony	7440-36-0	E457B	103 µg/sample	100 µg/sample	103	80.0	120	----
		Arsenic	7440-38-2	E457B	103 µg/sample	100 µg/sample	103	80.0	120	----
		Barium	7440-39-3	E457B	23.0 µg/sample	25 µg/sample	91.9	80.0	120	----
		Beryllium	7440-41-7	E457B	10.3 µg/sample	10 µg/sample	103	80.0	120	----
		Cadmium	7440-43-9	E457B	10.2 µg/sample	10 µg/sample	102	80.0	120	----
		Chromium	7440-47-3	E457B	25.1 µg/sample	25 µg/sample	100	80.0	120	----
		Cobalt	7440-48-4	E457B	24.1 µg/sample	25 µg/sample	96.3	80.0	120	----
		Copper	7440-50-8	E457B	25.1 µg/sample	25 µg/sample	100	80.0	120	----
		Lead	7439-92-1	E457B	49.1 µg/sample	50 µg/sample	98.2	80.0	120	----
		Nickel	7440-02-0	E457B	50.6 µg/sample	50 µg/sample	101	80.0	120	----
		Selenium	7782-49-2	E457B	89.2 µg/sample	100 µg/sample	89.2	80.0	120	----
		Silver	7440-22-4	E457B	8.72 µg/sample	10 µg/sample	87.2	80.0	120	----
		Thallium	7440-28-0	E457B	99.0 µg/sample	100 µg/sample	99.0	80.0	120	----
		Zinc	7440-66-6	E457B	50.0 µg/sample	50 µg/sample	100	80.0	120	----
Method 29 Metals: Fraction 1A (HF) (QCLot: 2031770)										
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Antimony	7440-36-0	E457A	44.4 µg/sample	50 µg/sample	88.8	80.0	120	----
		Arsenic	7440-38-2	E457A	49.6 µg/sample	50 µg/sample	99.3	80.0	120	----
		Barium	7440-39-3	E457A	13.4 µg/sample	12.5 µg/sample	107	80.0	120	----
		Beryllium	7440-41-7	E457A	4.70 µg/sample	5 µg/sample	93.9	80.0	120	----
		Cadmium	7440-43-9	E457A	4.77 µg/sample	5 µg/sample	95.4	80.0	120	----
		Chromium	7440-47-3	E457A	12.2 µg/sample	12.5 µg/sample	98.0	80.0	120	----
		Cobalt	7440-48-4	E457A	12.0 µg/sample	12.5 µg/sample	96.4	80.0	120	----
		Copper	7440-50-8	E457A	12.3 µg/sample	12.5 µg/sample	98.5	80.0	120	----
		Lead	7439-92-1	E457A	23.6 µg/sample	25 µg/sample	94.2	80.0	120	----
		Nickel	7440-02-0	E457A	24.1 µg/sample	25 µg/sample	96.3	80.0	120	----
		Selenium	7782-49-2	E457A	43.7 µg/sample	50 µg/sample	87.4	80.0	120	----
		Silver	7440-22-4	E457A	4.21 µg/sample	5 µg/sample	84.2	80.0	120	----
		Thallium	7440-28-0	E457A	47.9 µg/sample	50 µg/sample	95.9	80.0	120	----
		Zinc	7440-66-6	E457A	24.7 µg/sample	25 µg/sample	98.8	80.0	120	----
Method 29 Mercury: Fraction 1B (HF) (QCLot: 2031771)										
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521A	0.286 µg/sample	0.3 µg/sample	95.3	75.0	125	----
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) (QCLot: 2019733)										
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521B	9.41 µg/L	10 µg/L	94.1	75.0	125	----
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) (QCLot: 2019744)										



Sub-Matrix: Air

					Matrix Spike (MS) Report				
					Spike		Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) (QCLot: 2019744) - continued									
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521D	0.871 µg/L	1 µg/L	87.1	80.0	120
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) (QCLot: 2019745)									
BU2501295-001	25-2049-PM-(1 thru 6) Test 1 #1 APC Outlet	Mercury	7439-97-6	E521E	8.95 µg/L	10 µg/L	89.5	80.0	120



Matrix Spike Duplicate (MSD) Report

A Matrix Spike Duplicate (MSD) is a duplicate of a Matrix Spike (MS), which has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spike Duplicates provide information regarding method precision. ALS DQOs for Matrix Spike Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD).

Sub-Matrix: Air

Sub-Matrix: Air					Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	MSD Result	RPD(%) or Difference	MSD Limits	Qualifier
Metals (QC Lot: 2030122)											
QC-203012-005		Antimony	7440-36-0	E457B	0.10	µg/sample	103	105	0.966%	20%	----
		Arsenic	7440-38-2	E457B	0.50	µg/sample	103	103	0.00%	20%	----
		Barium	7440-39-3	E457B	2.5	µg/sample	23.9	23.6	0.984%	20%	----
		Beryllium	7440-41-7	E457B	0.10	µg/sample	10.3	10.3	0.00%	20%	----
		Cadmium	7440-43-9	E457B	0.050	µg/sample	10.2	10.3	0.976%	20%	----
		Chromium	7440-47-3	E457B	0.50	µg/sample	25.6	25.8	1.98%	20%	----
		Cobalt	7440-48-4	E457B	0.10	µg/sample	24.2	24.3	0.518%	20%	----
		Copper	7440-50-8	E457B	0.50	µg/sample	33.0	33.1	0.995%	20%	----
		Lead	7439-92-1	E457B	0.25	µg/sample	49.8	48.5	2.68%	20%	----
		Nickel	7440-02-0	E457B	0.10	µg/sample	51.0	50.9	0.00%	20%	----
		Selenium	7782-49-2	E457B	1.0	µg/sample	91.2	94.0	3.09%	20%	----
		Silver	7440-22-4	E457B	0.10	µg/sample	8.72	8.79	0.686%	20%	----
		Thallium	7440-28-0	E457B	0.10	µg/sample	99.0	98.0	1.02%	20%	----
		Zinc	7440-66-6	E457B	3.0	µg/sample	54.8	54.9	0.00%	20%	----
Method 29 Metals: Fraction 1A (HF) (QC Lot: 2031770)											
QC-MRG2-2-005		Antimony	7440-36-0	E457A	0.20	µg/sample	44.6	45.0	0.897%	20%	----
		Arsenic	7440-38-2	E457A	1.0	µg/sample	49.8	49.3	1.01%	20%	----
		Barium	7440-39-3	E457A	5.0	µg/sample	23.3	23.7	2.76%	20%	----
		Beryllium	7440-41-7	E457A	0.20	µg/sample	4.71	4.56	3.36%	20%	----
		Cadmium	7440-43-9	E457A	0.10	µg/sample	4.90	4.85	1.16%	20%	----
		Chromium	7440-47-3	E457A	1.0	µg/sample	14.6	14.8	2.02%	20%	----
		Cobalt	7440-48-4	E457A	0.20	µg/sample	12.1	11.8	2.10%	20%	----
		Copper	7440-50-8	E457A	1.0	µg/sample	15.3	14.9	3.20%	20%	----
		Lead	7439-92-1	E457A	0.50	µg/sample	24.2	24.3	0.635%	20%	----
		Nickel	7440-02-0	E457A	0.20	µg/sample	25.8	25.8	0.104%	20%	----
		Selenium	7782-49-2	E457A	2.0	µg/sample	43.8	43.6	0.459%	20%	----
		Silver	7440-22-4	E457A	0.20	µg/sample	4.24	4.23	0.119%	20%	----
		Thallium	7440-28-0	E457A	0.20	µg/sample	47.9	47.8	0.313%	20%	----
		Zinc	7440-66-6	E457A	6.0	µg/sample	36.9	36.6	1.32%	20%	----
Method 29 Mercury: Fraction 1B (HF) (QC Lot: 2031771)											
QC-MRG2-2-005		Mercury	7439-97-6	E521A	0.022	µg/sample	0.287	0.286	0.105%	20%	----



Sub-Matrix: Air				Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	MSD Result	RPD(%) or Difference	MSD Limits	Qualifier
Method 29 Mercury: Fraction 2B (KMnO4/H2SO4) (QC Lot: 2019733)											
QC-201973-005		Mercury	7439-97-6	E521B	0.75	µg/L	9.68	9.62	0.640%	20%	***
Method 29 Mercury: Fraction 3B (KMnO4/H2SO4) (QC Lot: 2019744)											
QC-201974-005		Mercury	7439-97-6	E521D	0.075	µg/L	0.870	0.888	2.04%	20%	***
Method 29 Mercury: Fraction 3C (KMnO4/H2SO4) (QC Lot: 2019745)											
QC-201974-005		Mercury	7439-97-6	E521E	0.75	µg/L	8.96	9.12	1.88%	20%	***



CERTIFICATE OF ANALYSIS

Work Order	: BU2501296	
Client	: Alliance Technical Group North Inc.	
Contact	: Chris Belore	Laboratory
Address	: 804 Southdown Road	: Lynne Wrona
	: Mississauga Ontario Canada L5J 2Y4	: 1435 Norjohn Court, Unit 1
Telephone	: 905 822 4120	: Burlington ON Canada L7L 0E6
Project	: AST-2025-2049 Reworld	: Lynne.Wrona@ALSGlobal.com
PO	: ****	: +1 905 331 3111
C-O-C number	: ****	: 14-May-2025 15:15
Sampler	: ****	: 20-May-2025
Site	: ****	: 05-Jun-2025 15:51
Quote number	: Reworld	
No. of samples received	: 7	
No. of samples analysed	: 7	

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: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)											
Analyte	CAS Number	Method/Lab	Client sampling date / time		Client sample ID						
			LOR	Unit	25-2049-M26A-1 APC Outlet #1	25-2049-M26A-2 APC Outlet #1	25-2049-M26A-3 APC Outlet #1	25-2049-M26A-4 APC Outlet #2	25-2049-M26A-5 APC Outlet #2		
					Result	Result	Result	Result	Result	Result	
Physical Tests											
Volume, impinger			n/a	EF003.I/BU	0.0010	L	0.470	0.465	0.485	0.490	0.460
Inorganics											
Ammonia (as NH3)			8013-59-0	E253/BU	0.470	mg/L	1.70	1.77	1.38	1.34	1.46
Ammonia, total (as NH3)			7664-41-7	EC253/BU	0.020	mg/sample	0.799	0.823	0.669	0.657	0.672
Chloride, average			16887-00-6	E252/BU	0.47	mg/L	13.5	13.6	10.9	10.6	8.08
Chloride, replicate 1			16887-00-6	E252/BU	0.47	mg/L	13.5	13.5	10.9	10.6	8.13
Chloride, replicate 2			16887-00-6	E252/BU	0.47	mg/L	13.5	13.6	10.9	10.6	8.02
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	6.53	6.48	5.43	5.34	3.82
Hydrogen chloride, replicate 1			7647-01-0	EC252/BU	0.015	mg/sample	6.53	6.46	5.43	5.34	3.84
Hydrogen chloride, replicate 2			7647-01-0	EC252/BU	0.015	mg/sample	6.53	6.51	5.43	5.34	3.79
Hydrogen fluoride, average			7664-39-3	EC252/BU	0.0098	mg/sample	<0.155	<0.153	<0.160	<0.162	<0.152
Hydrogen fluoride, replicate 1			7664-39-3	EC252/BU	0.0098	mg/sample	<0.155	<0.153	<0.160	<0.162	<0.152
Hydrogen fluoride, replicate 2			7664-39-3	EC252/BU	0.0098	mg/sample	<0.155	<0.153	<0.160	<0.162	<0.152

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID			25-2049-M26A-6 APC Outlet #2	25-2049-M26A- Blank			
Analyte		CAS Number	Method/Lab	LOR	Unit	Result	Result		
Physical Tests									
Volume, impinger		n/a	EF003.I/BU	0.0010	L	0.480	0.320		
Inorganics									
Ammonia (as NH3)		8013-59-0	E253/BU	0.470	mg/L	1.43	<0.472		
Ammonia, total (as NH3)		7664-41-7	EC253/BU	0.020	mg/sample	0.686	<0.020		
Chloride, average		16887-00-6	E252/BU	0.47	mg/L	8.18	<0.47		
Chloride, replicate 1		16887-00-6	E252/BU	0.47	mg/L	8.16	<0.47		
Chloride, replicate 2		16887-00-6	E252/BU	0.47	mg/L	8.21	<0.47		
Fluoride, average		----	E252/BU	0.31	mg/L	<0.31	<0.31		
Fluoride, replicate 1		----	E252/BU	0.31	mg/L	<0.31	<0.31		
Fluoride, replicate 2		----	E252/BU	0.31	mg/L	<0.31	<0.31		
Hydrogen chloride, average		7647-01-0	EC252/BU	0.015	mg/sample	4.04	<0.154		
Hydrogen chloride, replicate 1		7647-01-0	EC252/BU	0.015	mg/sample	4.03	<0.154		
Hydrogen chloride, replicate 2		7647-01-0	EC252/BU	0.015	mg/sample	4.05	<0.154		
Hydrogen fluoride, average		7664-39-3	EC252/BU	0.0098	mg/sample	<0.158	<0.106		
Hydrogen fluoride, replicate 1		7664-39-3	EC252/BU	0.0098	mg/sample	<0.158	<0.106		
Hydrogen fluoride, replicate 2		7664-39-3	EC252/BU	0.0098	mg/sample	<0.158	<0.106		

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: BU2501296	Page	: 1 of 7
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 14-May-2025 15:15
PO	: -----	Issue Date	: 05-Jun-2025 15:50
C-O-C number	: -----		
Sampler	: -----		
Site	: -----		
Quote number	: Reworld		
No. of samples received	: 7		
No. of samples analysed	: 7		

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.



Page : 3 of 7
Work Order : BU2501296
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		
					Rec	Actual		Rec	Actual	Eval	
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-4 - APC Outlet #2		E253	13-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-5 - APC Outlet #2		E253	13-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-6 - APC Outlet #2		E253	13-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-Blank		E253	13-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-1 - APC Outlet #1		E253	12-May-2025	20-May-2025	14 days	9 days	✓	20-May-2025	14 days	9 days	✓
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-2 - APC Outlet #1		E253	12-May-2025	20-May-2025	14 days	9 days	✓	20-May-2025	14 days	9 days	✓
Inorganics : Ammonia by IC (CTM-027)											
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-3 - APC Outlet #1		E253	12-May-2025	20-May-2025	14 days	9 days	✓	20-May-2025	14 days	9 days	✓



Page : 4 of 7
Work Order : BU2501296
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-4 - APC Outlet #2	E252	13-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-5 - APC Outlet #2	E252	13-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-6 - APC Outlet #2	E252	13-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-Blank	E252	13-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-1 - APC Outlet #1	E252	12-May-2025	20-May-2025	28 days	9 days	✓	20-May-2025	28 days	9 days	✓
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-2 - APC Outlet #1	E252	12-May-2025	20-May-2025	28 days	9 days	✓	20-May-2025	28 days	9 days	✓
Inorganics : Ion Chromatography Analysis (M26/z6A Anions)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-3 - APC Outlet #1	E252	12-May-2025	20-May-2025	28 days	9 days	✓	20-May-2025	28 days	9 days	✓
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-1 - APC Outlet #1	EF003.I	12-May-2025	-----	-----	-----		20-May-2025	-----	-----	
Physical Tests : Stack Emission Impinger volume (L)										
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-2 - APC Outlet #1	EF003.I	12-May-2025	-----	-----	-----		20-May-2025	-----	-----	



Page : 5 of 7
Work Order : BU2501296
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method			Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Method	Sampling Date	Preparation Date	Holding Times		Analysis Date	Holding Times	
				Rec	Actual		Rec	Actual
Physical Tests : Stack Emission Impinger volume (L)								
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-3 - APC Outlet #1	EF003.I	12-May-2025				20-May-2025		
Physical Tests : Stack Emission Impinger volume (L)								
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-4 - APC Outlet #2	EF003.I	13-May-2025				20-May-2025		
Physical Tests : Stack Emission Impinger volume (L)								
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-5 - APC Outlet #2	EF003.I	13-May-2025				20-May-2025		
Physical Tests : Stack Emission Impinger volume (L)								
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-6 - APC Outlet #2	EF003.I	13-May-2025				20-May-2025		
Physical Tests : Stack Emission Impinger volume (L)								
M26/A: Amber Glass (0.1N H2SO4) 25-2049-M26A-Blank	EF003.I	13-May-2025				20-May-2025		

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		QC Lot #		Count		Frequency (%)		Evaluation
Analytical Methods		QC	Regular	Actual	Expected			
Laboratory Duplicates (DUP)								
Ion Chromatography Analysis (M26/26A Anions)	E252	2004749	1	7	14.2	5.0		✓
	E253	2004755	1	7	14.2	5.0		✓
Laboratory Control Samples (LCS)								
Ion Chromatography Analysis (M26/26A Anions)	E252	2004749	1	7	14.2	5.0		✓
	E253	2004755	1	7	14.2	5.0		✓
Method Blanks (MB)								
Ion Chromatography Analysis (M26/26A Anions)	E252	2004749	1	7	14.2	5.0		✓
	E253	2004755	1	7	14.2	5.0		✓
Matrix Spikes (MS)								
Ion Chromatography Analysis (M26/26A Anions)	E252	2004749	1	7	14.2	5.0		✓
	E253	2004755	1	7	14.2	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 Descriptions
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 (NH ₄ ⁺) 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	: BU2501296	Page	: 1 of 4
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 14-May-2025 15:15
PO	: ----	Date Analysis Commenced	: 20-May-2025
C-O-C number	: ----	Issue Date	: 05-Jun-2025 15:50
Sampler	: ----		
Site	: ----		
Quote number	: Reworld		
No. of samples received	: 7		
No. of samples analysed	: 7		

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



Page : 2 of 4
Work Order : BU2501296
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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

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: 2004749)											
BU2501296-001	25-2049-M26A-1 APC Outlet #1	Chloride, average	16887-00-6	E252	0.47	mg/L	13.5	13.4	0.743%	20%	----
		Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	13.5	13.4	1.13%	20%	----
		Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	13.5	13.4	0.857%	20%	----
		Fluoride, average	-----	E252	0.31	mg/L	<0.31	<0.31	0	Diff <2x LOR	J
		Fluoride, replicate 1	-----	E252	0.31	mg/L	<0.31	<0.31	0	Diff <2x LOR	J
		Fluoride, replicate 2	-----	E252	0.31	mg/L	<0.31	<0.31	0	Diff <2x LOR	J
Inorganics (QC Lot: 2004755)											
BU2501296-001	25-2049-M26A-1 APC Outlet #1	Ammonia (as NH3)	8013-59-0	E253	0.472	mg/L	1.70	1.68	0.020	Diff <2x LOR	J



Qualifiers

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.

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: 2004749)						
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: 2004755)						
Ammonia (as NH3)	8013-59-0	E253	0.47	mg/L	<0.472	----

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

Sub-Matrix: Air				Laboratory Control Sample (LCS) Report					
				Spike		Recovery Limits (%)			
						Recovery (%)	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Inorganics (QCLot: 2004749)									
Chloride, average	16887-00-6	E252	0.47	mg/L	15 mg/L	100	90.0	110	-----
Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	15 mg/L	100	90.0	110	-----
Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	15 mg/L	100	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	102	90.0	110	-----
Fluoride, replicate 2	-----	E252	0.31	mg/L	10 mg/L	104	90.0	110	-----
Inorganics (QCLot: 2004755)									
Ammonia (as NH3)	8013-59-0	E253	0.47	mg/L	9.44 mg/L	103	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 $\geq 1 \times$ spike level.

Sub-Matrix: Air

Sub-Matrix: Air					Matrix Spike (MS) Report					
					Spike		Recovery (%)		Recovery Limits (%)	
					Concentration	Target	MS	Low	High	Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method						
Inorganics (QCLot: 2004749)										
BU2501296-001	25-2049-M26A-1 APC Outlet #1	Chloride, average	16887-00-6	E252	15.7 mg/L	15 mg/L	105	90.0	110	----
		Chloride, replicate 1	16887-00-6	E252	15.7 mg/L	15 mg/L	105	90.0	110	----
		Chloride, replicate 2	16887-00-6	E252	15.7 mg/L	15 mg/L	105	90.0	110	----
		Fluoride, average	-----	E252	10.0 mg/L	10 mg/L	100	90.0	110	----
		Fluoride, replicate 1	-----	E252	10.0 mg/L	10 mg/L	100	90.0	110	----
		Fluoride, replicate 2	-----	E252	10.0 mg/L	10 mg/L	100	90.0	110	----
Inorganics (QCLot: 2004755)										
BU2501296-001	25-2049-M26A-1 APC Outlet #1	Ammonia (as NH3)	8013-59-0	E253	9.10 mg/L	9.44 mg/L	96.4	85.0	115	----

APPENDIX 13

Particle Size Distribution Train Recovery Data Sheets (7 pages)

Alliance Technical Group
 PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: May 13/25

Test No.: 1
 Test Location: UNIT 1

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4 Impinger #1 Knock Out Empty Wt: 352.5 Final Wt: 496.5 Gain: 144.0 Colour: clean	CONTAINER TS5 & TS6 Perform nitrogen purge of imp 1 transferred to Impaction stem impinger (1.4 lpm for 1 hr) * if there is no gain purge is not required.	CONTAINER TS7 Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	CONTAINER TS1	CONTAINER TS4 Filter ID: 8212706 Colour: WHITE	Impinger #2 Empty Empty Wt: 612.5 Final Wt: 612.5 Gain: 0 Colour:	Purge On: 10:10 Purge Off: 11:10	Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS3	Seal and label container TS4	Secondary Filter	Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container
Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS5	Impinger #3 H ₂ O Empty Wt: 657.3 Initial Wt: 757.6 Final Wt: 755.3 Gain: -2.3 Colour:	CONTAINER TSS Mark Fluid Level and Seal and Label Container	CONTAINER TS6 Secondary Filter	Total Moisture Gain 1+2+3+4: 149.2
Mark Fluid Level and Seal and label container TS3	Impinger #4 Silica Gel Initial Wt: 922.5 Final Wt: 930.0 Gain: 7.5 % Spent:	Seal and label container TS5	Seal and label container TS6	Seal and label container TS6	Seal and label container TS6

SAMPLE IDENTIFICATION	25 - 2049 - 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 ₂ O and rinse)	5
TS6 (Secondary Filter)	6
TS7 (Acetone / Hexane rinse)	7

Train Loaded By: BT

Train Recovered By: BT

Alliance Technical Group
PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: 2025/13/25

Test No.: 2

Test Location: WWT

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

Nozzle, PM 10 Cyclone walls,
collection cup,
outside of exit stem

Exit Stem, and Connecting
Tubing to Filter,
and Filter Top

Back-Up Filter

Impingers 1, 2, 3, 4

CONTAINER TS5 & TS6

CONTAINER TS7

CONTAINER TS1

CONTAINER TS2

CONTAINER TS3

CONTAINER TS4

Impinger #1 Knock Out
Empty Wt: 489.0
Final Wt: 634.0
Gain: 145.0
Colour:

Perform nitrogen purge of
imp 1 transferred to Impaction
stem impinger (14 lpm for 1 hr)
* if there is no gain
purge is not required.

Rinse all glassware from
filter to front half 2nd filter with
Acetone & Hexane into TS7

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: 8212709
Colour: WHITE
Seal and label container TS4

Impinger #2 Empty
Empty Wt: 606.0
Final Wt: 606.0
Gain: 0
Colour:

Purge On: 13:05
Purge Off: 14:05
Rinse all
glassware from filter
to front half 2nd filter with
di H2O into TS5

Mark Fluid Level and
Seal and Label Container

SAMPLE IDENTIFICATION	25 - 2049 -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 ₂ O and rinse)	12
TS6 (Secondary Filter)	13
TS7 (Acetone / Hexane rinse)	14

Train Loaded By: 84

Train Recovered By: 85

Total Moisture Gain

1+2+3+4: 152.7

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Alliance Technical Group
PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld
Project No.: AST-2025-2049
Date: MAY 13/25

Test No.: 3
Test Location: CN17-1

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
CONTAINER TS1	CONTAINER TS3	CONTAINER TS4	Impinger #1 Knock Out Empty Wt: 352.5 Final Wt: 527.0 Gain: 174.5 Colour:	Perform nitrogen purge of imp 1 transferred to Impaction stem impinger (14 lpm for 1 hr) * if there is no gain purge is not required.	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
Mark Fluid Level and Seal and label container TS1	Mark Fluid Level and Seal and label container TS3	Filter ID: 22704 Colour: white	Impinger #2 Empty Empty Wt: 612.5 Final Wt: 612.5 Gain: 0 Colour:	Purge On: 16:00 Purge Off: 17:00	Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS2	Mark Fluid Level and Seal and label container TS4	Secondary Filter	Impinger #3 H₂O Empty Wt: 659.3 Initial Wt: 755.3 Final Wt: 752.1 Gain: -3.2 Colour:	Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container
TS1 (Part. > 10)	TS2 (Part. > 2.5)	TS3 (Part. < 2.5)	Impinger #4 Silica Gel Initial Wt: 863.5 Final Wt: 875.5 Gain: 12.0 % Spent:	CONTAINER TS6 Secondary Filter	Total Moisture Gain 1+2+3+4: 183.3
TS4 (Back Up Filter, <2.5)	TS5 (Imp 2 H₂O and rinse)	TS6 (Secondary Filter)			
TS7 (Acetone / Hexane rinse)					

Train Loaded By: du
Train Recovered By: dt

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Alliance Technical Group
PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: May 12/25

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 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem

Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter

Impingers 1, 2, 3, 4

Impinger #1 Knock Out
Empty Wt: 488.6
Final Wt: 633.5
Gain: 144.9
Colour: clear

CONTAINER TS7
Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7

CONTAINER TS4

Filter ID: RT 12709
Colour: WHITE

Purge On: 12:00
Purge Off: 13:00

Acetone/Hexane Rinse
Mark Fluid Level and Seal and Label Container

Mark Fluid Level and Seal and label container TS3

Mark Fluid Level and Seal and label container TS2

Mark Fluid Level and Seal and label container TS1

Rinse all glassware from filter to front half 2nd filter with di H2O into TS5

Impinger #2 Empty
Empty Wt: 606.7
Final Wt: 606.7
Gain: 0
Colour: clear

Secondary Filter

CONTAINER TS5
Mark Fluid Level and Seal and Label Container

Impinger #3 H ₂ O
Empty Wt: 794.5
Initial Wt: 748.0
Final Wt: -6.5
Gain:
Colour: clear

SAMPLE IDENTIFICATION	25 - 2049 -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 ₂ O and rinse)	26
TS6 (Secondary Filter)	27
TS7 (Acetone / Hexane rinse)	28

CONTAINER TS6
Secondary Filter

Impinger #4 Silica Gel
Initial Wt: 953.5
Final Wt: 970.8
Gain: 17.3
% Spent:

Seal and label container TS6

Total Moisture Gain
1+2+3+4: 155.7

Train Loaded By: DU

Train Recovered By: DT

Alliance Technical Group PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: May 12/25

Test No.: 2

Test Location: 42

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem	CONTAINER TS1	CONTAINER TS2	Impinger #1 Knock Out Empty Wt: 358.6 Final Wt: 499.2 Gain: 146.6 Colour: Clear	Perform nitrogen purge of imp 1 transferred to Impaction stem impinger (14 lpm for 1 hr) * if there is no gain purge is not required.	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
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	Impinger #2 Empty Empty Wt: 612.5 Final Wt: 612.5 Gain: 0 Colour: —	Purge On: 15:00 Purge Off: 16:00	Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS4	Filter ID: 6212708 Colour: W417E	Secondary Filter	Impinger #3 H₂O Empty Wt: 659.3 Initial Wt: 759.3 Final Wt: 757.6 Gain: 1.7 Colour: Clear	Rinse all glassware from filter to front half 2nd filter with di H₂O into TS5	Mark Fluid Level and Seal and Label Container
Mark Fluid Level and Seal and label container TS5	Impinger #4 Silica Gel Initial Wt: 915.5 Final Wt: 922.5 Gain: 7.0 % Spent: —	CONTAINER TS6	CONTAINER TS5 Mark Fluid Level and Seal and Label Container	CONTAINER TS6 Secondary Filter	Seal and label container TS6
Seal and label container TS6	Seal and label container TS7	Total Moisture Gain 1+2+3+4: 151.9	10		

Alliance Technical Group PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: MAY 12/25

Test No.: 300172

Test Location:

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

Nozzle, PM 10 Cyclone walls, collection cup, outside of exit stem

Exit Stem, and Connecting Tubing to Filter, and Filter Top

Back-Up Filter

Impingers 1, 2, 3, 4

CONTAINER TS5

CONTAINER TS7

Perform nitrogen purge of imp 1 transferred to Impaction stem Impinger (14 lpm for 1 hr)
* If there is no gain purge is not required.

Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7

Purge On: 18:00
Purge Off: 19:00

Mark Fluid Level and Seal and Label Container

Rinse all glassware from filter to front half 2nd filter with di H2O into TS5

Mark Fluid Level and Seal and Label Container

Secondary Filter

CONTAINER TS5
Mark Fluid Level and Seal and Label Container

CONTAINER TS6
Secondary Filter

Seal and label container TS6

Total Moisture Gain
1+2+3+4: 155.0

SAMPLE IDENTIFICATION	25 - 2049 -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 ₂ O and rinse)	40
TS6 (Secondary Filter)	41
TS7 (Acetone / Hexane rinse)	42

Train Loaded By: BU/PT

Train Recovered By: BU/PT

Impinger #3 H₂O
Empty Wt: 748.0
Initial Wt: 748.0
Final Wt: 745.7
Gain: -2.3
Colour: clear

Impinger #4 Silica Gel
Initial Wt: 970.8
Final Wt: 980.3
Gain: 9.5
% Spent:

9

Alliance Technical Group
PM₁₀, PM_{2.5} & Condensate Recovery Data Sheet

Client: Reworld

Project No.: AST-2025-2049

Date: MAY 13 / 25

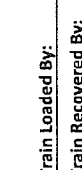
Test No.: BLANK

Test Location:

PM 10 Turnaround cup, exit stem, connecting tubing from, PM 10 head to PM 2.5 cyclone. PM 2.5 Cyclone walls, collection cup, and outside of exit stem	Exit Stem, and Connecting Tubing to Filter, and Filter Top	Back-Up Filter	Impingers 1, 2, 3, 4	CONTAINER TS5 & TS6	CONTAINER TS7
CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	Impinger #1 Knock Out Empty Wt: ☒ Final Wt: ☒ Gain: ☒ Colour: ☒	Perform nitrogen purge of imp 1 transferred to Impaction stem Impinger (14 lpm for 1 hr) * if there is no gain purge is not required.	Rinse all glassware from filter to front half 2nd filter with Acetone & Hexane into TS7
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: 8222703 Colour: WH RTG	Purge On: ☒ Purge Off: ☒	Acetone/Hexane Rinse
Mark Fluid Level and Seal and label container TS4	Mark Fluid Level and Seal and label container TS5	Mark Fluid Level and Seal and label container TS6	Impinger #2 Empty Empty Wt: ☒ Final Wt: ☒ Gain: ☒ Colour: ☒	Rinse all glassware from filter to front half 2nd filter with di H2O into TS5	Mark Fluid Level and Seal and Label Container
Secondary Filter	Secondary Filter	Secondary Filter	Impinger #3 H₂O Empty Wt: ☒ Initial Wt: ☒ Final Wt: ☒ Gain: ☒ Colour: ☒	CONTAINER TS5 Mark Fluid Level and Seal and Label Container	CONTAINER TS6 Secondary Filter
Impinger #4 Silica Gel Initial Wt: ☒ Final Wt: ☒ Gain: ☒ % Spent: ☒	Impinger #4 Silica Gel Initial Wt: ☒ Final Wt: ☒ Gain: ☒ % Spent: ☒	Impinger #4 Silica Gel Initial Wt: ☒ Final Wt: ☒ Gain: ☒ % Spent: ☒	Seal and label container TS6	Total Moisture Gain 1+2+3+4:	

SAMPLE IDENTIFICATION	25 - 2049 -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 ₂ O and rinse)	47
TS6 (Secondary Filter)	48
TS7 (Acetone / Hexane rinse)	49

Train Loaded By: 

Train Recovered By: 

APPENDIX 14

SVOC Train Recovery Data Sheets (7 pages)

Test No.:
Test Date: MAY 14/25
Test Location: W1

Client : Covanta DYEC
Project No.: AST - 2025 - 2049
Sample Batch No.: 25 - 2049 - SVOC-

Sample ID	1	Sample ID	2	Sample ID	3	Sample ID	4
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	
CONTAINER TS1		CONTAINER TS2		CONTAINER TS3		CONTAINER TS4	
Empty Wt:	286.0	Colour: WHITE	Initial Wt: 385.3	Impinger #1 Empty	Empty Wt: 587.0	Impinger #2 Ethylene Glycol	Empty Wt: 660.6
After Acetone/	485.0	FOLD IN FOIL	Final Wt: 283.0	Seal	Final Wt: 112.0	Empty Wt: 762.6	Initial Wt: 894.0
Hexane Rinse:		SEAL AND LABEL CONTAINER TS2	Gain: 7.7	WRAP IN FOIL	Gain: 525.0	Final Wt: 894.0	Final Wt: 131.4
Total TS1:	204.0		Colour: WHITE	LABEL AS CONTAINER TS3	Colour:	Gain:	Colour:
MARK FLUID LEVEL		CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
SEAL AND LABEL CONTAINER TS1		CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
Impinger Box ID: 16		CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
Total Moisture Gain: 1 + 2 + 3 + 4 + 5:		CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
Total Moisture Gain: 680.6		CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
Container TS4 Weights		CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
Empty Wt:	408.0	CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
With Imp Soln:	1149.5	CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
After ~100g H ₂ O Rinse:	1259.0	CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	
Total TS4:	851.0	CONTAINER TS5		CONTAINER TS6		CONTAINER TS7	

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
 Project No.: AST - 2025 - 2049
 Sample Batch No.: 25 - 2049 - SVOC-

Test No.: 2
 Test Date: 09/14/25
 Test Location: 41

Sample ID	6	Sample ID	7
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser		Filter	
CONTAINER TS1		CONTAINER TS2	
Empty Wt:	280.0	Colour:	WHITE
After Acetone/Hexane Rinse:	400.0	FOLD IN FOIL	
Total TS1:	120.0	SEAL AND LABEL CONTAINER TS2	

Sample ID	9	Sample ID	10
Impingers 1, 2 & 3		Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	
CONTAINER TS4		CONTAINER TS5	
Impinger #1 Empty		Empty Wt:	
Empty Wt:	622.0	281.0	
Final Wt:	1131.0	After Acetone/Hexane Rinse:	
Gain:	509.0	484.5	
Colour:		Total TS5:	
		203.5	

MARK FLUID LEVEL
SEAL AND LABEL CONTAINER TS1

Initial Wt:	931.8
Final Wt:	948.8
Gain:	17.0
% Spent:	

Initial Wt:	379.5
Final Wt:	381.5
Gain:	2.0
Colour:	WHITE

Empty Wt:	620.7
Initial Wt:	621.0
Final Wt:	621.0
Gain:	0.3
Colour:	

Initial Wt:	551.7
Initial Wt:	652.0
Final Wt:	829.0
Gain:	177.0
Colour:	

Empty Wt:	281.0
After Acetone/Hexane Rinse:	484.5
Total TS5:	203.5

Impinger #3 Empty	
Empty Wt:	620.7
Final Wt:	621.0
Gain:	0.3
Colour:	

Impinger Box ID:	6

Train Loaded By:	
Train Recovered By:	

Total Moisture Gain:	1 + 2 + 3 + 4 + 5:
	709.3

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
Project No.: AST - 2025 - 2049
Sample Batch No.: 25 - 2049 - SVOC-

Test No.: 3
Test Date: MAY 15/25
Test Location: 41

Sample ID	11	Sample ID	14
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser		Impingers 1, 2 & 3	

CONTAINER TS1	CONTAINER TS2	CONTAINER TS3	CONTAINER TS4

Empty Wt: 281.0	Colour: WHITE	Initial Wt: 345.5	Impinger #1 Empty
After Acetone/Hexane Rinse: 449.0	FOLD IN FOIL	Final Wt: 353.5	Empty Wt: 631.9
Total TS1:	SEAL AND LABEL CONTAINER TS2	Gain: 8.0	Final Wt: 1151.9
		Colour: WHITE	Gain: 530.0

MARK FLUID LEVEL	SEAL TRAP	Impinger #2 Ethylene Glycol
SEAL AND LABEL CONTAINER TS1	WRAP IN FOIL	Empty Wt: 532.5
	LABEL AS CONTAINER TS3	Initial Wt: 634.2
		Final Wt: 764.0
		Gain: 129.8
		Colour:

Impinger Box ID: 14	Impinger #3 Empty
	Empty Wt: 658.5
	Final Wt: 858.5
	Gain:
	Colour:

Train Loaded By: AS	Container TS4 Weights
Train Recovered By:	Empty Wt: 407.9
	With Imp Soln: 1157.0
	After ~100g H ₂ O Rinse: 1288.0
	Total TS4:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Total Moisture Gain:
1 + 2 + 3 + 4 + 5: 680.3

Empty Wt: 282.0	Initial Wt: 928.5
After Acetone/Hexane Rinse: 465.5	Final Wt: 949.0
Total TSS: 5	Gain: 14.5
	% Spent:

CONTAINER TSS	CONTAINER TS6 (Impinger)

Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	Impinger 4 Silica Gel

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: AST - 2025 - 2049
Sample Batch No.: 25 - 2049 - SVOC-

Test No.: 14123
Test Date: May 14/23
Test Location: U3

Sample ID 21

Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser

Sample ID 23

XAD-II Trap

Trap ID: 2

Sample ID 24

Impingers 1, 2 & 3

Sample ID 25

Back-Half Rinses
Trap Bottom U-Tube,
Imp. Inlet Stem, U-Tubes
and Impingers

CONTAINER TS1

Empty Wt: 280.0
After Acetone/
Hexane Rinse: 924.5
Total TS1: 244.5

CONTAINER TS2

Colour: WHITC
FOLD IN FOIL

CONTAINER TS3

Initial Wt: 332.0
Final Wt: 339.0
Gain: 7.0
Colour: WHITC

CONTAINER TS4

Impinger #1 Empty

CONTAINER TS5

Empty Wt: 282.0
After Acetone/
Hexane Rinse: 461.5
Total TS5: 179.5

CONTAINER TS6 (Impinger)

Initial Wt: 768.5
Final Wt: 985.3
Gain: 16.8
% Spent: 5

MARK FLUID LEVEL
SEAL AND LABEL CONTAINER TS1

SEAL AND LABEL CONTAINER TS2

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Impinger #2 Ethylene Glycol

Empty Wt: 646.0
Initial Wt: 762.0
Final Wt: 933.0
Gain: 171.0
Colour:

Impinger #3 Empty

Empty Wt: 662.5
Final Wt: 663.5
Gain: 1.0
Colour:

Container TS4 Weights

Empty Wt: 400.3
With Imp Soln: 1193.0
After ~100g H₂O Rinse: 1316.5
Total TS4: 916.0

Container TS4 Weights

Empty Wt: 400.3
With Imp Soln: 1193.0
After ~100g H₂O Rinse: 1316.5
Total TS4: 916.0

Impinger Box ID: 12

Total Moisture Gain: 716.3
1 + 2 + 3 + 4 + 5:

Train Loaded By: [Signature]
Train Recovered By: [Signature]

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
Project No.: AST - 2025 - 2049
Sample Batch No.: 25 - 2049 - SVOC-

Test No.: 2
Test Date: MAR 14 / 25
Test Location: 117

Sample ID 26

Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser

CONTAINER TS1

Empty Wt: 281.0
After Acetone/Hexane Rinse: 481.0
Total TS1: 200.0

MARK FLUID LEVEL
SEAL AND LABEL CONTAINER TS1

Sample ID 28

XAD-II Trap

Trap ID: 12

CONTAINER TS3

Initial Wt: 370.7
Final Wt: 376.7
Gain: 6.0
Colour: WHITE

SEAL TRAP

WRAP IN FOIL

LABEL AS CONTAINER TS3

Sample ID 29

Impingers 1, 2 & 3

CONTAINER TS4

Impinger #1 Empty

Empty Wt: 601.9
Final Wt: 1135.9
Gain: 524.0
Colour:

Impinger #2 Ethylene Glycol

Empty Wt: 653.1
Initial Wt: 753.9
Final Wt: 909.2
Gain: 149.3
Colour:

Impinger #3 Empty

Empty Wt: 653.9
Final Wt: 653.9
Gain: 0
Colour:

Container TS4 Weights

Empty Wt: 397.5
With Imp Soln: 1169.0
After ~100g H₂O Rinse: 1300.0
Total TS4: 897.0

Sample ID 30

Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers

CONTAINER TS5

Empty Wt: 281.5
After Acetone/Hexane Rinse: 431.5
Total TS5: 150.0

Impinger Box ID: 4

Total Moisture Gain:
1 + 2 + 3 + 4 + 5: 695.3

Impinger 4
Silica Gel

CONTAINER TS6 (Impinger)

Initial Wt: 846.0
Final Wt: 862.0
Gain: 16.0
% Spent:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Train Loaded By: 
Train Recovered By: 

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client : Covanta DYEC
Project No.: AST - 2025 - 2049
Sample Batch No.: 25 - 2049 - SVOC-

Test No.: 3
Test Date: MAY 15/23
Test Location: U2

Sample ID	31
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser	

Sample ID	233
XAD-II Trap	
Trap ID:	6

Sample ID	39
Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	

CONTAINER TS1	

CONTAINER TS2	

CONTAINER TS3	

CONTAINER TS4	

CONTAINER TS5	

CONTAINER TS6 (Impinger)	

CONTAINER TS1	

CONTAINER TS2	

CONTAINER TS3	

CONTAINER TS4	

CONTAINER TS5	

CONTAINER TS6 (Impinger)	

Empty Wt:	280.0
After Acetone/ Hexane Rinse:	524.0
Total TS1:	

Colour:	WHITE
FOLD IN FOIL	
SEAL AND LABEL CONTAINER TS2	

Initial Wt:	390.8
Final Wt:	399.3
Gain:	8.5
Colour:	WHITE

Impinger #1 Empty	
Empty Wt:	495.1
Final Wt:	1078.0
Gain:	583.7
Colour:	

Empty Wt:	281.5
After Acetone/ Hexane Rinse:	477.5
Total TS5:	

Initial Wt:	992.6
Final Wt:	1014.0
Gain:	
% Spent:	14.4

MARK FLUID LEVEL	
SEAL AND LABEL CONTAINER TS1	

SEAL TRAP	

WRAP IN FOIL	

LABEL AS CONTAINER TS3	

Impinger #2 Ethylene Glycol	
Empty Wt:	560.0
Initial Wt:	661.4
Final Wt:	735.3
Gain:	74.1
Colour:	

Impinger #3 Empty	
Empty Wt:	655.4
Final Wt:	655.4
Gain:	0
Colour:	

Impinger Box ID:	13

Total Moisture Gain:	
1 + 2 + 3 + 4 + 5:	680.7

Container TS4 Weights	
Empty Wt:	400.0
With Imp Soln:	1146.3
After ~100g H ₂ O Rinse:	1275.0
Total TS4:	

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

Train Loaded By: 
Train Recovered By: 

ORTECH Consulting Alliance Inc.
Semi-Volatile Organics Train Recovery Data Sheet

Client: Covanta DYEC
Project No.: AST - 2025 - 2049
Sample Batch No.: 25 - 2049 - SVOC-

Test No.: BLANK
Test Date: MAY 15/23
Test Location:

Sample ID	16	Sample ID	17
Nozzle, Probe Liner, Cyclone Bypass, F.H. & B.H. Filter Housing, Frit & Connecting Glassware to Top of Condenser		Filter	
CONTAINER TS1		CONTAINER TS2	
Empty Wt:	281.0	Colour:	WHITE
After Acetone/Hexane Rinse:	411.5	FOLD IN FOIL	
Total TS1:	130.5	SEAL AND LABEL CONTAINER TS2	

Sample ID	18
XAD-II Trap	
Trap ID:	
CONTAINER TS3	
Initial Wt:	390.0
Final Wt:	390.0
Gain:	
Colour:	WHITE
SEAL TRAP	
WRAP IN FOIL	
LABEL AS CONTAINER TS3	

Sample ID	19
Impingers 1, 2 & 3	
CONTAINER TS4	
Impinger #1 Empty	
Empty Wt:	602.0
Final Wt:	602.0
Gain:	
Colour:	
Impinger #2 Ethylene Glycol	
Empty Wt:	653.0
Initial Wt:	754.0
Final Wt:	754.0
Gain:	
Colour:	

Impinger #3 Empty	
Empty Wt:	654.0
Final Wt:	654.0
Gain:	
Colour:	
Container TS4 Weights	
Empty Wt:	406.4
With Imp Soln:	512.9
After ~100g H ₂ O Rinse:	618.5
Total TS4:	212.1

Sample ID	20
Back-Half Rinses Trap Bottom U-Tube, Imp. Inlet Stem, U-Tubes and Impingers	
CONTAINER TS5	
Empty Wt:	281.4
After Acetone/Hexane Rinse:	444.4
Total TS5:	163.0

CONTAINER TS6 (Impinger)	
Impinger 4 Silica Gel	
Initial Wt:	
Final Wt:	
Gain:	
% Spent:	

Impinger Box ID: _____

Total Moisture Gain:
1 + 2 + 3 + 4 + 5:

TS1, TS4, TS5 - 1L Amber Glass Bottle
TS2 - Glass Petri Dish
TS3 - Glass Trap

MARK FLUID LEVEL
SEAL AND LABEL CONTAINER TS1

Train Loaded By: [Signature]
Train Recovered By: _____

APPENDIX 15

**SVOC Analytical Report
(65 pages)**



1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact: Lynne Wrona
ALS Project ID: ORTE100
ALS WO#: BU2501330
Date of Report 10-Jun-25
Date of Sample Receipt 20-May-25

Client Name: Alliance Technical Group North Inc.
Client Address: 804 Southdown Road
Mississauga, ON
L5J 2Y4
Client Contact: Chris Belore
Client Project ID: AST-2025-2049

COMMENTS: PCDD/F by EPA M23

For the sample 25-2049-SVOC-(26 thru 30) Test #2 and 25-2049-SVOC-(31 thru 35) Test #3, the recoveries of some of the field standards were marginally below the method control limit. No significant impact to data quality is expected as a result.

Certified by:

A handwritten signature in black ink, appearing to read "S. Jin".

Sabrina Jin
Technical Specialist

Results in this certificate relate only to the samples as submitted to the laboratory.

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ALS Life Sciences

Sample Analysis summary Report

Sample Name	25-2049-SVOC-(1 thru 5) Test #1	25-2049-SVOC-(6 thru 10) Test #2	25-2049-SVOC-(11 thru 15) Test #3	25-2049-SVOC-(16 thru 20) Blank	25-2049-SVOC-(21 thru 25) Test #1	25-2049-SVOC-(26 thru 30) Test #2	25-2049-SVOC-(31 thru 35) Test #3
ALS Sample ID	BU2501330-001	BU2501330-002	BU2501330-003	BU2501330-004	BU2501330-005	BU2501330-006	BU2501330-007
Sample Size	1	1	1	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack	Stack	Stack	Stack
Sampling Date	14-May-25	14-May-25	14-May-25	14-May-25	14-May-25	14-May-25	14-May-25
Extraction Date	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25
Target Analytes	pg	pg	pg	pg	pg	pg	pg
2,3,7,8-TCDD	<4.2	<4.7	<4.1	<5.0	<4.5	<4.5	<4.7
1,2,3,7,8-PeCDD	<6.6	<6.0	<7.8	<4.3	<4.1	<6.4	<7.1
1,2,3,4,7,8-HxCDD	<8.5	<6.3	<5.8	<5.4	<5.2	<5.4	<5.7
1,2,3,6,7,8-HxCDD	<8.0	<5.9	<5.5	<5.1	<4.8	<5.0	<5.8
1,2,3,7,8,9-HxCDD	<8.0	<5.9	<5.5	<5.1	<4.9	<5.1	<5.4
1,2,3,4,6,7,8-HpCDD	<16	<13	<15	<7.1	<23	23.8	<22
OCDD	<33	41.3	<37	<22	<47	<50	<45
2,3,7,8-TCDF	<5.1	<4.6	<4.0	<3.3	6.39	<4.7	<7.5
1,2,3,7,8-PeCDF	<5.0	<6.2	<4.5	<5.0	<5.3	<5.4	<9.8
2,3,4,7,8-PeCDF	<4.5	<5.6	<4.0	<4.5	<5.2	<4.9	8.04
1,2,3,4,7,8-HxCDF	<2.9	<2.9	<3.8	<2.5	3.52	<4.4	<5.2
1,2,3,6,7,8-HxCDF	6.34	<2.8	<3.6	<2.5	<4.9	<4.2	<4.9
2,3,4,6,7,8-HxCDF	<2.8	<2.8	<3.7	<2.5	3.38	<4.4	<5.1
1,2,3,7,8,9-HxCDF	<3.3	<3.3	<4.4	<2.9	5.44	<5.1	<5.9
1,2,3,4,6,7,8-HpCDF	<10	7.94	<6.9	<3.1	<14	<9.5	<6.6
1,2,3,4,7,8,9-HpCDF	<7.0	<5.2	<8.1	<3.6	<6.6	<6.3	<6.3
OCDF	23.1	17.7	<13	<25	<14	<17	17.8
Field Spike Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
37Cl4-2,3,7,8-TCDD	82	92	88	85	84	80	70
13C12-1,2,3,4,7,8-HxCDD	86	104	101	95	85	82	61
13C12-2,3,4,7,8-PeCDF	89	100	100	88	84	78	59
13C12-1,2,3,4,7,8-HxCDF	88	102	104	98	87	83	66
13C12-1,2,3,4,7,8,9-HpCDF	77	92	90	87	75	69	56
Extraction Standards							
13C12-2,3,7,8-TCDD	80	71	73	79	88	74	66
13C12-1,2,3,7,8-PeCDD	78	86	74	90	87	69	69
13C12-1,2,3,6,7,8-HxCDD	84	81	81	95	92	79	73
13C12-1,2,3,4,6,7,8-HpCDD	72	73	69	85	82	63	60
13C12-OCDD	56	57	54	68	67	47	45
13C12-2,3,7,8-TCDF	83	74	77	84	93	78	70
13C12-1,2,3,7,8-PeCDF	78	86	73	91	91	74	69
13C12-1,2,3,6,7,8-HxCDF	91	83	84	97	97	84	75
13C12-1,2,3,4,6,7,8-HpCDF	76	77	73	89	85	69	63
Cleanup Standard							
13C12-1,2,3,7,8,9-HxCDF	94	85	83	88	91	86	76
Homologue Group Totals	pg	pg	pg	pg	pg	pg	pg
Total-TCDD	<4.2	13.4	<4.1	<5.0	<4.5	<4.5	<4.7
Total-PeCDD	<6.6	<6.0	12.1	<4.3	<4.1	<6.4	<7.1
Total-HxCDD	<8.5	24.3	<5.8	<5.4	<5.2	26.6	<5.7
Total-HpCDD	<8.3	14.6	<7.1	<4.4	<4.4	23.8	22.0
Total-TCDF	<5.1	<4.6	11.4	<3.3	16.5	<4.7	10.6
Total-PeCDF	<5.0	<6.2	<4.5	<5.0	15.2	<5.4	30.6
Total-HxCDF	6.34	<3.3	<4.4	<2.9	15.1	8.88	16.2
Total-HpCDF	<7.0	7.94	<8.1	<3.6	<6.6	<6.3	<6.3
Toxic Equivalency - (WHO 2005)							
Lower Bound PCDD/F TEQ (WHO 2005)	0.641	0.0971	0.00	0.00	1.87	0.238	2.42
Mid Point PCDD/F TEQ (WHO 2005)	9.03	8.55	10.7	7.07	9.47	8.56	11.5
Upper Bound PCDD/F TEQ (WHO 2005)	17.1	16.3	17.2	13.9	14.6	16.8	19.4

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	QC-MRG5-2007944-001	QC-MRG5-2007944-002
Sample Size	1	1
Sample size units	Sample	n/a
Percent Moisture	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	22-May-25	22-May-25
Target Analytes	pg	% Rec
2,3,7,8-TCDD	<3.8	95
1,2,3,7,8-PeCDD	<6.3	105
1,2,3,4,7,8-HxCDD	<5.5	98
1,2,3,6,7,8-HxCDD	<5.2	92
1,2,3,7,8,9-HxCDD	7.70	90
1,2,3,4,6,7,8-HpCDD	<5.7	93
OCDD	<29	93
2,3,7,8-TCDF	<5.0	94
1,2,3,7,8-PeCDF	<4.6	98
2,3,4,7,8-PeCDF	<4.2	96
1,2,3,4,7,8-HxCDF	<5.8	94
1,2,3,6,7,8-HxCDF	<5.5	94
2,3,4,6,7,8-HxCDF	6.22	86
1,2,3,7,8,9-HxCDF	<6.7	90
1,2,3,4,6,7,8-HpCDF	<5.2	93
1,2,3,4,7,8,9-HpCDF	6.28	96
OCDF	26.1	92
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	75	71
13C12-1,2,3,7,8-PeCDD	82	73
13C12-1,2,3,6,7,8-HxCDD	93	84
13C12-1,2,3,4,6,7,8-HpCDD	82	82
13C12-OCDD	73	69
13C12-2,3,7,8-TCDF	77	76
13C12-1,2,3,7,8-PeCDF	79	72
13C12-1,2,3,6,7,8-HxCDF	96	88
13C12-1,2,3,4,6,7,8-HpCDF	86	76
Cleanup Standard		
13C12-1,2,3,7,8,9-HxCDF	95	82
Homologue Group Totals	pg	
Total-TCDD	<3.8	
Total-PeCDD	<6.3	
Total-HxCDD	10.8	
Total-HpCDD	<5.7	
Total-TCDF	<5.0	
Total-PeCDF	<4.6	
Total-HxCDF	<6.7	
Total-HpCDF	6.28	
Toxic Equivalency - (WHO 2005)		
Lower Bound PCDD/F TEQ (WHO 2005)	1.46	
Mid Point PCDD/F TEQ (WHO 2005)	8.96	
Upper Bound PCDD/F TEQ (WHO 2005)	16.4	

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(1 thru 5) Test #1
ALS Sample ID BU2501330-001
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 7-250603A08
Run Date 03-Jun-25 18:39
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	28.42	<4.2	4.2	M,U	3.0	150
1,2,3,7,8-PeCDD	1	NotFnd	<6.6	6.6	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<8.5	8.5	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<8.0	8.0	U		150
1,2,3,7,8,9-HxCDD	0.1	NotFnd	<8.0	8.0	U		150
1,2,3,4,6,7,8-HpCDD	0.01	36.16	<16	8.3	M,J,R	16	150
OCDD	0.0003	38.98	<33	19	M,J,R	33	300
2,3,7,8-TCDF	0.1	27.82	<5.1	5.1	M,U		150
1,2,3,7,8-PeCDF	0.03	30.73	<5.0	5.0	M,U	3.0	150
2,3,4,7,8-PeCDF	0.3	NotFnd	<4.5	4.5	U		150
1,2,3,4,7,8-HxCDF	0.1	33.10	<2.9	2.9	M,U	2.8	150
1,2,3,6,7,8-HxCDF	0.1	33.18	6.34	2.7	M,J		150
2,3,4,6,7,8-HxCDF	0.1	33.60	<2.8	2.8	M,U	2.7	150
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<3.3	3.3	U		150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	<10	5.9	M,J,R	10	150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<7.0	7.0	U		150
OCDF	0.0003	39.34	23.1	14	M,J,B		300
Field Spike Standards	pg		% Rec	Limits			
37C14-2,3,7,8-TCDD	800	28.39	82	70-130			
13C12-1,2,3,4,7,8-HxCDD	8000	33.64	86	70-130			
13C12-2,3,4,7,8-PeCDF	8000	31.35	89	70-130			
13C12-1,2,3,4,7,8-HxCDF	8000	33.07	88	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.77	77	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.37	80	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	78	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	84	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	72	25-130			
13C12-OCDD	24000	38.98	56	25-130			
13C12-2,3,7,8-TCDF	12000	27.81	83	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	91	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	76	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			
Total-TCDD	0	<4.2	4.2	U		150	
Total-PeCDD	0	<6.6	6.6	U		150	
Total-HxCDD	0	<8.5	8.5	U		150	
Total-HpCDD	0	<8.3	8.3	U		150	
Total-TCDF	0	<5.1	5.1	U		150	
Total-PeCDF	0	<5.0	5.0	U		150	
Total-HxCDF	1	6.34	3.3			150	
Total-HpCDF	0	<7.0	7.0	U		150	

Toxic Equivalency - (WHO 2005)

pg

Lower Bound PCDD/F TEQ (WHO 2005)

0.641

Mid Point PCDD/F TEQ (WHO 2005)

9.03

Upper Bound PCDD/F TEQ (WHO 2005)

17.1

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
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 25-2049-SVOC-(6 thru 10) Test #2
ALS Sample ID BU2501330-002
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information **Run 1**
Filename 7-250603A09
Run Date 03-Jun-25 19:23
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	NotFnd	<4.7	4.7	U		150
1,2,3,7,8-PeCDD	1	31.45	<6.0	6.0	U	2.4	150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<6.3	6.3	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<5.9	5.9	U		150
1,2,3,7,8,9-HxCDD	0.1	33.91	<5.9	5.9	M,U	2.8	150
1,2,3,4,6,7,8-HpCDD	0.01	36.17	<13	6.1	M,J,R	13	150
OCDD	0.0003	39.00	41.3	12	M,J		300
2,3,7,8-TCDF	0.1	27.81	<4.6	4.6	M,U	2.0	150
1,2,3,7,8-PeCDF	0.03	30.73	<6.2	6.2	M,U	3.5	150
2,3,4,7,8-PeCDF	0.3	31.34	<5.6	5.6	M,U	4.6	150
1,2,3,4,7,8-HxCDF	0.1	33.09	<2.9	2.8	M,J,R	2.9	150
1,2,3,6,7,8-HxCDF	0.1	33.18	<2.8	2.7	M,J,R	2.8	150
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<2.8	2.8	U		150
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<3.3	3.3	U		150
1,2,3,4,6,7,8-HpCDF	0.01	35.24	7.94	4.4	M,J		150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<5.2	5.2	U		150
OCDF	0.0003	39.32	17.7	9.6	M,J,B		300
Field Spike Standards	pg		% Rec	Limits			
37C14-2,3,7,8-TCDD	800	28.39	92	70-130			
13C12-1,2,3,4,7,8-HxCDD	8000	33.63	104	70-130			
13C12-2,3,4,7,8-PeCDF	8000	31.34	100	70-130			
13C12-1,2,3,4,7,8-HxCDF	8000	33.07	102	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.77	92	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.37	71	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	86	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	81	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	73	25-130			
13C12-OCDD	24000	38.98	57	25-130			
13C12-2,3,7,8-TCDF	12000	27.81	74	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.72	86	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	83	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	77	25-130			
Cleanup Standard	pg						
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	85	40-130			
Homologue Group Totals	# peaks		Conc. pg	EDL pg			
Total-TCDD	1	13.4	4.7				150
Total-PeCDD	0	<6.0	6.0		U		150
Total-HxCDD	1	24.3	6.3				150
Total-HpCDD	1	14.6	6.1				150
Total-TCDF	0	<4.6	4.6		U		150
Total-PeCDF	0	<6.2	6.2		U		150
Total-HxCDF	0	<3.3	3.3		U		150
Total-HpCDF	1	7.94	5.2				150

Toxic Equivalency - (WHO 2005) **pg**
Lower Bound PCDD/F TEQ (WHO 2005) 0.0971
Mid Point PCDD/F TEQ (WHO 2005) 8.55
Upper Bound PCDD/F TEQ (WHO 2005) 16.3

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.
 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 25-2049-SVOC-(11 thru 15) Test #3
ALS Sample ID BU2501330-003
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information **Run 1**
Filename 7-250603A10
Run Date 03-Jun-25 20:08
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	28.39	<4.1	4.1	M,J,R	4.1	150
1,2,3,7,8-PeCDD	1	NotFnd	<7.8	7.8	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<5.8	5.8	U		150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<5.5	5.5	U		150
1,2,3,7,8,9-HxCDD	0.1	33.91	<5.5	5.5	M,U	1.7	150
1,2,3,4,6,7,8-HpCDD	0.01	36.15	<15	4.8	M,J,R	15	150
OCDD	0.0003	38.98	<37	17	M,J,R	37	300
2,3,7,8-TCDF	0.1	27.78	<4.0	4.0	M,U	1.4	150
1,2,3,7,8-PeCDF	0.03	30.72	<4.5	4.5	M,U	3.4	150
2,3,4,7,8-PeCDF	0.3	31.34	<4.0	4.0	M,U	3.1	150
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<3.8	3.8	U		150
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<3.6	3.6	U		150
2,3,4,6,7,8-HxCDF	0.1	33.58	<3.7	3.7	M,U	3.4	150
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<4.4	4.4	U		150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	<6.9	6.9	U	6.3	150
1,2,3,4,7,8,9-HpCDF	0.01	36.81	<8.1	8.1	M,U	4.5	150
OCDF	0.0003	39.34	<13	13	M,U	11	300

Field Spike Standards	pg	% Rec	Limits
37C14-2,3,7,8-TCDD	800	28.39	88 70-130
13C12-1,2,3,4,7,8-HxCDD	8000	33.63	101 70-130
13C12-2,3,4,7,8-PeCDF	8000	31.34	100 70-130
13C12-1,2,3,4,7,8-HxCDF	8000	33.06	104 70-130
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.77	90 70-130

Extraction Standards			
13C12-2,3,7,8-TCDD	12000	28.36	73 40-130
13C12-1,2,3,7,8-PeCDD	12000	31.45	74 40-130
13C12-1,2,3,6,7,8-HxCDD	12000	33.70	81 40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.14	69 25-130
13C12-OCDD	24000	38.97	54 25-130
13C12-2,3,7,8-TCDF	12000	27.79	77 40-130
13C12-1,2,3,7,8-PeCDF	12000	30.72	73 40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.15	84 40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	73 25-130

Cleanup Standard	pg		
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	83 40-130

Homologue Group Totals	# peaks	Conc. pg	EDL pg		
Total-TCDD	0	<4.1	4.1	U	150
Total-PeCDD	1	12.1	7.8		150
Total-HxCDD	0	<5.8	5.8	U	150
Total-HpCDD	1	14.8	4.8		150
Total-TCDF	3	11.4	4.0		150
Total-PeCDF	0	<4.5	4.5	U	150
Total-HxCDF	0	<4.4	4.4	U	150
Total-HpCDF	0	<8.1	8.1	U	150

Toxic Equivalency - (WHO 2005)	pg
Lower Bound PCDD/F TEQ (WHO 2005)	0.00
Mid Point PCDD/F TEQ (WHO 2005)	10.7
Upper Bound PCDD/F TEQ (WHO 2005)	17.2

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(16 thru 20) Blank
ALS Sample ID BU2501330-004
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information **Run 1**
Filename 7-250603A07
Run Date 03-Jun-25 17:55
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	28.40	<5.0	5.0	M,U	1.6	150
1,2,3,7,8-PeCDD	1	NotFnd	<4.3	4.3	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<5.4	5.4	U		150
1,2,3,6,7,8-HxCDD	0.1	33.72	<5.1	5.1	M,U	1.8	150
1,2,3,7,8,9-HxCDD	0.1	33.91	<5.1	5.1	M,U	4.0	150
1,2,3,4,6,7,8-HpCDD	0.01	NotFnd	<7.1	7.1	U		150
OCDD	0.0003	38.99	<22	14	M,J,R	22	300
2,3,7,8-TCDF	0.1	NotFnd	<3.3	3.3	U		150
1,2,3,7,8-PeCDF	0.03	30.73	<5.0	5.0	M,U	3.3	150
2,3,4,7,8-PeCDF	0.3	NotFnd	<4.5	4.5	U		150
1,2,3,4,7,8-HxCDF	0.1	33.07	<2.5	2.5	M,U	1.8	150
1,2,3,6,7,8-HxCDF	0.1	33.17	<2.5	2.4	M,J,R	2.5	150
2,3,4,6,7,8-HxCDF	0.1	33.58	<2.5	2.5	M,U	1.8	150
1,2,3,7,8,9-HxCDF	0.1	34.29	<2.9	2.9	M,U	2.5	150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	<3.1	3.1	M,U		150
1,2,3,4,7,8,9-HpCDF	0.01	36.77	<3.6	3.6	M,U	2.3	150
OCDF	0.0003	39.34	<25	9.5	M,J,R	25	300

Field Spike Standards	pg		% Rec	Limits
37C14-2,3,7,8-TCDD	800	28.39	85	70-130
13C12-1,2,3,4,7,8-HxCDD	8000	33.63	95	70-130
13C12-2,3,4,7,8-PeCDF	8000	31.34	88	70-130
13C12-1,2,3,4,7,8-HxCDF	8000	33.07	98	70-130
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.77	87	70-130

Extraction Standards				
13C12-2,3,7,8-TCDD	12000	28.37	79	40-130
13C12-1,2,3,7,8-PeCDD	12000	31.45	90	40-130
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	95	40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	85	25-130
13C12-OCDD	24000	38.98	68	25-130
13C12-2,3,7,8-TCDF	12000	27.81	84	40-130
13C12-1,2,3,7,8-PeCDF	12000	30.72	91	40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	97	40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	89	25-130

Cleanup Standard	pg			
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	88	40-130

Homologue Group Totals	# peaks	Conc. pg	EDL pg		
Total-TCDD	0	<5.0	5.0	U	150
Total-PeCDD	0	<4.3	4.3	U	150
Total-HxCDD	0	<5.4	5.4	U	150
Total-HpCDD	0	<7.1	7.1	U	150
Total-TCDF	0	<3.3	3.3	U	150
Total-PeCDF	0	<5.0	5.0	U	150
Total-HxCDF	0	<2.9	2.9	U	150
Total-HpCDF	0	<3.6	3.6	U	150

Toxic Equivalency - (WHO 2005)	pg
Lower Bound PCDD/F TEQ (WHO 2005)	0.00
Mid Point PCDD/F TEQ (WHO 2005)	7.07
Upper Bound PCDD/F TEQ (WHO 2005)	13.9

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(21 thru 25) Test #1
ALS Sample ID BU2501330-005
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 7-250603A11
Run Date 03-Jun-25 20:52
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	NotFnd	<4.5	4.5	U		150
1,2,3,7,8-PeCDD	1	31.46	<4.1	4.1	M,U	2.4	150
1,2,3,4,7,8-HxCDD	0.1	33.63	<5.2	5.2	M,U	1.2	150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<4.8	4.8	U		150
1,2,3,7,8,9-HxCDD	0.1	33.93	<4.9	4.9	M,U	3.0	150
1,2,3,4,6,7,8-HpCDD	0.01	36.15	<23	4.4	J,R	23	150
OCDD	0.0003	39.02	<47	15	M,J,R	47	300
2,3,7,8-TCDF	0.1	27.82	6.39	4.9	M,J		150
1,2,3,7,8-PeCDF	0.03	30.73	<5.3	5.3	M,U	4.4	150
2,3,4,7,8-PeCDF	0.3	31.34	<5.2	4.8	M,J,R	5.2	150
1,2,3,4,7,8-HxCDF	0.1	33.07	3.52	2.3	M,J		150
1,2,3,6,7,8-HxCDF	0.1	33.18	<4.9	2.2	M,J,R	4.9	150
2,3,4,6,7,8-HxCDF	0.1	33.58	3.38	2.3	M,J,B		150
1,2,3,7,8,9-HxCDF	0.1	34.27	5.44	2.7	M,J		150
1,2,3,4,6,7,8-HpCDF	0.01	35.22	<14	5.6	M,J,R	14	150
1,2,3,4,7,8,9-HpCDF	0.01	NotFnd	<6.6	6.6	U		150
OCDF	0.0003	39.31	<14	14	M,U	13	300
Field Spike Standards	pg		% Rec	Limits			
37Cl4-2,3,7,8-TCDD	800	28.39	84	70-130			
13C12-1,2,3,4,7,8-HxCDD	8000	33.63	85	70-130			
13C12-2,3,4,7,8-PeCDF	8000	31.34	84	70-130			
13C12-1,2,3,4,7,8-HxCDF	8000	33.07	87	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.77	75	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.37	88	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	87	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	92	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.14	82	25-130			
13C12-OCDD	24000	38.98	67	25-130			
13C12-2,3,7,8-TCDF	12000	27.81	93	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.72	91	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	97	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	85	25-130			
Cleanup Standard	pg						
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	91	40-130			
Homologue Group Totals	# peaks		Conc. pg	EDL pg			
Total-TCDD	0	<4.5	4.5	U		150	
Total-PeCDD	0	<4.1	4.1	U		150	
Total-HxCDD	0	<5.2	5.2	U		150	
Total-HpCDD	0	<4.4	4.4	U		150	
Total-TCDF	3	16.5	4.9			150	
Total-PeCDF	2	15.2	5.3			150	
Total-HxCDF	4	15.1	2.7			150	
Total-HpCDF	0	<6.6	6.6	U		150	

Toxic Equivalency - (WHO 2005)

pg

Lower Bound PCDD/F TEQ (WHO 2005)

1.87

Mid Point PCDD/F TEQ (WHO 2005)

9.47

Upper Bound PCDD/F TEQ (WHO 2005)

14.6

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
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 25-2049-SVOC-(26 thru 30) Test #2
ALS Sample ID BU2501330-006
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information **Run 1**
Filename 7-250603A12
Run Date 03-Jun-25 21:36
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	NotFnd	<4.5	4.5	U		150
1,2,3,7,8-PeCDD	1	31.47	<6.4	6.4	M,U	3.1	150
1,2,3,4,7,8-HxCDD	0.1	33.65	<5.4	5.4	M,U	3.5	150
1,2,3,6,7,8-HxCDD	0.1	NotFnd	<5.0	5.0	U		150
1,2,3,7,8,9-HxCDD	0.1	33.89	<5.1	5.1	M,U	3.5	150
1,2,3,4,6,7,8-HpCDD	0.01	36.14	23.8	7.7	J		150
OCDD	0.0003	38.97	<50	23	M,J,R	50	300
2,3,7,8-TCDF	0.1	27.79	<4.7	4.7	M,U	1.7	150
1,2,3,7,8-PeCDF	0.03	NotFnd	<5.4	5.4	U		150
2,3,4,7,8-PeCDF	0.3	31.35	<4.9	4.9	M,U	3.5	150
1,2,3,4,7,8-HxCDF	0.1	33.07	<4.4	4.4	M,U	2.1	150
1,2,3,6,7,8-HxCDF	0.1	NotFnd	<4.2	4.2	U		150
2,3,4,6,7,8-HxCDF	0.1	NotFnd	<4.4	4.4	U		150
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<5.1	5.1	U		150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	<9.5	5.3	M,J,R	9.5	150
1,2,3,4,7,8,9-HpCDF	0.01	36.79	<6.3	6.3	M,U	2.8	150
OCDF	0.0003	NotFnd	<17	17	U		300

Field Spike Standards	pg	% Rec	Limits
37C14-2,3,7,8-TCDD	800	28.39	80 70-130
13C12-1,2,3,4,7,8-HxCDD	8000	33.63	82 70-130
13C12-2,3,4,7,8-PeCDF	8000	31.34	78 70-130
13C12-1,2,3,4,7,8-HxCDF	8000	33.06	83 70-130
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.76	69 70-130

Extraction Standards			
13C12-2,3,7,8-TCDD	12000	28.36	74 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	79 40-130
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.14	63 25-130
13C12-OCDD	24000	38.97	47 25-130
13C12-2,3,7,8-TCDF	12000	27.79	78 40-130
13C12-1,2,3,7,8-PeCDF	12000	30.72	74 40-130
13C12-1,2,3,6,7,8-HxCDF	12000	33.15	84 40-130
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	69 25-130

Cleanup Standard	pg		
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	86 40-130

Homologue Group Totals	# peaks	Conc. pg	EDL pg		
Total-TCDD	0	<4.5	4.5	U	150
Total-PeCDD	0	<6.4	6.4	U	150
Total-HxCDD	1	26.6	5.4		150
Total-HpCDD	1	23.8	7.7		150
Total-TCDF	0	<4.7	4.7	U	150
Total-PeCDF	0	<5.4	5.4	U	150
Total-HxCDF	1	8.88	5.1		150
Total-HpCDF	0	<6.3	6.3	U	150

Toxic Equivalency - (WHO 2005)	pg
Lower Bound PCDD/F TEQ (WHO 2005)	0.238
Mid Point PCDD/F TEQ (WHO 2005)	8.56
Upper Bound PCDD/F TEQ (WHO 2005)	16.8

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 TEF Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.
 J indicates that a target analyte was detected below the calibrated range.
 R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
 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 25-2049-SVOC-(31 thru 35) Test #3
ALS Sample ID BU2501330-007
Analysis Method EPA M23
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
S.Sarhaddi
 --e-signature--
 05-Jun-2025

Run Information **Run 1**
Filename 7-250603A13
Run Date 03-Jun-25 22:21
Final Volume 10 uL
Dilution Factor 5
Analysis Units pg
Instrument - Column HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	28.39	<4.7	4.7	M,U	3.6	150
1,2,3,7,8-PeCDD	1	NotFnd	<7.1	7.1	U		150
1,2,3,4,7,8-HxCDD	0.1	33.66	<5.7	5.7	M,U	4.0	150
1,2,3,6,7,8-HxCDD	0.1	33.71	<5.8	5.3	M,J,R	5.8	150
1,2,3,7,8,9-HxCDD	0.1	33.90	<5.4	5.4	M,U		150
1,2,3,4,6,7,8-HpCDD	0.01	36.15	<22	6.1	J,R	22	150
OCDD	0.0003	38.99	<45	22	M,J,R	45	300
2,3,7,8-TCDF	0.1	27.78	<7.5	7.5	M,U	4.4	150
1,2,3,7,8-PeCDF	0.03	30.73	<9.8	5.4	M,J,R	9.8	150
2,3,4,7,8-PeCDF	0.3	31.36	8.04	4.8	M,J		150
1,2,3,4,7,8-HxCDF	0.1	33.10	<5.2	5.2	M,U	4.7	150
1,2,3,6,7,8-HxCDF	0.1	33.17	<4.9	4.9	M,U	3.8	150
2,3,4,6,7,8-HxCDF	0.1	33.58	<5.1	5.1	M,U		150
1,2,3,7,8,9-HxCDF	0.1	34.28	<5.9	5.9	M,U	2.7	150
1,2,3,4,6,7,8-HpCDF	0.01	35.22	<6.6	5.4	M,J,R	6.6	150
1,2,3,4,7,8,9-HpCDF	0.01	36.80	<6.3	6.3	M,U		150
OCDF	0.0003	39.35	17.8	14	M,J,B		300
Field Spike Standards	pg		% Rec	Limits			
37C14-2,3,7,8-TCDD	800	28.40	70	70-130			
13C12-1,2,3,4,7,8-HxCDD	8000	33.64	61	70-130			
13C12-2,3,4,7,8-PeCDF	8000	31.35	59	70-130			
13C12-1,2,3,4,7,8-HxCDF	8000	33.07	66	70-130			
13C12-1,2,3,4,7,8,9-HpCDF	8000	36.79	56	70-130			
Extraction Standards							
13C12-2,3,7,8-TCDD	12000	28.37	66	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.46	69	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	73	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	60	25-130			
13C12-OCDD	24000	38.99	45	25-130			
13C12-2,3,7,8-TCDF	12000	27.81	70	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.73	69	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.17	75	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.23	63	25-130			
Cleanup Standard	pg						
13C12-1,2,3,7,8,9-HxCDF	18000	34.27	76	40-130			
Homologue Group Totals	# peaks		Conc. pg	EDL pg			
Total-TCDD	0	<4.7	4.7	U		150	
Total-PeCDD	0	<7.1	7.1	U		150	
Total-HxCDD	0	<5.7	5.7	U		150	
Total-HpCDD	1	22.0	6.1			150	
Total-TCDF	2	10.6	7.5			150	
Total-PeCDF	2	30.6	5.4			150	
Total-HxCDF	2	16.2	5.9			150	
Total-HpCDF	0	<6.3	6.3	U		150	

Toxic Equivalency - (WHO 2005) **pg**
Lower Bound PCDD/F TEQ (WHO 2005) 2.42
Mid Point PCDD/F TEQ (WHO 2005) 11.5
Upper Bound PCDD/F TEQ (WHO 2005) 19.4

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

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	
ALS Sample ID	QC-MRG5-2007944-001	Extraction Date	22-May-25	
Analysis Method	EPA M23	Sample Size	1	Sample
Analysis Type	Blank	Percent Moisture	n/a	
Sample Matrix	QC	Split Ratio	6	
				Approved: S.Sarhaddi --e-signature-- 05-Jun-2025

Run Information	Run 1
Filename	7-250603A06
Run Date	03-Jun-25 17:11
Final Volume	10 uL
Dilution Factor	5
Analysis Units	pg
Instrument - Column	HRMS-7 ZBDX1191187

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
2,3,7,8-TCDD	1	NotFnd	<3.8	3.8	U		150
1,2,3,7,8-PeCDD	1	NotFnd	<6.3	6.3	U		150
1,2,3,4,7,8-HxCDD	0.1	NotFnd	<5.5	5.5	U		150
1,2,3,6,7,8-HxCDD	0.1	33.70	<5.2	5.2	M,U		150
1,2,3,7,8,9-HxCDD	0.1	33.91	7.70	5.2	M,J		150
1,2,3,4,6,7,8-HpCDD	0.01	36.15	<5.7	5.7	M,U	5.4	150
OCDD	0.0003	38.98	<29	14	M,J,R	29	300
2,3,7,8-TCDF	0.1	NotFnd	<5.0	5.0	U		150
1,2,3,7,8-PeCDF	0.03	30.72	<4.6	4.6	M,U	4.1	150
2,3,4,7,8-PeCDF	0.3	NotFnd	<4.2	4.2	U		150
1,2,3,4,7,8-HxCDF	0.1	NotFnd	<5.8	5.8	U		150
1,2,3,6,7,8-HxCDF	0.1	33.17	<5.5	5.5	M,U	4.3	150
2,3,4,6,7,8-HxCDF	0.1	33.58	6.22	5.7	M,J		150
1,2,3,7,8,9-HxCDF	0.1	NotFnd	<6.7	6.7	U		150
1,2,3,4,6,7,8-HpCDF	0.01	35.23	<5.2	5.2	M,U	3.7	150
1,2,3,4,7,8,9-HpCDF	0.01	36.81	6.28	6.2	M,J		150
OCDF	0.0003	39.37	26.1	13	M,J		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	28.37	75	40-130			
13C12-1,2,3,7,8-PeCDD	12000	31.45	82	40-130			
13C12-1,2,3,6,7,8-HxCDD	12000	33.70	93	40-130			
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.14	82	25-130			
13C12-OCDD	24000	38.98	73	25-130			
13C12-2,3,7,8-TCDF	12000	27.81	77	40-130			
13C12-1,2,3,7,8-PeCDF	12000	30.72	79	40-130			
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	96	40-130			
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	86	25-130			
Cleanup Standard	pg						
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	95	40-130			
Homologue Group Totals	# peaks		Conc. pg	EDL pg			
Total-TCDD	0	<3.8	3.8	U		150	
Total-PeCDD	0	<6.3	6.3	U		150	
Total-HxCDD	2	10.8	5.5			150	
Total-HpCDD	0	<5.7	5.7	U		150	
Total-TCDF	0	<5.0	5.0	U		150	
Total-PeCDF	0	<4.6	4.6	U		150	
Total-HxCDF	0	<6.7	6.7	U		150	
Total-HpCDF	1	6.28	6.2			150	

Toxic Equivalency - (WHO 2005)	pg
Lower Bound PCDD/F TEQ (WHO 2005)	1.46
Mid Point PCDD/F TEQ (WHO 2005)	8.96
Upper Bound PCDD/F TEQ (WHO 2005)	16.4

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
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.
NS	Indicates that this compound was not added.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	Approved: S.Sarhaddi --e-signature-- 05-Jun-2025
ALS Sample ID	QC-MRG5-2007944-002	Extraction Date	22-May-25	
Analysis Method	EPA M23	Sample Size	1 n/a	
Analysis Type	LCS	Percent Moisture	n/a	
Sample Matrix	QC	Split Ratio	6	

Run Information	Run 1
Filename	7-250603A02
Run Date	03-Jun-25 15:16
Final Volume	10 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-7 ZBDX1191187

Target Analytes	pg	Ret. Time	% Rec	Limits	Flags
2,3,7,8-TCDD	1200	28.39	95	70-130	
1,2,3,7,8-PeCDD	6000	31.46	105	70-130	
1,2,3,4,7,8-HxCDD	6000	33.64	98	70-130	
1,2,3,6,7,8-HxCDD	6000	33.72	92	70-130	
1,2,3,7,8,9-HxCDD	6000	33.91	90	70-130	
1,2,3,4,6,7,8-HpCDD	6000	36.16	93	70-130	
OCDD	12000	39.00	93	70-130	
2,3,7,8-TCDF	1200	27.82	94	70-130	
1,2,3,7,8-PeCDF	6000	30.73	98	70-130	
2,3,4,7,8-PeCDF	6000	31.35	96	70-130	
1,2,3,4,7,8-HxCDF	6000	33.09	94	70-130	
1,2,3,6,7,8-HxCDF	6000	33.17	94	70-130	
2,3,4,6,7,8-HxCDF	6000	33.59	86	70-130	
1,2,3,7,8,9-HxCDF	6000	34.28	90	70-130	
1,2,3,4,6,7,8-HpCDF	6000	35.23	93	70-130	
1,2,3,4,7,8,9-HpCDF	6000	36.79	96	70-130	
OCDF	12000	39.34	92	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	28.37	71	40-130	
13C12-1,2,3,7,8-PeCDD	12000	31.45	73	40-130	
13C12-1,2,3,6,7,8-HxCDD	12000	33.71	84	40-130	
13C12-1,2,3,4,6,7,8-HpCDD	12000	36.15	82	25-130	
13C12-OCDD	24000	38.98	69	25-130	
13C12-2,3,7,8-TCDF	12000	27.81	76	40-130	
13C12-1,2,3,7,8-PeCDF	12000	30.72	72	40-130	
13C12-1,2,3,6,7,8-HxCDF	12000	33.16	88	40-130	
13C12-1,2,3,4,6,7,8-HpCDF	12000	35.22	76	25-130	
Cleanup Standard	pg				
13C12-1,2,3,7,8,9-HxCDF	18000	34.26	82	40-130	

NS Indicates that this compound was not added.



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
ALS Project ID: ORTE100
ALS WO#: BU2501330
Date of Report: 10-Jun-25
Date of Sample Receipt: 20-May-25

Client Name: Alliance Technical Group North Inc.
Client Address: 804 Southdown Road
Mississauga ON
L5J 2Y4
Client Contact: Chris Belore
Client Project ID: AST-2025-2049

COMMENTS: PCB Congeners by EPA 1668C

PCB Congener Group Totals and Total PCB are a sum of detected values, including EMPC values, consistent with USEPA CLP SOW CBC1.2

Certified by:

A handwritten signature in black ink, appearing to read "Jing", is written over a horizontal line.

Sabrina Jin
Technical Specialist

Results in this certificate relate only to the samples as submitted to the laboratory.

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Sample Analysis Summary Report

Sample Name	25-2049-SVOC-(1 thru 5) Test #1	25-2049-SVOC-(6 thru 10) Test #2	25-2049-SVOC-(11 thru 15) Test #3	25-2049-SVOC-(16 thru 20) Blank	25-2049-SVOC-(21 thru 25) Test #1	25-2049-SVOC-(26 thru 30) Test #2	25-2049-SVOC-(31 thru 35) Test #3
ALS Sample ID	BU2501330-001	BU2501330-002	BU2501330-003	BU2501330-004	BU2501330-005	BU2501330-006	BU2501330-007
Sample Size	1	1	1	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sample Matrix	Stack	Stack	Stack	Stack	Stack	Stack	Stack
Sampling Date	14-May-25	14-May-25	15-May-25	14-May-25	14-May-25	14-May-25	15-May-25
Extraction Date	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25	22-May-25
Target Analytes	pg	pg	pg	pg	pg	pg	pg
PCB-081	42.8	<13	<12	<7.3	<25	32.0	32.7
PCB-077	683	161	67.2	<7.7	233	796	687
PCB-123	192	56.4	<20	<4.6	94.2	322	323
PCB-118	10400	3260	958	<22	5380	21800	18500
PCB-114	255	73.9	<27	<4.5	150	519	486
PCB-105	2970	1310	299	<6.3	1570	5920	5590
PCB-126	<21	<16	<15	<4.3	<16	<19	<23
PCB-167	65.0	39.9	8.31	<3.5	20.1	96.8	100
PCB-156/157	159	115	<22	<4.5	78.6	225	260
PCB-169	<8.5	<4.4	<3.3	<3.6	<7.6	<6.8	<6.2
PCB-189	<8.2	<4.4	<6.4	<3.4	<6.7	<7.4	<4.9
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-081	59	61	56	60	62	51	53
13C12-PCB-077	58	61	56	60	61	51	52
13C12-PCB-123	58	61	57	63	64	52	54
13C12-PCB-118	62	67	61	67	68	56	58
13C12-PCB-114	58	62	57	62	64	51	54
13C12-PCB-105	58	62	59	65	64	53	55
13C12-PCB-126	62	68	62	67	68	54	57
13C12-PCB-167	62	68	64	72	67	57	59
13C12-PCB-156/157	63	70	64	72	69	58	60
13C12-PCB-169	68	78	70	81	76	64	67
13C12-PCB-189	62	71	65	71	68	57	60
Field Spike Standards							
13C12-PCB-031	86	86	86	79	84	87	82
13C12-PCB-095	85	84	82	76	77	86	79
13C12-PCB-153	92	91	91	82	84	93	83
Cleanup Standards							
13C12-PCB-028	60	57	51	52	60	52	50
13C12-PCB-111	67	66	62	57	63	59	62
13C12-PCB-178	75	76	71	69	73	70	72
Homologue Group Totals	pg	pg	pg	pg	pg	pg	pg
Total MonoCB	1430	164	332	<4.1	3580	793	512
Total DiCB	14100	2640	1530	64.0	10600	29000	10800
Total TriCB	99200	2450	2770	54.8	35200	71700	35700
Total TetraCB	273000	21600	11700	678	396000	682000	282000
Total PentaCB	231000	31200	9780	319	152000	391000	285000
Total HexaCB	31900	8090	1580	36.8	16700	41700	51100
Total HeptaCB	1770	1230	120	3.30	824	1910	2750
Total OctaCB	167	326	20.7	6.43	62.8	177	264
Total NonaCB	<13	12.0	<12	<11	<17	<13	<12
DecaCB	<5.6	<4.8	<7.4	<4.6	<9.0	<7.3	<7.1
Total PCB	652000	67700	27800	1160	615000	1220000	668000
Toxic Equivalency - (WHO 2005)							
Lower Bound PCB TEQ	0.502	0.162	0.0447	0.00	0.242	0.956	0.836
Mid Point PCB TEQ	2.73	1.03	0.848	0.272	1.16	2.01	3.23
Upper Bound PCB TEQ	2.86	1.90	1.65	0.542	2.08	3.06	3.32

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Quality Control Summary Report

Sample Name

Method Blank

ALS Sample ID

QC-MRG2-2007944001

Sample Size	1
Sample size units	Sample
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	22-May-25

Target Analytes

pg

PCB-081	<8.9
PCB-077	<9.1
PCB-123	<4.5
PCB-118	<3.9
PCB-114	<4.5
PCB-105	<4.2
PCB-126	<4.2
PCB-167	<4.2
PCB-156/157	<5.2
PCB-169	<4.2
PCB-189	<4.7

Extraction Standards

% Rec

13C12-PCB-081	51
13C12-PCB-077	51
13C12-PCB-123	52
13C12-PCB-118	55
13C12-PCB-114	52
13C12-PCB-105	55
13C12-PCB-126	57
13C12-PCB-167	60
13C12-PCB-156/157	61
13C12-PCB-169	69
13C12-PCB-189	62

Field Spike Standards

13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS

Cleanup Standards

13C12-PCB-028	47
13C12-PCB-111	51
13C12-PCB-178	59

Homologue Group Totals

pg

Total MonoCB	<5.6
Total DiCB	41.0
Total TriCB	<6.1
Total TetraCB	9.50
Total PentaCB	<2.4
Total HexaCB	<3.0
Total HeptaCB	<3.3
Total OctaCB	<3.8
Total NonaCB	<10
DecaCB	<7.3
Total PCB	50.5

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.00
Mid Point PCB TEQ	0.275
Upper Bound PCB TEQ	0.551

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Sample Analysis Summary Report

Sample Name

Laboratory Control
Sample

ALS Sample ID

QC-MRG2-
2007944002

Sample Size	1
Sample size units	n/a
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	22-May-25

Target Analytes

% Rec

PCB-081	97
PCB-077	97
PCB-123	99
PCB-118	91
PCB-114	98
PCB-105	94
PCB-126	99
PCB-167	93
PCB-156/157	89
PCB-169	92
PCB-189	99

Extraction Standards

% Rec

13C12-PCB-081	54
13C12-PCB-077	54
13C12-PCB-123	54
13C12-PCB-118	59
13C12-PCB-114	55
13C12-PCB-105	57
13C12-PCB-126	59
13C12-PCB-167	61
13C12-PCB-156/157	64
13C12-PCB-169	72
13C12-PCB-189	65

Field Spike Standards

13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS

Cleanup Standards

13C12-PCB-028	52
13C12-PCB-111	57
13C12-PCB-178	67

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(1 thru 5) Test #1
ALS Sample ID BU2501330-001
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1
Percent Moisture n/a
Split Ratio 6

Sample

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B07
Run Date 02-Jun-25 21:21
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF	Ret.	Conc.	EDL	EMPC	LQL
	(WHO 2005)	Time	pg	pg	Flags	
PCB-081	0.0003	21.77	42.8	31	M	30
PCB-077	0.0001	22.08	683	33		30
PCB-123	0.00003	23.08	192	15	M	30
PCB-118	0.00003	23.28	10400	13	M	30
PCB-114	0.00003	23.58	255	15		30
PCB-105	0.00003	23.92	2970	14		30
PCB-126	0.1	25.50	<21	15	M,J,R	21 30
PCB-167	0.00003	26.43	65.0	7.9		30
PCB-156/157	0.00003	27.05	159	10		30
PCB-169	0.03	NotFnd	<8.5	8.5	U	30
PCB-189	0.00003	30.04	<8.2	5.2	M,J,R	8.2 30
Extraction Standards	pg	Time	% Rec	Limits		
13C12-PCB-081	12000	21.78	59	10-145		
13C12-PCB-077	12000	22.07	58	10-145		
13C12-PCB-123	12000	23.09	58	10-145		
13C12-PCB-118	12000	23.26	62	10-145		
13C12-PCB-114	12000	23.57	58	10-145		
13C12-PCB-105	12000	23.90	58	10-145		
13C12-PCB-126	12000	25.49	62	10-145		
13C12-PCB-167	12000	26.42	62	10-145		
13C12-PCB-156/157	24000	27.05	63	10-145		
13C12-PCB-169	12000	28.70	68	10-145		
13C12-PCB-189	12000	29.99	62	10-145		
Field Spike Standards						
13C12-PCB-031	8000	15.78	86	70-130		
13C12-PCB-095	8000	19.10	85	70-130		
13C12-PCB-153	8000	24.22	92	70-130		
Cleanup Standards						
13C12-PCB-028	18000	15.96	60	5-145		
13C12-PCB-111	18000	22.03	67	10-145		
13C12-PCB-178	18000	25.10	75	10-145		

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Sample Analysis Report																																																																																																																																																																																													
Sample Name		25-2049-SVOC-(1 thru 5) Test #1			Sampling Date		14-May-25		Approved: Henna Saeed --e-signature-- 05-Jun-2025																																																																																																																																																																																				
ALS Sample ID		BU2501330-001			Extraction Date		22-May-25																																																																																																																																																																																						
Analysis Method		EPA 1668C			Sample Size		1																																																																																																																																																																																						
Analysis Type		Sample			Percent Moisture		n/a																																																																																																																																																																																						
Sample Matrix		Stack			Split Ratio		6																																																																																																																																																																																						
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<table><tr><td></td><td>TEF</td><td>Ret.</td><td>Conc.</td><td>EDL</td><td></td><td>EMPC</td><td></td><td></td><td></td></tr><tr><td>Target Analytes</td><td>(WHO 2005)</td><td>Time</td><td>pg</td><td>pg</td><td>Flags</td><td>pg</td><td>LQL</td><td></td><td></td></tr><tr><td colspan="10">Homologue Group Totals</td></tr><tr><td></td><td>Total MonoCB</td><td></td><td>1430</td><td>7.2</td><td>J</td><td>600</td><td></td><td></td><td></td></tr><tr><td></td><td>Total DiCB</td><td></td><td>14100</td><td>12</td><td>J</td><td>1200</td><td></td><td></td><td></td></tr><tr><td></td><td>Total TriCB</td><td></td><td>99200</td><td>6.1</td><td>J</td><td>1200</td><td></td><td></td><td></td></tr><tr><td></td><td>Total TetraCB</td><td></td><td>273000</td><td>5.3</td><td>J</td><td>2400</td><td></td><td></td><td></td></tr><tr><td></td><td>Total PentaCB</td><td></td><td>231000</td><td>3.9</td><td>J</td><td>2400</td><td></td><td></td><td></td></tr><tr><td></td><td>Total HexaCB</td><td></td><td>31900</td><td>2.7</td><td>J</td><td>2400</td><td></td><td></td><td></td></tr><tr><td></td><td>Total HeptaCB</td><td></td><td>1770</td><td>4.1</td><td>J</td><td>1200</td><td></td><td></td><td></td></tr><tr><td></td><td>Total OctaCB</td><td></td><td>167</td><td>3.7</td><td>J</td><td>1200</td><td></td><td></td><td></td></tr><tr><td></td><td>Total NonaCB</td><td></td><td><13</td><td>13</td><td>U</td><td>600</td><td></td><td></td><td></td></tr><tr><td></td><td>DecaCB</td><td></td><td><5.6</td><td>5.6</td><td>U</td><td>600</td><td></td><td></td><td></td></tr><tr><td></td><td>Total PCB</td><td></td><td>652000</td><td></td><td>J</td><td>4800</td><td></td><td></td><td></td></tr><tr><td colspan="10">Toxic Equivalency - (WHO 2005)</td></tr><tr><td></td><td>Lower Bound PCB TEQ</td><td></td><td>0.502</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Mid Point PCB TEQ</td><td></td><td>2.73</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Upper Bound PCB TEQ</td><td></td><td>2.86</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>											TEF	Ret.	Conc.	EDL		EMPC				Target Analytes	(WHO 2005)	Time	pg	pg	Flags	pg	LQL			Homologue Group Totals											Total MonoCB		1430	7.2	J	600					Total DiCB		14100	12	J	1200					Total TriCB		99200	6.1	J	1200					Total TetraCB		273000	5.3	J	2400					Total PentaCB		231000	3.9	J	2400					Total HexaCB		31900	2.7	J	2400					Total HeptaCB		1770	4.1	J	1200					Total OctaCB		167	3.7	J	1200					Total NonaCB		<13	13	U	600					DecaCB		<5.6	5.6	U	600					Total PCB		652000		J	4800				Toxic Equivalency - (WHO 2005)											Lower Bound PCB TEQ		0.502								Mid Point PCB TEQ		2.73								Upper Bound PCB TEQ		2.86						
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	Mid Point PCB TEQ		2.73																																																																																																																																																																																										
	Upper Bound PCB TEQ		2.86																																																																																																																																																																																										
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.																																																																																																																																																																																											
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EMPC		Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure																																																																																																																																																																																											

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(6 thru 10) Test #2
ALS Sample ID BU2501330-002
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1
Percent Moisture n/a
Split Ratio 6

Sample

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B08
Run Date 02-Jun-25 22:03
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF	Ret.	Conc.	EDL	EMPC	LQL
	(WHO 2005)	Time	pg	pg	Flags	
PCB-081	0.0003	NotFnd	<13	13	U	30
PCB-077	0.0001	22.07	161	14		30
PCB-123	0.00003	23.07	56.4	17	M	30
PCB-118	0.00003	23.26	3260	14	M	30
PCB-114	0.00003	23.55	73.9	16		30
PCB-105	0.00003	23.90	1310	15	M	30
PCB-126	0.1	NotFnd	<16	16	U	30
PCB-167	0.00003	26.42	39.9	4.4		30
PCB-156/157	0.00003	27.03	115	5.5		30
PCB-169	0.03	NotFnd	<4.4	4.4	U	30
PCB-189	0.00003	NotFnd	<4.4	4.4	U	30
Extraction Standards	pg	Time	% Rec	Limits		
13C12-PCB-081	12000	21.77	61	10-145		
13C12-PCB-077	12000	22.06	61	10-145		
13C12-PCB-123	12000	23.08	61	10-145		
13C12-PCB-118	12000	23.25	67	10-145		
13C12-PCB-114	12000	23.55	62	10-145		
13C12-PCB-105	12000	23.89	62	10-145		
13C12-PCB-126	12000	25.49	68	10-145		
13C12-PCB-167	12000	26.41	68	10-145		
13C12-PCB-156/157	24000	27.03	70	10-145		
13C12-PCB-169	12000	28.69	78	10-145		
13C12-PCB-189	12000	29.98	71	10-145		
Field Spike Standards						
13C12-PCB-031	8000	15.77	86	70-130		
13C12-PCB-095	8000	19.08	84	70-130		
13C12-PCB-153	8000	24.21	91	70-130		
Cleanup Standards						
13C12-PCB-028	18000	15.94	57	5-145		
13C12-PCB-111	18000	22.03	66	10-145		
13C12-PCB-178	18000	25.09	76	10-145		

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(6 thru 10) Test #2
ALS Sample ID BU2501330-002
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B08
Run Date 02-Jun-25 22:03
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL

Homologue Group Totals

Total MonoCB			164	5.8	J		600
Total DiCB			2640	11	J		1200
Total TriCB			2450	4.6	J		1200
Total TetraCB			21600	6.1	J		2400
Total PentaCB			31200	4.7	J		2400
Total HexaCB			8090	2.5	J		2400
Total HeptaCB			1230	3.7	J		1200
Total OctaCB			326	2.5	J		1200
Total NonaCB			12.0	9.4	J		600
DecaCB			<4.8	4.8	U		600
Total PCB			67700		J		4800

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.162
Mid Point PCB TEQ	1.03
Upper Bound PCB TEQ	1.90

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 identified. The associated numerical result is an estimate.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(11 thru 15) Test #3
ALS Sample ID BU2501330-003
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 15-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B09
Run Date 02-Jun-25 22:45
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg	LQL
PCB-081	0.0003	NotFnd	<12	12	U	30
PCB-077	0.0001	22.07	67.2	12	M	30
PCB-123	0.00003	23.09	<20	15	M,J,R	20 30
PCB-118	0.00003	23.26	958	13	M	30
PCB-114	0.00003	23.57	<27	15	M,J,R	27 30
PCB-105	0.00003	23.89	299	14		30
PCB-126	0.1	NotFnd	<15	15	U	30
PCB-167	0.00003	26.42	8.31	2.9	J	30
PCB-156/157	0.00003	27.02	<22	3.9	M,J,R	22 30
PCB-169	0.03	NotFnd	<3.3	3.3	U	30
PCB-189	0.00003	NotFnd	<6.4	6.4	U	30
Extraction Standards						
	pg	Time	% Rec	Limits		
13C12-PCB-081	12000	21.76	56	10-145		
13C12-PCB-077	12000	22.05	56	10-145		
13C12-PCB-123	12000	23.07	57	10-145		
13C12-PCB-118	12000	23.25	61	10-145		
13C12-PCB-114	12000	23.54	57	10-145		
13C12-PCB-105	12000	23.88	59	10-145		
13C12-PCB-126	12000	25.48	62	10-145		
13C12-PCB-167	12000	26.41	64	10-145		
13C12-PCB-156/157	24000	27.02	64	10-145		
13C12-PCB-169	12000	28.69	70	10-145		
13C12-PCB-189	12000	29.98	65	10-145		
Field Spike Standards						
13C12-PCB-031	8000	15.77	86	70-130		
13C12-PCB-095	8000	19.08	82	70-130		
13C12-PCB-153	8000	24.19	91	70-130		
Cleanup Standards						
13C12-PCB-028	18000	15.94	51	5-145		
13C12-PCB-111	18000	22.02	62	10-145		
13C12-PCB-178	18000	25.08	71	10-145		

ALS Life Sciences									
Sample Analysis Report									
Sample Name		25-2049-SVOC-(11 thru 15) Test #3			Sampling Date		15-May-25		Approved: Henna Saeed --e-signature-- 05-Jun-2025
ALS Sample ID		BU2501330-003			Extraction Date		22-May-25		
Analysis Method		EPA 1668C			Sample Size		1		
Analysis Type		Sample			Percent Moisture		n/a		
Sample Matrix		Stack			Split Ratio		6		
Run Information		Run 1							
Filename		5-250602B09							
Run Date		02-Jun-25 22:45							
Final Volume		25 ul							
Dilution Factor		1							
Analysis Units		pg							
Instrument - Column		HRMS-5 SPB0CTYL291720-01							
Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg	LQL			
Homologue Group Totals									
Total MonoCB			332	6.6	J	600			
Total DiCB			1530	14	J	1200			
Total TriCB			2770	5.9	J	1200			
Total TetraCB			11700	6.4	J	2400			
Total PentaCB			9780	5.9	J	2400			
Total HexaCB			1580	2.6	J	2400			
Total HeptaCB			120	3.5	J	1200			
Total OctaCB			20.7	3.1	J	1200			
Total NonaCB			<12	12	U	600			
DecaCB			<7.4	7.4	U	600			
Total PCB			27800		J	4800			
Toxic Equivalency - (WHO 2005)									
Lower Bound PCB TEQ			0.0447						
Mid Point PCB TEQ			0.848						
Upper Bound PCB TEQ			1.65						
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 identified. 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 25-2049-SVOC-(16 thru 20) Blank
ALS Sample ID BU2501330-004
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1
Percent Moisture n/a
Split Ratio 6

Sample

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B06
Run Date 02-Jun-25 20:39
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF	Ret.	Conc.	EDL	EMPC	LQL
	(WHO 2005)	Time	pg	pg	Flags	
PCB-081	0.0003	NotFnd	<7.3	7.3	U	30
PCB-077	0.0001	NotFnd	<7.7	7.7	U	30
PCB-123	0.00003	NotFnd	<4.6	4.6	U	30
PCB-118	0.00003	23.28	<22	4.1	J,R 22	30
PCB-114	0.00003	NotFnd	<4.5	4.5	U	30
PCB-105	0.00003	23.92	<6.3	4.3	J,R 6.3	30
PCB-126	0.1	NotFnd	<4.3	4.3	U	30
PCB-167	0.00003	NotFnd	<3.5	3.5	U	30
PCB-156/157	0.00003	NotFnd	<4.5	4.5	U	30
PCB-169	0.03	NotFnd	<3.6	3.6	U	30
PCB-189	0.00003	NotFnd	<3.4	3.4	U	30
Extraction Standards	pg	Time	% Rec	Limits		
13C12-PCB-081	12000	21.78	60	10-145		
13C12-PCB-077	12000	22.07	60	10-145		
13C12-PCB-123	12000	23.09	63	10-145		
13C12-PCB-118	12000	23.26	67	10-145		
13C12-PCB-114	12000	23.57	62	10-145		
13C12-PCB-105	12000	23.90	65	10-145		
13C12-PCB-126	12000	25.50	67	10-145		
13C12-PCB-167	12000	26.43	72	10-145		
13C12-PCB-156/157	24000	27.05	72	10-145		
13C12-PCB-169	12000	28.70	81	10-145		
13C12-PCB-189	12000	30.01	71	10-145		
Field Spike Standards						
13C12-PCB-031	8000	15.78	79	70-130		
13C12-PCB-095	8000	19.10	76	70-130		
13C12-PCB-153	8000	24.22	82	70-130		
Cleanup Standards						
13C12-PCB-028	18000	15.96	52	5-145		
13C12-PCB-111	18000	22.04	57	10-145		
13C12-PCB-178	18000	25.10	69	10-145		

ALS Life Sciences																																																																																																																																							
Sample Analysis Report																																																																																																																																							
Sample Name		25-2049-SVOC-(16 thru 20) Blank			Sampling Date		14-May-25		Approved: Henna Saeed --e-signature-- 05-Jun-2025																																																																																																																														
ALS Sample ID		BU2501330-004			Extraction Date		22-May-25																																																																																																																																
Analysis Method		EPA 1668C			Sample Size		1																																																																																																																																
Analysis Type		Sample			Percent Moisture		n/a																																																																																																																																
Sample Matrix		Stack			Split Ratio		6																																																																																																																																
Run Information		Run 1																																																																																																																																					
Filename		5-250602B06																																																																																																																																					
Run Date		02-Jun-25 20:39																																																																																																																																					
Final Volume		25 ul																																																																																																																																					
Dilution Factor		1																																																																																																																																					
Analysis Units		pg																																																																																																																																					
Instrument - Column		HRMS-5 SPBOCTYL291720-01																																																																																																																																					
<table><tr><td></td><td>TEF</td><td>Ret.</td><td>Conc.</td><td>EDL</td><td>EMPC</td><td></td></tr><tr><td>Target Analytes</td><td>(WHO 2005)</td><td>Time</td><td>pg</td><td>pg</td><td>Flags</td><td>LQL</td></tr><tr><td colspan="7">Homologue Group Totals</td></tr><tr><td>Total MonoCB</td><td></td><td></td><td><4.1</td><td>4.1</td><td>U</td><td>600</td></tr><tr><td>Total DiCB</td><td></td><td></td><td>64.0</td><td>11</td><td>J</td><td>1200</td></tr><tr><td>Total TriCB</td><td></td><td></td><td>54.8</td><td>4.4</td><td>J</td><td>1200</td></tr><tr><td>Total TetraCB</td><td></td><td></td><td>678</td><td>4.8</td><td>J</td><td>2400</td></tr><tr><td>Total PentaCB</td><td></td><td></td><td>319</td><td>2.5</td><td>J</td><td>2400</td></tr><tr><td>Total HexaCB</td><td></td><td></td><td>36.8</td><td>2.1</td><td>J</td><td>2400</td></tr><tr><td>Total HeptaCB</td><td></td><td></td><td>3.30</td><td>2.4</td><td>J</td><td>1200</td></tr><tr><td>Total OctaCB</td><td></td><td></td><td>6.43</td><td>2.5</td><td>J</td><td>1200</td></tr><tr><td>Total NonaCB</td><td></td><td></td><td><11</td><td>11</td><td>U</td><td>600</td></tr><tr><td>DecaCB</td><td></td><td></td><td><4.6</td><td>4.6</td><td>U</td><td>600</td></tr><tr><td>Total PCB</td><td></td><td></td><td>1160</td><td></td><td>J</td><td>4800</td></tr><tr><td colspan="7">Toxic Equivalency - (WHO 2005)</td></tr><tr><td>Lower Bound PCB TEQ</td><td></td><td></td><td>0.00</td><td colspan="3"></td></tr><tr><td>Mid Point PCB TEQ</td><td></td><td></td><td>0.272</td><td colspan="3"></td></tr><tr><td>Upper Bound PCB TEQ</td><td></td><td></td><td>0.542</td><td colspan="3"></td></tr></table>											TEF	Ret.	Conc.	EDL	EMPC		Target Analytes	(WHO 2005)	Time	pg	pg	Flags	LQL	Homologue Group Totals							Total MonoCB			<4.1	4.1	U	600	Total DiCB			64.0	11	J	1200	Total TriCB			54.8	4.4	J	1200	Total TetraCB			678	4.8	J	2400	Total PentaCB			319	2.5	J	2400	Total HexaCB			36.8	2.1	J	2400	Total HeptaCB			3.30	2.4	J	1200	Total OctaCB			6.43	2.5	J	1200	Total NonaCB			<11	11	U	600	DecaCB			<4.6	4.6	U	600	Total PCB			1160		J	4800	Toxic Equivalency - (WHO 2005)							Lower Bound PCB TEQ			0.00				Mid Point PCB TEQ			0.272				Upper Bound PCB TEQ			0.542			
	TEF	Ret.	Conc.	EDL	EMPC																																																																																																																																		
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Total NonaCB			<11	11	U	600																																																																																																																																	
DecaCB			<4.6	4.6	U	600																																																																																																																																	
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EMPC		Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure																																																																																																																																					

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(21 thru 25) Test #1
ALS Sample ID BU2501330-005
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1
Percent Moisture n/a
Split Ratio 6

Sample

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B10
Run Date 02-Jun-25 23:28
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF	Ret.	Conc.	EDL	EMPC	LQL
	(WHO 2005)	Time	pg	pg	Flags	
PCB-081	0.0003	NotFnd	<25	25	U	30
PCB-077	0.0001	22.07	233	26		30
PCB-123	0.00003	23.07	94.2	17	M	30
PCB-118	0.00003	23.26	5380	14		30
PCB-114	0.00003	23.55	150	16	M	30
PCB-105	0.00003	23.89	1570	16		30
PCB-126	0.1	NotFnd	<16	16	U	30
PCB-167	0.00003	26.42	20.1	7.3	J	30
PCB-156/157	0.00003	27.02	78.6	9.5		30
PCB-169	0.03	NotFnd	<7.6	7.6	U	30
PCB-189	0.00003	NotFnd	<6.7	6.7	U	30
Extraction Standards	pg	Time	% Rec	Limits		
13C12-PCB-081	12000	21.76	62	10-145		
13C12-PCB-077	12000	22.05	61	10-145		
13C12-PCB-123	12000	23.08	64	10-145		
13C12-PCB-118	12000	23.25	68	10-145		
13C12-PCB-114	12000	23.54	64	10-145		
13C12-PCB-105	12000	23.89	64	10-145		
13C12-PCB-126	12000	25.48	68	10-145		
13C12-PCB-167	12000	26.41	67	10-145		
13C12-PCB-156/157	24000	27.02	69	10-145		
13C12-PCB-169	12000	28.69	76	10-145		
13C12-PCB-189	12000	29.98	68	10-145		
Field Spike Standards						
13C12-PCB-031	8000	15.77	84	70-130		
13C12-PCB-095	8000	19.08	77	70-130		
13C12-PCB-153	8000	24.19	84	70-130		
Cleanup Standards						
13C12-PCB-028	18000	15.94	60	5-145		
13C12-PCB-111	18000	22.03	63	10-145		
13C12-PCB-178	18000	25.08	73	10-145		

ALS Life Sciences									
Sample Analysis Report									
Sample Name		25-2049-SVOC-(21 thru 25) Test #1			Sampling Date		14-May-25		Approved: Henna Saeed --e-signature-- 05-Jun-2025
ALS Sample ID		BU2501330-005			Extraction Date		22-May-25		
Analysis Method		EPA 1668C			Sample Size		1		
Analysis Type		Sample			Percent Moisture		n/a		
Sample Matrix		Stack			Split Ratio		6		
Run Information		Run 1							
Filename		5-250602B10							
Run Date		02-Jun-25 23:28							
Final Volume		25 ul							
Dilution Factor		1							
Analysis Units		pg							
Instrument - Column		HRMS-5 SPB0CTYL291720-01							
Target Analytes		TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg	LQL		
Homologue Group Totals									
Total MonoCB				3580	13	J		600	
Total DiCB				10600	17	J		1200	
Total TriCB				35200	7.6	J		1200	
Total TetraCB				396000	7.3	J		2400	
Total PentaCB				152000	6.6	J		2400	
Total HexaCB				16700	3.6	J		2400	
Total HeptaCB				824	4.8	J		1200	
Total OctaCB				62.8	7.4	J		1200	
Total NonaCB				<17	17	U		600	
DecaCB				<9.0	9.0	U		600	
Total PCB				615000		J		4800	
Toxic Equivalency - (WHO 2005)									
Lower Bound PCB TEQ				0.242					
Mid Point PCB TEQ				1.16					
Upper Bound PCB TEQ				2.08					
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 identified. The associated numerical result is an estimate.							
EMPC		Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure							

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(26 thru 30) Test #2
ALS Sample ID BU2501330-006
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B11
Run Date 03-Jun-25 00:10
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPBIOCTYL291720-01

Target Analytes	TEF	Ret.	Conc.	EDL	EMPC	LQL
	(WHO 2005)	Time	pg	pg	Flags	
PCB-081	0.0003	21.75	32.0	15	M	30
PCB-077	0.0001	22.06	796	16	M	30
PCB-123	0.00003	23.08	322	19		30
PCB-118	0.00003	23.25	21800	17	M	30
PCB-114	0.00003	23.55	519	19		30
PCB-105	0.00003	23.89	5920	18		30
PCB-126	0.1	NotFnd	<19	19	U	30
PCB-167	0.00003	26.41	96.8	6.4		30
PCB-156/157	0.00003	27.02	225	7.9		30
PCB-169	0.03	NotFnd	<6.8	6.8	U	30
PCB-189	0.00003	NotFnd	<7.4	7.4	U	30
Extraction Standards	pg	Time	% Rec	Limits		
13C12-PCB-081	12000	21.76	51	10-145		
13C12-PCB-077	12000	22.05	51	10-145		
13C12-PCB-123	12000	23.07	52	10-145		
13C12-PCB-118	12000	23.24	56	10-145		
13C12-PCB-114	12000	23.54	51	10-145		
13C12-PCB-105	12000	23.88	53	10-145		
13C12-PCB-126	12000	25.48	54	10-145		
13C12-PCB-167	12000	26.41	57	10-145		
13C12-PCB-156/157	24000	27.02	58	10-145		
13C12-PCB-169	12000	28.68	64	10-145		
13C12-PCB-189	12000	29.98	57	10-145		
Field Spike Standards						
13C12-PCB-031	8000	15.76	87	70-130		
13C12-PCB-095	8000	19.08	86	70-130		
13C12-PCB-153	8000	24.19	93	70-130		
Cleanup Standards						
13C12-PCB-028	18000	15.94	52	5-145		
13C12-PCB-111	18000	22.02	59	10-145		
13C12-PCB-178	18000	25.08	70	10-145		

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(26 thru 30) Test #2
ALS Sample ID BU2501330-006
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 14-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B11
Run Date 03-Jun-25 00:10
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL

Homologue Group Totals

Total MonoCB			793	7.1	J		600
Total DiCB			29000	9.0	J		1200
Total TriCB			71700	5.9	J		1200
Total TetraCB			682000	5.3	J		2400
Total PentaCB			391000	4.4	J		2400
Total HexaCB			41700	4.1	J		2400
Total HeptaCB			1910	4.3	J		1200
Total OctaCB			177	3.5	J		1200
Total NonaCB			<13	13	U		600
DecaCB			<7.3	7.3	U		600
Total PCB			1220000		J		4800

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.956
Mid Point PCB TEQ	2.01
Upper Bound PCB TEQ	3.06

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 identified. The associated numerical result is an estimate.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(31 thru 35) Test #3
ALS Sample ID BU2501330-007
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 15-May-25
Extraction Date 22-May-25
Sample Size 1
Percent Moisture n/a
Split Ratio 6

Sample

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B12
Run Date 03-Jun-25 00:52
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPBIOCTYL291720-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-081	0.0003	21.76	32.7	16	M		30
PCB-077	0.0001	22.06	687	17			30
PCB-123	0.00003	23.06	323	19	M		30
PCB-118	0.00003	23.25	18500	16	M		30
PCB-114	0.00003	23.55	486	19			30
PCB-105	0.00003	23.89	5590	18			30
PCB-126	0.1	25.49	<23	20	M,J,R	23	30
PCB-167	0.00003	26.41	100	6.2			30
PCB-156/157	0.00003	27.01	260	7.8			30
PCB-169	0.03	NotFnd	<6.2	6.2	U		30
PCB-189	0.00003	NotFnd	<4.9	4.9	U		30
Extraction Standards	pg	Time	% Rec	Limits			
13C12-PCB-081	12000	21.75	53	10-145			
13C12-PCB-077	12000	22.04	52	10-145			
13C12-PCB-123	12000	23.07	54	10-145			
13C12-PCB-118	12000	23.24	58	10-145			
13C12-PCB-114	12000	23.54	54	10-145			
13C12-PCB-105	12000	23.88	55	10-145			
13C12-PCB-126	12000	25.48	57	10-145			
13C12-PCB-167	12000	26.39	59	10-145			
13C12-PCB-156/157	24000	27.02	60	10-145			
13C12-PCB-169	12000	28.68	67	10-145			
13C12-PCB-189	12000	29.97	60	10-145			
Field Spike Standards							
13C12-PCB-031	8000	15.76	82	70-130			
13C12-PCB-095	8000	19.08	79	70-130			
13C12-PCB-153	8000	24.19	83	70-130			
Cleanup Standards							
13C12-PCB-028	18000	15.94	50	5-145			
13C12-PCB-111	18000	22.02	62	10-145			
13C12-PCB-178	18000	25.08	72	10-145			

ALS Life Sciences

Sample Analysis Report

Sample Name 25-2049-SVOC-(31 thru 35) Test #3
ALS Sample ID BU2501330-007
Analysis Method EPA 1668C
Analysis Type Sample
Sample Matrix Stack

Sampling Date 15-May-25
Extraction Date 22-May-25
Sample Size 1 Sample
Percent Moisture n/a
Split Ratio 6

Approved:
Henna Saeed
 --e-signature--
 05-Jun-2025

Run Information

Run 1

Filename 5-250602B12
Run Date 03-Jun-25 00:52
Final Volume 25 ul
Dilution Factor 1
Analysis Units pg
Instrument - Column HRMS-5 SPB0CTYL291720-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg	LQL

Homologue Group Totals

Total MonoCB			512	7.0	J	600
Total DiCB			10800	12	J	1200
Total TriCB			35700	5.6	J	1200
Total TetraCB			282000	6.2	J	2400
Total PentaCB			285000	4.8	J	2400
Total HexaCB			51100	2.8	J	2400
Total HeptaCB			2750	4.3	J	1200
Total OctaCB			264	3.4	J	1200
Total NonaCB			<12	12	U	600
DecaCB			<7.1	7.1	U	600
Total PCB			668000		J	4800

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	0.836
Mid Point PCB TEQ	3.23
Upper Bound PCB TEQ	3.32

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 identified. 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	QC-MRG2-2007944001	Extraction Date	22-May-25	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Blank	Percent Moisture	n/a	
Sample Matrix	QC	Split Ratio	6	
				Approved: Henna Saeed --e-signature-- 05-Jun-2025

Run Information	Run 1
Filename	5-250602B05
Run Date	02-Jun-25 19:57
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOCTYL291720-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-081	0.0003	NotFnd	<8.9	8.9	U		30
PCB-077	0.0001	NotFnd	<9.1	9.1	U		30
PCB-123	0.00003	NotFnd	<4.5	4.5	U		30
PCB-118	0.00003	NotFnd	<3.9	3.9	U		30
PCB-114	0.00003	NotFnd	<4.5	4.5	U		30
PCB-105	0.00003	NotFnd	<4.2	4.2	U		30
PCB-126	0.1	NotFnd	<4.2	4.2	U		30
PCB-167	0.00003	NotFnd	<4.2	4.2	U		30
PCB-156/157	0.00003	NotFnd	<5.2	5.2	U		30
PCB-169	0.03	NotFnd	<4.2	4.2	U		30
PCB-189	0.00003	NotFnd	<4.7	4.7	U		30
Extraction Standards	# N/A	Time	% Rec	Limits			
13C12-PCB-081	12000	21.79	51	10-145			
13C12-PCB-077	12000	22.08	51	10-145			
13C12-PCB-123	12000	23.11	52	10-145			
13C12-PCB-118	12000	23.28	55	10-145			
13C12-PCB-114	12000	23.58	52	10-145			
13C12-PCB-105	12000	23.92	55	10-145			
13C12-PCB-126	12000	25.51	57	10-145			
13C12-PCB-167	12000	26.43	60	10-145			
13C12-PCB-156/157	24000	27.06	61	10-145			
13C12-PCB-169	12000	28.71	69	10-145			
13C12-PCB-189	12000	30.01	62	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	15.97	47	5-145			
13C12-PCB-111	18000	22.05	51	10-145			
13C12-PCB-178	18000	25.11	59	10-145			

ALS Life Sciences																																																																																																																																																																																													
Laboratory Method Blank Analysis Report																																																																																																																																																																																													
Sample Name		Method Blank		Sampling Date		n/a		Approved: Henna Saeed --e-signature-- 05-Jun-2025																																																																																																																																																																																					
ALS Sample ID		QC-MRG2-2007944001		Extraction Date		22-May-25																																																																																																																																																																																							
Analysis Method		EPA 1668C		Sample Size		1																																																																																																																																																																																							
Analysis Type		Blank		Percent Moisture		n/a																																																																																																																																																																																							
Sample Matrix		QC		Split Ratio		6																																																																																																																																																																																							
Run Information		Run 1																																																																																																																																																																																											
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<table><tr><td></td><td>TEF</td><td>Ret.</td><td>Conc.</td><td>EDL</td><td colspan="2">EMPC</td><td colspan="3"></td></tr><tr><td>Target Analytes</td><td>(WHO 2005)</td><td>Time</td><td>pg</td><td>pg</td><td>Flags</td><td>pg</td><td>LQL</td><td colspan="2"></td></tr><tr><td colspan="10">Homologue Group Totals</td></tr><tr><td>Total MonoCB</td><td></td><td></td><td><5.6</td><td>5.6</td><td>U</td><td></td><td>600</td><td colspan="2"></td></tr><tr><td>Total DiCB</td><td></td><td></td><td>41.0</td><td>13</td><td>J</td><td></td><td>1200</td><td colspan="2"></td></tr><tr><td>Total TriCB</td><td></td><td></td><td><6.1</td><td>6.1</td><td>U</td><td></td><td>1200</td><td colspan="2"></td></tr><tr><td>Total TetraCB</td><td></td><td></td><td>9.50</td><td>6.2</td><td>J</td><td></td><td>2400</td><td colspan="2"></td></tr><tr><td>Total PentaCB</td><td></td><td></td><td><2.4</td><td>2.4</td><td>U</td><td></td><td>2400</td><td colspan="2"></td></tr><tr><td>Total HexaCB</td><td></td><td></td><td><3.0</td><td>3.0</td><td>U</td><td></td><td>2400</td><td colspan="2"></td></tr><tr><td>Total HeptaCB</td><td></td><td></td><td><3.3</td><td>3.3</td><td>U</td><td></td><td>1200</td><td colspan="2"></td></tr><tr><td>Total OctaCB</td><td></td><td></td><td><3.8</td><td>3.8</td><td>U</td><td></td><td>1200</td><td colspan="2"></td></tr><tr><td>Total NonaCB</td><td></td><td></td><td><10</td><td>10</td><td>U</td><td></td><td>600</td><td colspan="2"></td></tr><tr><td>DecaCB</td><td></td><td></td><td><7.3</td><td>7.3</td><td>U</td><td></td><td>600</td><td colspan="2"></td></tr><tr><td>Total PCB</td><td></td><td></td><td>50.5</td><td></td><td>J</td><td></td><td>4800</td><td colspan="2"></td></tr><tr><td colspan="10">Toxic Equivalency - (WHO 2005)</td></tr><tr><td>Lower Bound PCB TEQ</td><td></td><td></td><td>0.00</td><td colspan="6"></td></tr><tr><td>Mid Point PCB TEQ</td><td></td><td></td><td>0.275</td><td colspan="6"></td></tr><tr><td>Upper Bound PCB TEQ</td><td></td><td></td><td>0.551</td><td colspan="6"></td></tr></table>											TEF	Ret.	Conc.	EDL	EMPC					Target Analytes	(WHO 2005)	Time	pg	pg	Flags	pg	LQL			Homologue Group Totals										Total MonoCB			<5.6	5.6	U		600			Total DiCB			41.0	13	J		1200			Total TriCB			<6.1	6.1	U		1200			Total TetraCB			9.50	6.2	J		2400			Total PentaCB			<2.4	2.4	U		2400			Total HexaCB			<3.0	3.0	U		2400			Total HeptaCB			<3.3	3.3	U		1200			Total OctaCB			<3.8	3.8	U		1200			Total NonaCB			<10	10	U		600			DecaCB			<7.3	7.3	U		600			Total PCB			50.5		J		4800			Toxic Equivalency - (WHO 2005)										Lower Bound PCB TEQ			0.00							Mid Point PCB TEQ			0.275							Upper Bound PCB TEQ			0.551						
	TEF	Ret.	Conc.	EDL	EMPC																																																																																																																																																																																								
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DecaCB			<7.3	7.3	U		600																																																																																																																																																																																						
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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																																																																																																																																																																																					
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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: <i>Henna Saeed</i> --e-signature-- 05-Jun-2025
ALS Sample ID	QC-MRG2-2007944002	Extraction Date	22-May-25	
Analysis Method	EPA 1668C	Sample Size	1 n/a	
Analysis Type	LCS	Percent Moisture	n/a	
Sample Matrix	QC	Split Ratio	6	

Run Information	Run 1
Filename	5-250602B03
Run Date	02-Jun-25 18:33
Final Volume	25 ul
Dilution Factor	1
Analysis Units	% Rec
Instrument - Column	HRMS-5 SPBOCTYL291720-01

Target Analytes	pg	Ret.		Limits	
		Time	% Rec	Flags	
PCB-081	6000	21.80	97	60-135	
PCB-077	6000	22.10	97	60-135	
PCB-123	6000	23.12	99	60-135	
PCB-118	6000	23.30	91	60-135	
PCB-114	6000	23.59	98	60-135	
PCB-105	6000	23.93	94	60-135	
PCB-126	6000	25.52	99	60-135	
PCB-167	6000	26.45	93	60-135	
PCB-156/157	12000	27.08	89	60-135	
PCB-169	6000	28.74	92	60-135	
PCB-189	6000	30.04	99	60-135	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-081	12000	21.79	54	40-145	
13C12-PCB-077	12000	22.09	54	40-145	
13C12-PCB-123	12000	23.11	54	40-145	
13C12-PCB-118	12000	23.29	59	40-145	
13C12-PCB-114	12000	23.58	55	40-145	
13C12-PCB-105	12000	23.92	57	40-145	
13C12-PCB-126	12000	25.51	59	40-145	
13C12-PCB-167	12000	26.44	61	40-145	
13C12-PCB-156/157	24000	27.07	64	40-145	
13C12-PCB-169	12000	28.73	72	40-145	
13C12-PCB-189	12000	30.02	65	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	15.97	52	15-145	
13C12-PCB-111	18000	22.05	57	40-145	
13C12-PCB-178	18000	25.11	67	40-145	

NS Indicates that this compound was not added.



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
ng/sample	nanograms 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.

Workorder Comments

For the chlorobenzenes and chlorophenols, the recoveries of many of the surrogates were below the method control limits. Sample target data, calculated via isotope dilution, are not expected to be biased where detected.

Qualifiers

Qualifier	Description
[B]	The analyte was detected in the Method Blank at >10% of the sample concentration.
SDI	Surrogate recovery was outside Data Quality Objective. Test could not be repeated due to insufficient sample.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID			Client sampling date / time					25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet				
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet					25-2049-SVOC-(16 thru 20) Blank				
					Result	Result	Result	Result	Result	Result	Result	Result		
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	83-32-9	E649/BU	2.0	ng/sampl e	162	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	137
Acenaphthylene	208-96-8	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	19.9	<12.0	<12.0	<12.0	<12.0
Anthracene	120-12-7	E649/BU	2.0	ng/sampl e	67.9	<12.0	<12.0	<12.0	<12.0	121	<12.0	<12.0	<12.0	69.4
Benz(a)anthracene	56-55-3	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	35.1	<12.0	<12.0	<12.0	<12.0
Benz(b)anthracene + Chrysene + Triphenylene	n/a	E649/BU	2.0	ng/sampl e	21.3	<12.0	<12.0	<12.0	<12.0	183	<12.0	<12.0	<12.0	24.8
Benzo(a)fluorene	238-84-6	E649/BU	2.0	ng/sampl e	21.3	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	12.7
Benzo(a)pyrene	50-32-8	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	17.5	<12.0	<12.0	<12.0	<12.0
Benzo(b)fluoranthene	205-99-2	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	24.0	<12.0	<12.0	<12.0	<12.0
Benzo(b)fluorene	243-17-4	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Benzo(e)pyrene	192-97-2	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	35.4	<12.0	<12.0	<12.0	<12.0
Benzo(g,h,i)perylene	191-24-2	E649/BU	2.0	ng/sampl e	<12.0	<12.0	15.9	<12.0	<12.0	21.8	<12.0	<12.0	<12.0	<12.0
Benzo(j+k)fluoranthenes	n/a	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	22.7	<12.0	<12.0	<12.0	<12.0
Biphenyl	92-52-4	E649/BU	2.0	ng/sampl e	191	27.5 ^[B]	42.4 ^[B]	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	69.7 ^[B]
Chloronaphthalene, 2-	91-58-7	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Coronene	191-07-1	E649/BU	10	ng/sampl e	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dibenz(a,c+a,h)anthracenes	n/a	E649/BU	2.0	ng/sampl e	<12.0	<12.0	<12.0	<12.0	<12.0	14.1	<12.0	<12.0	<12.0	<12.0
Dibenzo(a,e)pyrene	192-65-4	E649/BU	10	ng/sampl e	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dimethylanthracene, 9,10-	781-43-1	E649/BU	2.0	ng/sampl e	42.5	<12.0	<12.0	<12.0	<12.0	12.7	<12.0	43.2	<12.0	<12.0



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		Client sampling date / time						
Analyte	CAS Number	Method/Lab	LOR	Unit	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	25-2049-SVOC-(6 thru 10) Test #2 #1 APC Outlet	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	25-2049-SVOC-(16 thru 20) Blank	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	
Polycyclic Aromatic Hydrocarbons										
Dimethylbenz(a)anthracene, 7,12-	57-97-6	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	
Fluoranthene	206-44-0	E649/BU	2.0	ng/sample	471	36.1	285	<12.0	337	
Fluorene	86-73-7	E649/BU	2.0	ng/sample	30.6	13.8	492	<12.0	30.2	
Indeno(1,2,3-c,d)pyrene	193-39-5	E649/BU	2.0	ng/sample	<12.0	<12.0	16.0	<12.0	<12.0	
Methylanthracene, 2-	613-12-7	E649/BU	2.0	ng/sample	174	12.9	321	<12.0	174	
Methylcholanthrene, 3-	56-49-5	E649/BU	10	ng/sample	<12	<12	<12	<12	<12	
Methylnaphthalene, 1-	90-12-0	E649/BU	2.0	ng/sample	28.6	18.6	27.3	<12.0	19.8	
Methylnaphthalene, 2-	91-57-6	E649/BU	2.0	ng/sample	55.1	36.3	57.7	13.2	37.9	
Methylphenanthrene, 1-	832-69-9	E649/BU	2.0	ng/sample	180	<12.0	75.3	<12.0	180	
Methylphenanthrene, 9-	883-20-5	E649/BU	2.0	ng/sample	403	34.5	301	<12.0	427	
Naphthalene	91-20-3	E649/BU	2.0	ng/sample	224 ^[B]	192 ^[B]	183 ^[B]	121 ^[B]	166 ^[B]	
Perylene	198-55-0	E649/BU	2.0	ng/sample	<12.0	<12.0	13.8	<12.0	<12.0	
Phenanthrene	85-01-8	E649/BU	2.0	ng/sample	2170	153 ^[B]	885	13.6 ^[B]	2540	
Picene	213-46-7	E649/BU	10	ng/sample	<12	<12	<12	<12	<12	
Pyrene	129-00-0	E649/BU	2.0	ng/sample	338	36.2	164	<12.0	221	
Terphenyl, m-	92-06-8	E649/BU	2.0	ng/sample	28.1	<12.0	90.0	<12.0	19.7	
Terphenyl, o-	84-15-1	E649/BU	2.0	ng/sample	30.3	<12.0	<12.0	<12.0	28.4	
Terphenyl, p-	92-94-4	E649/BU	2.0	ng/sample	<12.0	<12.0	15.5	<12.0	<12.0	
Tetralin	119-64-2	E649/BU	2.0	ng/sample	63.6 ^[B]	59.5 ^[B]	47.3 ^[B]	50.9 ^[B]	49.7 ^[B]	



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID			Client sampling date / time							
AnalYTE	CAS Number	Method/Lab	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	
Polycyclic Aromatic Hydrocarbons Surrogates												
Acenaphthylene-d8	93951-97-4	E649/BU	2.0	%	72.9	93.9	94.3	76.1	85.9			
Anthracene-d10	1719-06-8	E649/BU	2.0	%	58.9	84.6	78.5	79.7	67.4			
Benz(a)anthracene-d12	1718-53-2	E649/BU	2.0	%	98.9	121	142	118	119			
Benzo(a)pyrene-d12	63466-71-7	E649/BU	2.0	%	63.6	93.5	86.6	73.4	75.8			
Benzo(b)fluoranthene-d12	93951-98-5	E649/BU	2.0	%	93.3	103	125	92.7	112			
Benzo(g,h,i)perylene-d12	93951-66-7	E649/BU	2.0	%	79.8	87.6	89.1	84.2	90.1			
Benzo(k)fluoranthene-d12	93952-01-3	E649/BU	2.0	%	86.1	91.2	98.8	85.9	99.3			
Chrysene-d12	1719-03-5	E649/BU	2.0	%	84.1	91.4	107	97.2	96.2			
Dibenz(a,h)anthracene-d14	13250-98-1	E649/BU	2.0	%	79.0	91.4	95.6	82.3	93.8			
Fluoranthene-d10	93951-69-0	E649/BU	2.0	%	97.4	102	113	98.7	106			
Fluorene-d10	81103-79-9	E649/BU	2.0	%	65.0	71.3	64.7	68.5	59.8			
Indeno(1,2,3-cd)pyrene-d12	203578-33-0	E649/BU	2.0	%	78.1	86.8	88.8	79.7	89.3			
Methylnaphthalene-d10, 1-	38072-94-5	E649/BU	2.0	%	64.6	63.3	63.2	63.7	59.0			
Methylnaphthalene-d10, 2-	38072-94-5	E649/BU	2.0	%	83.8	86.6	94.4	84.3	89.4			
Naphthalene-d8	1146-65-2	E649/BU	2.0	%	90.7	92.6	98.6	90.2	96.3			
Perylene-d12	1520-96-3	E649/BU	2.0	%	65.3	91.5	80.0	72.8	80.6			
Phenanthrene-d10	1517-22-2	E649/BU	2.0	%	86.5	89.8	99.4	88.5	92.3			
Terphenyl-d14, p-	1718-51-0	E649/BU	2.0	%	55.8	56.4	56.3	54.2	55.8			
Chlorinated Benzenes												
Chlorobenzene	108-90-7	E650/BU	2.0	ng/sample	1250	1430	1020	48.9	989			
Dichlorobenzene, 1,2-	95-50-1	E650/BU	2.0	ng/sample	188	179	139	<12.0	168			



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		Client sampling date / time						25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet		25-2049-SVOC-(6 thru 10) Test #2 #1 APC Outlet		25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet		25-2049-SVOC-(16 thru 20) Blank		25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorinated Benzenes																			
Dichlorobenzene, 1,3-	541-73-1	E650/BU	2.0	ng/sample	261	251	207	<12.0	<12.0	220									
Dichlorobenzene, 1,4-	106-46-7	E650/BU	2.0	ng/sample	162	146	130	<12.0	14.3	150									
Hexachlorobenzene	118-74-1	E650/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0									
Pentachlorobenzene	608-93-5	E650/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0									
Tetrachlorobenzene, 1,2,3,4-	634-66-2	E650/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0									
Tetrachlorobenzene, 1,2,3,5- + 1,2,4,5-	----	E650/BU	2.0	ng/sample	12.3	<12.0	<12.0	<12.0	<12.0	12.8									
Trichlorobenzene, 1,2,3-	87-61-6	E650/BU	2.0	ng/sample	19.4	16.8	14.0	<12.0	<12.0	22.2									
Trichlorobenzene, 1,2,4-	120-82-1	E650/BU	2.0	ng/sample	48.2	47.9	38.6	<12.0	<12.0	47.8									
Trichlorobenzene, 1,3,5-	108-70-3	E650/BU	2.0	ng/sample	26.7	22.1	20.3	<12.0	<12.0	26.0									
Chlorinated Benzenes Surrogates																			
Chlorobenzene-13C6	287389-52-0	E650/BU	2.0	%	28.8	29.7	27.2	23.8	29.1										
Dichlorobenzene-13C6, 1,4-	----	E650/BU	2.0	%	36.1	40.4	36.7	28.4 SDI	36.0										
Hexachlorobenzene-13C6	----	E650/BU	2.0	%	51.8	59.3	50.1	38.3 SDI	49.1 SDI										
Pentachlorobenzene-13C6	----	E650/BU	2.0	%	48.9 SDI	54.4	49.4 SDI	39.0 SDI	44.7 SDI										
Tetrachlorobenzene-13C6, 1,2,3,4-	----	E650/BU	2.0	%	42.0 SDI	46.6 SDI	42.0 SDI	33.2 SDI	41.0 SDI										
Trichlorobenzene-13C6, 1,2,3-	----	E650/BU	2.0	%	38.8 SDI	43.9 SDI	39.7 SDI	29.3 SDI	38.8 SDI										
Chlorinated Phenolics																			
Chlorophenol, 2-	95-57-8	E651L/BU	10	ng/sample	<60	<60	<60	<60	<60										
Chlorophenol, 3+4-	n/a	E651L/BU	10	ng/sample	<60	<60	<60	<60	<60										



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Analyte		CAS Number	Method/Lab	LOR	Client sample ID		25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	25-2049-SVOC-(6 thru 10) Test #2 #1 APC Outlet	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	25-2049-SVOC-(16 thru 20) Blank	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet
					Unit	Client sampling date / time	Result	Result	Result	Result	Result
Chlorinated Phenolics											
Dichlorophenol, 2,3-		576-24-9	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Dichlorophenol, 2,4- + 2,5-		----	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Dichlorophenol, 2,6-		87-65-0	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Dichlorophenol, 3,4-		95-77-2	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Dichlorophenol, 3,5-		591-35-5	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Hexachlorophene		70-30-4	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Pentachlorophenol		87-86-5	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Tetrachlorophenol, 2,3,4,5- + 2,3,4,6-		n/a	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Tetrachlorophenol, 2,3,5,6-		935-95-5	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Trichlorophenol, 2,3,4-		15950-66-0	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Trichlorophenol, 2,3,5-		933-78-8	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Trichlorophenol, 2,3,6-		933-75-5	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Trichlorophenol, 2,4,5-		95-95-4	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Trichlorophenol, 2,4,6-		88-06-2	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Trichlorophenol, 3,4,5-		609-19-8	E651L/BU	10	ng/sample		<60	<60	<60	<60	<60
Chlorinated Phenolics Surrogates											
Chlorophenol-13C6, 4-		n/a	E651L/BU	10	%		21.1 SDI	34.0 SDI	44.5 SDI	51.6	12.8 SDI
Dichlorophenol-13C6, 2,4-		n/a	E651L/BU	10	%		50.6	60.6	55.7	20.1 SDI	19.4 SDI
Pentachlorophenol-13C6		85380-74-1	E651L/BU	10	%		35.6 SDI	51.3	37.8 SDI	34.7 SDI	24.5 SDI

**Sub-Matrix: Impinger
(Matrix: Air)**

Please refer to the General Comments section for an explanation of any qualifiers detected.

**Sub-Matrix: Impinger
(Matrix: Air)**

Page: 8 of 13



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		25-2049-SVOC-(26 thru 35) Test #2 #2 APC Outlet		25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet							
Analyte		CAS Number		Method/Lab		LOR		Unit		Result		Result	
Polycyclic Aromatic Hydrocarbons													
Benzo(g,h,i)perylene	191-24-2	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Benzo(j+k)fluoranthenes	n/a	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Biphenyl	92-52-4	E649/BU	2.0	ng/sample	72.8 [B]	41.2 [B]	41.2 [B]	41.2 [B]	41.2 [B]	41.2 [B]	41.2 [B]	41.2 [B]	41.2 [B]
Chloronaphthalene, 2-	91-58-7	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Coronene	191-07-1	E649/BU	10	ng/sample	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dibenz(a,c+a,h)anthracenes	n/a	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Dibenzo(a,e)pyrene	192-65-4	E649/BU	10	ng/sample	<12	<12	<12	<12	<12	<12	<12	<12	<12
Dimethylantracene, 9,10-	781-43-1	E649/BU	2.0	ng/sample	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6
Dimethylbenz(a)anthracene, 7,12-	57-97-6	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Fluoranthene	206-44-0	E649/BU	2.0	ng/sample	482	482	482	482	482	482	482	482	482
Fluorene	86-73-7	E649/BU	2.0	ng/sample	66.8	66.8	66.8	66.8	66.8	66.8	66.8	66.8	66.8
Indeno(1,2,3-c,d)pyrene	193-39-5	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylantracene, 2-	613-12-7	E649/BU	2.0	ng/sample	300	300	300	300	300	300	300	300	300
Methylcholanthrene, 3-	56-49-5	E649/BU	10	ng/sample	<12	<12	<12	<12	<12	<12	<12	<12	<12
Methylnaphthalene, 1-	90-12-0	E649/BU	2.0	ng/sample	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3
Methylnaphthalene, 2-	91-57-6	E649/BU	2.0	ng/sample	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3	51.3
Methylphenanthrene, 1-	832-69-9	E649/BU	2.0	ng/sample	293	293	293	293	293	293	293	293	293
Methylphenanthrene, 9-	883-20-5	E649/BU	2.0	ng/sample	860	860	860	860	860	860	860	860	860



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID				25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet	25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet				
Client sampling date / time				14-May-2025 00:00	15-May-2025 00:00				
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	Result			
Polycyclic Aromatic Hydrocarbons									
Naphthalene	91-20-3	E649/BU	2.0	ng/sample	189 [B]	206 [B]			
Perylene	198-55-0	E649/BU	2.0	ng/sample	<12.0	<12.0			
Phenanthrene	85-01-8	E649/BU	2.0	ng/sample	2800	1580			
Picene	213-46-7	E649/BU	10	ng/sample	<12	<12			
Pyrene	129-00-0	E649/BU	2.0	ng/sample	338	337			
Terphenyl, m-	92-06-8	E649/BU	2.0	ng/sample	44.6	28.8			
Terphenyl, o-	84-15-1	E649/BU	2.0	ng/sample	29.1	25.7			
Terphenyl, p-	92-94-4	E649/BU	2.0	ng/sample	16.3	<12.0			
Tetralin	119-64-2	E649/BU	2.0	ng/sample	56.0 [B]	62.6 [B]			
Polycyclic Aromatic Hydrocarbons Surrogates									
Acenaphthylene-d8	93951-97-4	E649/BU	2.0	%	92.1	106			
Anthracene-d10	1719-06-8	E649/BU	2.0	%	78.2	81.0			
Benz(a)anthracene-d12	1718-53-2	E649/BU	2.0	%	120	122			
Benzo(a)pyrene-d12	63466-71-7	E649/BU	2.0	%	80.0	87.3			
Benzo(b)fluoranthene-d12	93951-98-5	E649/BU	2.0	%	105	117			
Benzo(g,h,i)perylene-d12	93951-66-7	E649/BU	2.0	%	90.3	93.0			
Benzo(k)fluoranthene-d12	93952-01-3	E649/BU	2.0	%	97.8	96.4			
Chrysene-d12	1719-03-5	E649/BU	2.0	%	98.6	97.6			
Dibenz(a,h)anthracene-d14	13250-98-1	E649/BU	2.0	%	90.7	95.5			



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID				25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet	25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet			
Client sampling date / time										
Analyte	CAS Number	Method/Lab	LOR	Unit	Result		Result			
Polycyclic Aromatic Hydrocarbons Surrogates										
Fluoranthene-d10	93951-69-0	E649/BU	2.0	%	109	112				
Fluorene-d10	81103-79-9	E649/BU	2.0	%	64.0	69.2				
Indeno(1,2,3-cd)pyrene-d12	203578-33-0	E649/BU	2.0	%	89.1	94.6				
Methylnaphthalene-d10, 1-	38072-94-5	E649/BU	2.0	%	64.9	66.8				
Methylnaphthalene-d10, 2-	38072-94-5	E649/BU	2.0	%	84.9	92.2				
Naphthalene-d8	1146-65-2	E649/BU	2.0	%	90.0	97.9				
Perylene-d12	1520-96-3	E649/BU	2.0	%	82.2	88.3				
Phenanthrene-d10	1517-22-2	E649/BU	2.0	%	97.0	90.5				
Terphenyl-d14, p-	1718-51-0	E649/BU	2.0	%	53.3	57.0				
Chlorinated Benzenes										
Chlorobenzene	108-90-7	E650/BU	2.0	ng/sample	1110	1300				
Dichlorobenzene, 1,2-	95-50-1	E650/BU	2.0	ng/sample	170	166				
Dichlorobenzene, 1,3-	541-73-1	E650/BU	2.0	ng/sample	225	232				
Dichlorobenzene, 1,4-	106-46-7	E650/BU	2.0	ng/sample	149	144				
Hexachlorobenzene	118-74-1	E650/BU	2.0	ng/sample	<12.0	<12.0				
Pentachlorobenzene	608-93-5	E650/BU	2.0	ng/sample	<12.0	<12.0				
Tetrachlorobenzene, 1,2,3,4-	634-66-2	E650/BU	2.0	ng/sample	<12.0	<12.0				
Tetrachlorobenzene, 1,2,3,5- + 1,2,4,5-	----	E650/BU	2.0	ng/sample	<12.0	<12.0				
Trichlorobenzene, 1,2,3-	87-61-6	E650/BU	2.0	ng/sample	21.7	17.0				



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)											
Client sample ID											
Client sampling date / time											
Analyte	CAS Number	Method/Lab	LOR	Unit	Result						
					BU2501330-006	BU2501330-007					
Chlorinated Benzenes											
Trichlorobenzene, 1,2,4-	120-82-1	E650/BU	2.0	ng/sample	47.8	43.8					
Trichlorobenzene, 1,3,5-	108-70-3	E650/BU	2.0	ng/sample	21.8	19.3					
Chlorinated Benzenes Surrogates											
Chlorobenzene-13C6	287389-52-0	E650/BU	2.0	%	34.3	27.2					
Dichlorobenzene-13C6, 1,4-		E650/BU	2.0	%	38.3	37.9					
Hexachlorobenzene-13C6		E650/BU	2.0	%	57.2	50.9					
Pentachlorobenzene-13C6		E650/BU	2.0	%	52.6	50.7					
Tetrachlorobenzene-13C6, 1,2,3,4-		E650/BU	2.0	%	44.5 SDI	43.9 SDI					
Trichlorobenzene-13C6, 1,2,3-		E650/BU	2.0	%	42.0 SDI	41.2 SDI					
Chlorinated Phenolics											
Chlorophenol, 2-	95-57-8	E651L/BU	10	ng/sample	<60	<60					
Chlorophenol, 3+4-	n/a	E651L/BU	10	ng/sample	<60	<60					
Dichlorophenol, 2,3-	576-24-9	E651L/BU	10	ng/sample	<60	<60					
Dichlorophenol, 2,4- + 2,5-		E651L/BU	10	ng/sample	<60	<60					
Dichlorophenol, 2,6-	87-65-0	E651L/BU	10	ng/sample	<60	<60					
Dichlorophenol, 3,4-	95-77-2	E651L/BU	10	ng/sample	<60	<60					
Dichlorophenol, 3,5-	591-35-5	E651L/BU	10	ng/sample	<60	<60					
Hexachlorophene	70-30-4	E651L/BU	10	ng/sample	<60	<60					
Pentachlorophenol	87-86-5	E651L/BU	10	ng/sample	<60	<60					



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID		25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet		25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet		25-2049-SVOC-(36 thru 40) Test #4 #2 APC Outlet		25-2049-SVOC-(41 thru 45) Test #5 #2 APC Outlet	
Client sampling date / time											
Analyte	CAS Number	Method/Lab	LOR	Unit	14-May-2025 00:00		15-May-2025 00:00		16-May-2025 00:00		
					BU2501330-006		BU2501330-007		BU2501330-008		
					Result		Result		Result		
Chlorinated Phenolics											
Tetrachlorophenol, 2,3,4,5- + 2,3,4,6-	n/a	E651L/BU	10	ng/sample	<60		<60		<60		
Tetrachlorophenol, 2,3,5,6-	935-95-5	E651L/BU	10	ng/sample	<60		<60		<60		
Trichlorophenol, 2,3,4-	15950-66-0	E651L/BU	10	ng/sample	<60		<60		<60		
Trichlorophenol, 2,3,5-	933-78-8	E651L/BU	10	ng/sample	<60		<60		<60		
Trichlorophenol, 2,3,6-	933-75-5	E651L/BU	10	ng/sample	<60		<60		<60		
Trichlorophenol, 2,4,5-	95-95-4	E651L/BU	10	ng/sample	<60		<60		<60		
Trichlorophenol, 2,4,6-	88-06-2	E651L/BU	10	ng/sample	<60		<60		<60		
Trichlorophenol, 3,4,5-	609-19-8	E651L/BU	10	ng/sample	<60		<60		<60		
Chlorinated Phenolics Surrogates											
Chlorophenol-13C6, 4-	n/a	E651L/BU	10	%	27.1 SDI		30.6 SDI		<60		
Dichlorophenol-13C6, 2,4-	n/a	E651L/BU	10	%	51.6		51.0		<60		
Pentachlorophenol-13C6	85380-74-1	E651L/BU	10	%	29.4 SDI		56.1		<60		
Tetrachlorophenol-13C6, 2,3,4,5-	n/a	E651L/BU	10	%	63.9		54.6		<60		
Trichlorophenol-13C6, 2,4,5-	n/a	E651L/BU	10	%	60.7		57.6		<60		

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: BU2501330	Page	: 1 of 12
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 20-May-2025 12:35
PO	: -----	Issue Date	: 30-Jun-2025 16:21
C-O-C number	: -----		
Sampler	: -----		
Site	: -----		
Quote number	: Reworld		
No. of samples received	: 7		
No. of samples analysed	: 7		

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 Laboratory Control Sample (LCS) outliers occur
- Method Blank value outliers occur - please see following pages for full details.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Air

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Polycyclic Aromatic Hydrocarbons	QC-MRG5-2007944 001	----	Biphenyl	92-52-4	E649	14.9 ^B ng/sampl e	2 ng/sample	Blank result exceeds permitted value
Polycyclic Aromatic Hydrocarbons	QC-MRG5-2007944 001	----	Naphthalene	91-20-3	E649	68.1 ^B ng/sampl e	2 ng/sample	Blank result exceeds permitted value
Polycyclic Aromatic Hydrocarbons	QC-MRG5-2007944 001	----	Phenanthrene	85-01-8	E649	19.7 ^B ng/sampl e	2 ng/sample	Blank result exceeds permitted value
Polycyclic Aromatic Hydrocarbons	QC-MRG5-2007944 001	----	Tetralin	119-64-2	E649	19.7 ^B ng/sampl e	2 ng/sample	Blank result exceeds permitted value

Result Qualifiers

Qualifier

Description

B

Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



Regular Sample Surrogates

Sub-Matrix: Impinger

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Chlorinated Benzenes Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Dichlorobenzene-13C6, 1,4-	----	28.4 %	30.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Hexachlorobenzene-13C6	----	38.3 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Hexachlorobenzene-13C6	----	49.1 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-001	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	Pentachlorobenzene-13C6	----	48.9 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-003	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	Pentachlorobenzene-13C6	----	49.4 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Pentachlorobenzene-13C6	----	39.0 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Pentachlorobenzene-13C6	----	44.7 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-001	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	Tetrachlorobenzene-13C6, 1,2,3,4-	----	42.0 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-002	25-2049-SVOC-(6 thru 10) Test #2 #1 APC Outlet	Tetrachlorobenzene-13C6, 1,2,3,4-	----	46.6 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-003	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	Tetrachlorobenzene-13C6, 1,2,3,4-	----	42.0 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Tetrachlorobenzene-13C6, 1,2,3,4-	----	33.2 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Tetrachlorobenzene-13C6, 1,2,3,4-	----	41.0 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-006	25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet	Tetrachlorobenzene-13C6, 1,2,3,4-	----	44.5 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-007	25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet	Tetrachlorobenzene-13C6, 1,2,3,4-	----	43.9 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-001	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	Trichlorobenzene-13C6, 1,2,3-	----	38.8 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-002	25-2049-SVOC-(6 thru 10) Test #2 #1 APC Outlet	Trichlorobenzene-13C6, 1,2,3-	----	43.9 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-003	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	Trichlorobenzene-13C6, 1,2,3-	----	39.7 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Trichlorobenzene-13C6, 1,2,3-	----	29.3 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Trichlorobenzene-13C6, 1,2,3-	----	38.8 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Benzenes Surrogates	BU2501330-006	25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet	Trichlorobenzene-13C6, 1,2,3-	----	42.0 %	50.0-150 %	Recovery less than lower data quality objective



Sub-Matrix: Impinger

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted - Continued							
Chlorinated Benzenes Surrogates	BU2501330-007	25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet	Trichlorobenzene-13C6, 1,2,3-	---	41.2 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-001	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	Chlorophenol-13C6, 4-	n/a	21.1 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-002	25-2049-SVOC-(6 thru 10) Test #2 #1 APC Outlet	Chlorophenol-13C6, 4-	n/a	34.0 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-003	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	Chlorophenol-13C6, 4-	n/a	44.5 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Chlorophenol-13C6, 4-	n/a	12.8 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-006	25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet	Chlorophenol-13C6, 4-	n/a	27.1 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-007	25-2049-SVOC-(31 thru 35) Test #3 #2 APC Outlet	Chlorophenol-13C6, 4-	n/a	30.6 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Dichlorophenol-13C6, 2,4-	n/a	20.1 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Dichlorophenol-13C6, 2,4-	n/a	19.4 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-001	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	Pentachlorophenol-13C6	85380-74-1	35.6 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-003	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	Pentachlorophenol-13C6	85380-74-1	37.8 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Pentachlorophenol-13C6	85380-74-1	34.7 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Pentachlorophenol-13C6	85380-74-1	24.5 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-006	25-2049-SVOC-(26 thru 30) Test #2 #2 APC Outlet	Pentachlorophenol-13C6	85380-74-1	29.4 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-003	25-2049-SVOC-(11 thru 15) Test #3 #1 APC Outlet	Tetrachlorophenol-13C6, 2,3,4,5-	n/a	45.0 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-001	25-2049-SVOC-(1 thru 5) Test #1 #1 APC Outlet	Trichlorophenol-13C6, 2,4,5-	n/a	43.3 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-004	25-2049-SVOC-(16 thru 20) Blank	Trichlorophenol-13C6, 2,4,5-	n/a	42.3 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2501330-005	25-2049-SVOC-(21 thru 25) Test #1 #2 APC Outlet	Trichlorophenol-13C6, 2,4,5-	n/a	36.2 %	50.0-150 %	Recovery less than lower data quality objective



Page : 6 of 12
Work Order : BU2501330
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		
					Rec	Actual				Rec	Actual
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(11 thru 15) Test #3 - #1 APC Outlet		E650	15-May-2025	22-May-2025	14 days	8 days	✓	25-Jun-2025	40 days	34 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(31 thru 35) Test #3 - #2 APC Outlet		E650	15-May-2025	22-May-2025	14 days	8 days	✓	25-Jun-2025	40 days	34 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(1 thru 5) Test #1 - #1 APC Outlet		E650	14-May-2025	22-May-2025	14 days	9 days	✓	25-Jun-2025	40 days	34 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(16 thru 20) Blank		E650	14-May-2025	22-May-2025	14 days	9 days	✓	25-Jun-2025	40 days	34 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(21 thru 25) Test #1 - #2 APC Outlet		E650	14-May-2025	22-May-2025	14 days	9 days	✓	25-Jun-2025	40 days	34 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(26 thru 30) Test #2 - #2 APC Outlet		E650	14-May-2025	22-May-2025	14 days	9 days	✓	25-Jun-2025	40 days	34 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(6 thru 10) Test #2 - #1 APC Outlet		E650	14-May-2025	22-May-2025	14 days	9 days	✓	25-Jun-2025	40 days	34 days	✓



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Work Order : BU2501330
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		
					Rec	Actual		Rec	Actual	Eval	
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(11 thru 15) Test #3 - #1 APC Outlet		E651L	15-May-2025	22-May-2025	14 days	8 days	✓	26-Jun-2025	14 days	8 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(31 thru 35) Test #3 - #2 APC Outlet		E651L	15-May-2025	22-May-2025	14 days	8 days	✓	26-Jun-2025	14 days	8 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(1 thru 5) Test #1 - #1 APC Outlet		E651L	14-May-2025	22-May-2025	14 days	9 days	✓	26-Jun-2025	14 days	9 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(16 thru 20) Blank		E651L	14-May-2025	22-May-2025	14 days	9 days	✓	26-Jun-2025	14 days	9 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(21 thru 25) Test #1 - #2 APC Outlet		E651L	14-May-2025	22-May-2025	14 days	9 days	✓	26-Jun-2025	14 days	9 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(26 thru 30) Test #2 - #2 APC Outlet		E651L	14-May-2025	22-May-2025	14 days	9 days	✓	26-Jun-2025	14 days	9 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(6 thru 10) Test #2 - #1 APC Outlet		E651L	14-May-2025	22-May-2025	14 days	9 days	✓	26-Jun-2025	14 days	9 days	✗ EHT
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap 25-2049-SVOC-(11 thru 15) Test #3 - #1 APC Outlet		E770	15-May-2025	22-May-2025	30 days	8 days	✓	30-May-2025	30 days	8 days	✓
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap 25-2049-SVOC-(31 thru 35) Test #3 - #2 APC Outlet		E770	15-May-2025	22-May-2025	30 days	8 days	✓	30-May-2025	30 days	8 days	✓



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Work Order : BU2501330
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual		Rec	Actual		
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(1 thru 5) Test #1 - #1 APC Outlet	E770	14-May-2025	22-May-2025	30 days	9 days	✓	30-May-2025	30 days	9 days	✓
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(16 thru 20) Blank	E770	14-May-2025	22-May-2025	30 days	9 days	✓	30-May-2025	30 days	9 days	✓
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(21 thru 25) Test #1 - #2 APC Outlet	E770	14-May-2025	22-May-2025	30 days	9 days	✓	30-May-2025	30 days	9 days	✓
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(26 thru 30) Test #2 - #2 APC Outlet	E770	14-May-2025	22-May-2025	30 days	9 days	✓	30-May-2025	30 days	9 days	✓
Dioxins and Furans : Dioxins and Furans in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(6 thru 10) Test #2 - #1 APC Outlet	E770	14-May-2025	22-May-2025	30 days	9 days	✓	30-May-2025	30 days	9 days	✓
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(11 thru 15) Test #3 - #1 APC Outlet	E781	15-May-2025	22-May-2025	365 days	8 days	✓	05-Jun-2025	365 days	8 days	✓
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(31 thru 35) Test #3 - #2 APC Outlet	E781	15-May-2025	22-May-2025	365 days	8 days	✓	05-Jun-2025	365 days	8 days	✓
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(1 thru 5) Test #1 - #1 APC Outlet	E781	14-May-2025	22-May-2025	365 days	9 days	✓	05-Jun-2025	365 days	9 days	✓
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap	25-2049-SVOC-(16 thru 20) Blank	E781	14-May-2025	22-May-2025	365 days	9 days	✓	05-Jun-2025	365 days	9 days	✓



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Work Order : BU2501330
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air											
Analyte Group : Analytical Method				Extraction / Preparation			Analysis				
Container / Client Sample ID(s)				Sampling Date	Method	Preparation Date	Holding Times		Analysis Date	Holding Times	
							Rec	Actual		Rec	Actual
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap 25-2049-SVOC-(21 thru 25) Test #1 - #2 APC Outlet				14-May-2025	E781	22-May-2025	365 days	9 days	05-Jun-2025	365 days	9 days
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap 25-2049-SVOC-(26 thru 30) Test #2 - #2 APC Outlet				14-May-2025	E781	22-May-2025	365 days	9 days	05-Jun-2025	365 days	9 days
Polychlorinated Biphenyls : PCBs in Stack by GC/HRMS											
XAD Sorbent Trap 25-2049-SVOC-(6 thru 10) Test #2 - #1 APC Outlet				14-May-2025	E781	22-May-2025	365 days	9 days	05-Jun-2025	365 days	9 days
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(11 thru 15) Test #3 - #1 APC Outlet				15-May-2025	E649	22-May-2025	21 days	8 days	20-Jun-2025	40 days	29 days
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(31 thru 35) Test #3 - #2 APC Outlet				15-May-2025	E649	22-May-2025	21 days	8 days	20-Jun-2025	40 days	29 days
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(1 thru 5) Test #1 - #1 APC Outlet				14-May-2025	E649	22-May-2025	21 days	9 days	20-Jun-2025	40 days	29 days
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(16 thru 20) Blank				14-May-2025	E649	22-May-2025	21 days	9 days	20-Jun-2025	40 days	29 days
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(21 thru 25) Test #1 - #2 APC Outlet				14-May-2025	E649	22-May-2025	21 days	9 days	20-Jun-2025	40 days	29 days
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap 25-2049-SVOC-(26 thru 30) Test #2 - #2 APC Outlet				14-May-2025	E649	22-May-2025	21 days	9 days	20-Jun-2025	40 days	29 days



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Work Order : BU2501330
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Matrix: Air										
Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time										
Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS										
XAD Sorbent Trap		E649	14-May-2025	22-May-2025	21 days	9 days	✔	20-Jun-2025	40 days	29 days
25-2049-SVOC-(6 thru 10) Test #2 - #1 APC Outlet										

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.
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		Method	QC Lot #	Count		Frequency (%)		Evaluation
Analytical Methods				QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)								
Chlorophenols in Stack by GC-MS		E651L	2007947	0	7	0.0	5.0	✖
Laboratory Control Samples (LCS)								
PAHs - Extended List in Stack by GC-MS		E649	2007944	1	7	14.2	5.0	✓
Chlorobenzenes in Stack by GC-MS		E650	2073619	1	7	14.2	5.0	✓
Chlorophenols in Stack by GC-MS		E651L	2007947	1	7	14.2	5.0	✓
Method Blanks (MB)								
PAHs - Extended List in Stack by GC-MS		E649	2007944	1	7	14.2	5.0	✓
Chlorobenzenes in Stack by GC-MS		E650	2073619	1	7	14.2	5.0	✓
Chlorophenols in Stack by GC-MS		E651L	2007947	1	7	14.2	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 Descriptions
PAHs - Extended List in Stack by GC-MS	ALS Environmental - Burlington	E649	Air	Modified CARB 429	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by GC-MS.
		E650		EPA Method 8270E	Sample extracts are analyzed for chlorobenzene analytes using selected ion monitoring (SIM) by GC-MS, using isotope dilution.
		E651L		EPA Method 8270E	The sample is extracted by liquid/liquid extraction using dichloromethane. The extract is then derivatized, the acetate derivatives are prepared using column chromatography, reduced in volume and analyzed using selected ion monitoring (SIM) by GC-MS, using isotope dilution.
		E770		USEPA M23	Determination of POLYCHLORINATED DIBENZO-P-DIOXINS and POLYCHLORINATED DIBENZOFURANS from stationary sources.
PCBs in Stack by GC/HRMS	ALS Environmental - Burlington	E781	Air	EPA 1668C	The sample is extracted by Soxhlet extraction. The extracts are prepared using column chromatography, reduced in volume and analyzed by isotope-dilution GC/HRMS
Preparation Methods		Method / Lab	Matrix	Method Reference	Method Descriptions
Extraction (Soxhlet and liquid-liquid) of Stack for Organic Analytes	EP800	ALS Environmental - Burlington	Air	EPA Method 3540C (Soxhlet) and EPA Method 3510C (L-L)	Samples are extracted with Soxhlet and/or separatory funnel apparatus, followed by appropriate cleanup.



QUALITY CONTROL REPORT

Work Order	: BU2501330		Page	: 1 of 7
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 20-May-2025 12:35	
PO	: ----	Date Analysis Commenced	: 22-May-2025	
C-O-C number	: ----	Issue Date	: 30-Jun-2025 16:22	
Sampler	: ----			
Site	: ----			
Quote number	: Reworld			
No. of samples received	: 7			
No. of samples analysed	: 7			

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:

- 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
Andrew Reid	Analyst	Burlington Organics, Burlington, Ontario
Philip Elder	Technical Manager	Burlington Organics, Burlington, Ontario
Sabrina Jin	Analyst	Burlington Organics, Burlington, Ontario
Stephen Kennedy	Department Manager - Organics	Burlington Organics, Burlington, Ontario



Page : 2 of 7
Work Order : BU2501330
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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.



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
Polycyclic Aromatic Hydrocarbons (QCLot: 2007944)						
Acenaphthene	83-32-9	E649	2	ng/sample	<12.0	---
Acenaphthylene	208-96-8	E649	2	ng/sample	<12.0	---
Anthracene	120-12-7	E649	2	ng/sample	<12.0	---
Benz(a)anthracene	56-55-3	E649	2	ng/sample	<12.0	---
Benz(b)anthracene + Chrysene + Triphenylene	n/a	E649	2	ng/sample	<12.0	---
Benzo(a)fluorene	238-84-6	E649	2	ng/sample	<12.0	---
Benzo(a)pyrene	50-32-8	E649	2	ng/sample	<12.0	---
Benzo(b)fluoranthene	205-99-2	E649	2	ng/sample	<12.0	---
Benzo(b)fluorene	243-17-4	E649	2	ng/sample	<12.0	---
Benzo(e)pyrene	192-97-2	E649	2	ng/sample	<12.0	---
Benzo(g,h,i)perylene	191-24-2	E649	2	ng/sample	<12.0	---
Benzo(j+k)fluoranthenes	n/a	E649	2	ng/sample	<12.0	---
Biphenyl	92-52-4	E649	2	ng/sample	# 14.9	B
Chloronaphthalene, 2-	91-58-7	E649	2	ng/sample	<12.0	---
Coronene	191-07-1	E649	10	ng/sample	<12	---
Dibenz(a,c+h)anthracenes	n/a	E649	2	ng/sample	<12.0	---
Dibenzo(a,e)pyrene	192-85-4	E649	10	ng/sample	<12	---
Dimethylantracene, 9,10-	781-43-1	E649	2	ng/sample	<12.0	---
Dimethylbenz(a)anthracene, 7,12-	57-97-6	E649	2	ng/sample	<2.0	---
Fluoranthene	206-44-0	E649	2	ng/sample	<12.0	---
Fluorene	86-73-7	E649	2	ng/sample	<12.0	---
Indeno(1,2,3-c,d)pyrene	193-39-5	E649	2	ng/sample	<12.0	---
Methylantracene, 2-	613-12-7	E649	2	ng/sample	<12.0	---
Methylcholanthrene, 3-	56-49-5	E649	10	ng/sample	<12	---
Methylnaphthalene, 1-	90-12-0	E649	2	ng/sample	<12.0	---
Methylnaphthalene, 2-	91-57-6	E649	2	ng/sample	<12.0	---
Methylphenanthrene, 1-	832-69-9	E649	2	ng/sample	<12.0	---
Methylphenanthrene, 9-	883-20-5	E649	2	ng/sample	<12.0	---
Naphthalene	91-20-3	E649	2	ng/sample	# 68.1	B
Perylene	198-55-0	E649	2	ng/sample	<12.0	---
Phenanthrene	85-01-8	E649	2	ng/sample	# 19.7	B
Picene	213-46-7	E649	10	ng/sample	<12	---



Sub-Matrix: Air

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 2007944) - continued						
Pyrene	129-00-0	E649	2	ng/sample	<12.0	---
Terphenyl, m-	92-06-8	E649	2	ng/sample	<12.0	---
Terphenyl, o-	84-15-1	E649	2	ng/sample	<12.0	---
Terphenyl, p-	92-94-4	E649	2	ng/sample	<12.0	---
Tetralin	119-64-2	E649	2	ng/sample	# 19.7	B
Chlorinated Benzenes (QCLot: 2073619)						
Chlorobenzene	108-90-7	E650	2	ng/sample	<12.0	---
Dichlorobenzene, 1,2-	95-50-1	E650	2	ng/sample	<12.0	---
Dichlorobenzene, 1,3-	541-73-1	E650	2	ng/sample	<12.0	---
Dichlorobenzene, 1,4-	106-46-7	E650	2	ng/sample	<12.0	---
Hexachlorobenzene	118-74-1	E650	2	ng/sample	<12.0	---
Pentachlorobenzene	608-93-5	E650	2	ng/sample	<12.0	---
Tetrachlorobenzene, 1,2,3,4-	634-56-2	E650	2	ng/sample	<12.0	---
Tetrachlorobenzene, 1,2,3,5- + 1,2,4,5-	----	E650	2	ng/sample	<12.0	---
Trichlorobenzene, 1,2,3-	87-61-6	E650	2	ng/sample	<12.0	---
Trichlorobenzene, 1,2,4-	120-82-1	E650	2	ng/sample	<12.0	---
Trichlorobenzene, 1,3,5-	108-70-3	E650	2	ng/sample	<12.0	---
Chlorinated Phenolics (QCLot: 2007947)						
Chlorophenol, 2-	95-57-8	E651L	10	ng/sample	<60	---
Chlorophenol, 3+4-	n/a	E651L	10	ng/sample	<60	---
Dichlorophenol, 2,3-	576-24-9	E651L	10	ng/sample	<60	---
Dichlorophenol, 2,4- + 2,5-	----	E651L	10	ng/sample	<60	---
Dichlorophenol, 2,6-	87-65-0	E651L	10	ng/sample	<60	---
Dichlorophenol, 3,4-	95-77-2	E651L	10	ng/sample	<60	---
Dichlorophenol, 3,5-	591-35-5	E651L	10	ng/sample	<60	---
Hexachlorophene	70-30-4	E651L	10	ng/sample	<60	---
Pentachlorophenol	87-86-5	E651L	10	ng/sample	<60	---
Tetrachlorophenol, 2,3,4,5- + 2,3,4,6-	n/a	E651L	10	ng/sample	<60	---
Tetrachlorophenol, 2,3,5,6-	935-95-5	E651L	10	ng/sample	<60	---
Trichlorophenol, 2,3,4-	15950-66-0	E651L	10	ng/sample	<60	---
Trichlorophenol, 2,3,5-	933-78-8	E651L	10	ng/sample	<60	---
Trichlorophenol, 2,3,6-	933-75-5	E651L	10	ng/sample	<60	---
Trichlorophenol, 2,4,5-	95-95-4	E651L	10	ng/sample	<60	---
Trichlorophenol, 2,4,6-	88-06-2	E651L	10	ng/sample	<60	---
Trichlorophenol, 3,4,5-	609-19-8	E651L	10	ng/sample	<60	---



Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



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

Sub-Matrix: Air									
Laboratory Control Sample (LCS) Report									
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	Recovery Limits (%)		Qualifier	
						Recovery (%)	Recovery Limits (%)		
Polycyclic Aromatic Hydrocarbons (QCLot: 2007944)									
Acenaphthene	83-32-9	E649	2	ng/sample	600 ng/sample	118	50.0	150	-----
Acenaphthylene	208-96-8	E649	2	ng/sample	600 ng/sample	114	50.0	150	-----
Anthracene	120-12-7	E649	2	ng/sample	600 ng/sample	116	50.0	150	-----
Benz(a)anthracene	56-55-3	E649	2	ng/sample	600 ng/sample	123	50.0	150	-----
Benz(b)anthracene + Chrysene + Triphenylene	n/a	E649	2	ng/sample	600 ng/sample	114	50.0	150	-----
Benzo(a)pyrene	50-32-8	E649	2	ng/sample	600 ng/sample	116	50.0	150	-----
Benzo(b)fluoranthene	205-99-2	E649	2	ng/sample	600 ng/sample	110	50.0	150	-----
Benzo(e)pyrene	192-97-2	E649	2	ng/sample	600 ng/sample	122	50.0	150	-----
Benzo(g,h,i)perylene	191-24-2	E649	2	ng/sample	600 ng/sample	111	50.0	150	-----
Benzo(j+k)fluoranthenes	n/a	E649	2	ng/sample	600 ng/sample	126	50.0	150	-----
Biphenyl	92-52-4	E649	2	ng/sample	600 ng/sample	130	50.0	150	-----
Coronene	191-07-1	E649	10	ng/sample	600 ng/sample	116	50.0	150	-----
Dibenz(a,c,h)anthracenes	n/a	E649	2	ng/sample	600 ng/sample	118	50.0	150	-----
Fluoranthene	206-44-0	E649	2	ng/sample	600 ng/sample	116	50.0	150	-----
Fluorene	86-73-7	E649	2	ng/sample	600 ng/sample	128	50.0	150	-----
Indeno(1,2,3-c,d)pyrene	193-39-5	E649	2	ng/sample	600 ng/sample	114	50.0	150	-----
Methylnaphthalene, 1-	90-12-0	E649	2	ng/sample	600 ng/sample	121	50.0	150	-----
Methylnaphthalene, 2-	91-57-6	E649	2	ng/sample	600 ng/sample	120	50.0	150	-----
Methylphenanthrene, 1-	832-69-9	E649	2	ng/sample	600 ng/sample	116	50.0	150	-----
Naphthalene	91-20-3	E649	2	ng/sample	600 ng/sample	126	50.0	150	-----
Perylene	198-55-0	E649	2	ng/sample	600 ng/sample	117	50.0	150	-----
Phenanthrene	85-01-8	E649	2	ng/sample	600 ng/sample	123	50.0	150	-----
Pyrene	129-00-0	E649	2	ng/sample	600 ng/sample	109	50.0	150	-----
Chlorinated Benzenes (QCLot: 2073619)									
Dichlorobenzene, 1,2-	95-50-1	E650	2	ng/sample	300 ng/sample	114	50.0	150	-----
Dichlorobenzene, 1,3-	541-73-1	E650	2	ng/sample	300 ng/sample	128	50.0	150	-----
Dichlorobenzene, 1,4-	106-46-7	E650	2	ng/sample	300 ng/sample	99.0	50.0	150	-----
Hexachlorobenzene	118-74-1	E650	2	ng/sample	300 ng/sample	112	50.0	150	-----
Pentachlorobenzene	608-93-5	E650	2	ng/sample	300 ng/sample	113	50.0	150	-----
Tetrachlorobenzene, 1,2,3,4-	634-66-2	E650	2	ng/sample	300 ng/sample	124	50.0	150	-----
Tetrachlorobenzene, 1,2,3,5- + 1,2,4,5-	----	E650	2	ng/sample	600 ng/sample	120	50.0	150	-----
Trichlorobenzene, 1,2,3-	87-61-6	E650	2	ng/sample	300 ng/sample	94.6	50.0	150	-----



Sub-Matrix: Air

						Laboratory Control Sample (LCS) Report			
						Spike	Recovery (%)	Recovery Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Chlorinated Benzenes (QCLot: 2073619) - continued									
Trichlorobenzene, 1,2,4-	120-82-1	E650	2	ng/sample	300 ng/sample	77.4	50.0	150	-----
Trichlorobenzene, 1,3,5-	108-70-3	E650	2	ng/sample	300 ng/sample	92.9	50.0	150	-----
Chlorinated Phenolics (QCLot: 2007947)									
Chlorophenol, 2-	95-57-8	E651L	10	ng/sample	1200 ng/sample	94.5	50.0	150	-----
Dichlorophenol, 2,4- + 2,5-	-----	E651L	10	ng/sample	1200 ng/sample	101	50.0	150	-----
Dichlorophenol, 2,6-	87-65-0	E651L	10	ng/sample	1200 ng/sample	88.6	50.0	150	-----
Pentachlorophenol	87-86-5	E651L	10	ng/sample	1200 ng/sample	97.4	50.0	150	-----
Tetrachlorophenol, 2,3,4,5- + 2,3,4,6-	n/a	E651L	10	ng/sample	2400 ng/sample	90.6	50.0	150	-----
Tetrachlorophenol, 2,3,5,6-	935-95-5	E651L	10	ng/sample	1200 ng/sample	83.4	50.0	150	-----
Trichlorophenol, 2,4,5-	95-95-4	E651L	10	ng/sample	1200 ng/sample	137	50.0	150	-----
Trichlorophenol, 2,4,6-	88-06-2	E651L	10	ng/sample	1200 ng/sample	142	50.0	150	-----

APPENDIX 16

Acid Gas Recovery Data Sheets (7 pages)

Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: MAY 12 / 25

Test No.: 1

Test Location: UNIT 1

Filter is used but not
recovered as sample

Impingers 1, 2, 3

	Impinger #1 0.1 N H₂SO₄
	Empty Wt: 662.3
	Initial Wt: 763.0
	Final Wt: 839.5
1	Gain: 76.5
	Colour: Clear

	Impinger #2 0.1 N H₂SO₄
	Empty Wt: 647.7
	Initial Wt: 748.0
	Final Wt: 791.8
2	Gain: 43.8
	Colour: Clear

	Impinger #3 EMPTY
	Empty Wt: 509.8
	Final Wt: 516.1
3	Gain: 6.3
	Colour: Clear

	CONTAINER TS3 WEIGHTS
	Empty Wt: 279.5
	With Imp. 1,2,3 Soln: 602.0
	After Rinse: 732.0
	Total TS3: 452.5

Impinger 4

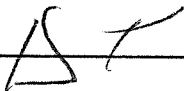
	Impinger #4 Silica Gel
	Initial Wt: 947.4
	Final Wt: 963.8
4	Gain: 16.4

Box ID: _____

Total Moisture Gain

1+2+3+4: 143.0

SAMPLE ID: 25-2049-M26A- /

Train Loaded By: 

Train Recovered By: _____

Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: MAY 12/25

Test No.: 2

Test Location: UNIT 1

Filter is used but not
recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H₂SO₄

Empty Wt: 665.5

Initial Wt: 764.0

Final Wt: 889.0

1 Gain: 125.0

Colour: clear

Impinger #2 0.1 N H₂SO₄

Empty Wt: 654.5

Initial Wt: 753.5

Final Wt: 783.0

2 Gain: 29.5

Colour: clear

Impinger #3 EMPTY

Empty Wt: 614.0

Final Wt: 617.5

3 Gain: 3.5

Colour: clear

CONTAINER TS3 WEIGHTS

Empty Wt: 279.0

With Imp. 1,2,3 Soln: 628.5

After Rinse: 725.0

Total TS3: 446.0

Impinger 4

Impinger #4 Silica Gel

Initial Wt: 927.0

Final Wt: 939.5

4 Gain: 12.5

Box ID:

Total Moisture Gain

1+2+3+4: 170.5

SAMPLE ID: 25-2049-M26A- 2

Train Loaded By: ST

Train Recovered By: ST

Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: MAY 13/25

Test No.: 3

Test Location: 41

Filter is used but not
recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H₂SO₄

Empty Wt: 652.3

Initial Wt: 757.0

Final Wt: 882.4

1 Gain: 129.4

Colour: clear

Impinger #2 0.1 N H₂SO₄

Empty Wt: 647.7

Initial Wt: 759.0

Final Wt: 783.0

2 Gain: 24.0

Colour: clear

Impinger #3 EMPTY

Empty Wt: 509.8

Final Wt: 513.2

3 Gain: 3.4

Colour: clear

CONTAINER TS3 WEIGHTS

Empty Wt: 780.0

With Imp. 1,2,3 Soln: 633.8

After Rinse: 748.8

Total TS3: 468.8

Impinger 4

Impinger #4 Silica Gel

Initial Wt: 963.8

Final Wt: 975.2

4 Gain: 11.4

Box ID:

Total Moisture Gain

1+2+3+4: 167.7

SAMPLE ID: 25-2049-M26A- 3

Train Loaded By: BT

Train Recovered By:

Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: May 13 / 25

Test No.: 1

Test Location: UNIT 2

Filter is used but not
recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H₂SO₄

Empty Wt: 663.0

Initial Wt: 748.0

Final Wt: 851.5

1 Gain: 103.5

Colour:

Impinger #2 0.1 N H₂SO₄

Empty Wt: 647.5

Initial Wt: 763.0

Final Wt: 797.5

2 Gain: 34.5

Colour: clear

Impinger #3 EMPTY

Empty Wt: 510.0

Final Wt: 513.5

3 Gain: 3.5

Colour: clear

CONTAINER TS3 WEIGHTS

Empty Wt: ~~280.5~~ 280.5

With Imp. 1,2,3 Soln: 617.0

After Rinse: 756.8

Total TS3: 476.3

Impinger 4

Impinger #4 Silica Gel

Initial Wt: 921.6

Final Wt: 934.5

4 Gain: 13.0

Box ID:

Total Moisture Gain

1+2+3+4: 154.5

SAMPLE ID: 25-2049-M26A- 4

Train Loaded By:

Train Recovered By:

DT

Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: MAY 13/25

Test No.: 2

Test Location: UNIT 2

Filter is used but not
recovered as sample

Impingers 1, 2, 3

	Impinger #1 0.1 N H₂SO₄
	Empty Wt: 655.5
	Initial Wt: 792.5
	Final Wt: 866.0
1	Gain: 113.5
	Colour: clear

	Impinger #2 0.1 N H₂SO₄
	Empty Wt: 654.5
	Initial Wt: 770.2
	Final Wt: 794.2
2	Gain: 24.0
	Colour: clear

	Impinger #3 EMPTY
	Empty Wt: 614.0
	Final Wt: 620.5
3	Gain: 6.5
	Colour: clear

	CONTAINER TS3 WEIGHTS
	Empty Wt: 280.7
	With Imp. 1,2,3 Soln: 622.7
	After Rinse: 724.0
	Total TS3: 443.3

Impinger 4

	Impinger #4 Silica Gel
	Initial Wt: 839.5
	Final Wt: 949.2
4	Gain: 9.7

Box ID:

Total Moisture Gain

1+2+3+4: 153.7

SAMPLE ID: 25-2049-M26A- 5

Train Loaded By:

Train Recovered By:

DP

Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: MAY 13 / 25

Test No.: 3

Test Location: UNIT 2

Filter is used but not
recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H₂SO₄

Empty Wt: 663.0

Initial Wt: 766.6

Final Wt: 886.6

1 Gain: 120.0

Colour:

Impinger #2 0.1 N H₂SO₄

Empty Wt: 647.5

Initial Wt: 743.5

Final Wt: 765.0

2 Gain: 218.5

Colour:

Impinger #3 EMPTY

Empty Wt: 510.0

Final Wt: 512.5

3 Gain: 2.5

Colour:

CONTAINER TS3 WEIGHTS

Empty Wt: 282.0

With Imp. 1,2,3 Soln: 622.5

After Rinse: 743.0

Total TS3: 461.0

Impinger 4

Impinger #4 Silica Gel

Initial Wt: 934.6

Final Wt: 946.2

4 Gain: 11.6

Box ID:

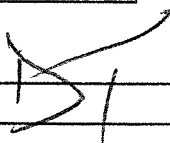
Total Moisture Gain

1+2+3+4: 145.6

SAMPLE ID: 25-2049-M26A- 6

Train Loaded By:

Train Recovered By:



Alliance Technical Group
Method 26A Recovery Sheet

Client : Reworld

Project No.: AST-2025-2049

Date: MAY 13 / 25

Test No.: BLANK

Test Location:

Filter is used but not
recovered as sample

Impingers 1, 2, 3

Impinger #1 0.1 N H₂SO₄

Empty Wt:

Initial Wt:

Final Wt:

1 Gain:

Colour:

Impinger #2 0.1 N H₂SO₄

Empty Wt:

Initial Wt:

Final Wt:

2 Gain:

Colour:

Impinger #3 EMPTY

Empty Wt:

Final Wt:

3 Gain:

Colour:

CONTAINER TS3 WEIGHTS

Empty Wt: 282.0

With Imp. 1,2,3 Soln: 482.0

After Rinse: 585.0

Total TS3: 303.0

Train Loaded By:

Train Recovered By: DT

Impinger 4

Impinger #4 Silica Gel

Initial Wt:

Final Wt:

4 Gain:

Box ID:

Total Moisture Gain

1+2+3+4:

SAMPLE ID: 25-2049-M26A-

BLANK

APPENDIX 17

**VOC Analytical Report
(31 pages)**



CERTIFICATE OF ANALYSIS

Work Order	: WT2511741	
Client	: Alliance Technical Group North Inc.	
Contact	: Chris Belore	Laboratory
Address	: 804 Southdown Road	: Lynne Wrona
	: Mississauga Ontario Canada L5J 2Y4	: 60 Northland Road, Unit 1
Telephone	: 905 822 4120	: Waterloo ON Canada N2V 2B8
Project	: AST-2025-2049 Reworld	: Lynne.Wrona@ALSGlobal.com
PO	: ----	: +1 519 886 6910
C-O-C number	: ----	: 15-May-2025 14:45
Sampler	: CLIENT	: 16-May-2025
Site	: ----	: 28-May-2025 10:40
Quote number	: SVOC Standing Offer	
No. of samples received	: 7	
No. of samples analysed	: 7	

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
- Surrogate Control Limits

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
David Tremblett	VOC Section Supervisor	Air Quality, Waterloo, 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
-	no units
inches Hg	inches of mercury
ppbv	parts per billion (volume/volume)
µg/m³	micrograms per cubic metre

<: 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.

Qualifiers

Qualifier	Description
AI	Analytical interferences may be present. Result may be biased high.
DLQ	Detection Limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptance criteria.



Analytical Results

Sub-Matrix: Air
(Matrix: Air)

Sub-Matrix: Air (Matrix: Air)		Client sample ID				Client sampling date / time		Client sample ID		Client sampling date / time		Client sample ID		Client sampling date / time	
Analyte	CAS Number	Method/Lab	LOR	Unit	1	2	3	4	5						
Field Tests															
ID, batch proof	----	EF001/WT	-	-	250203.117	250325.124	250311.111	250306.122	250412.223						
ID, canister	----	EF001/WT	-	-	06000-0396	06000-0605	06000-0559	06000-0449	06000-0017						
ID, regulator	----	EF001/WT	-	-	CS1200-0044	NR	CS1200-0099	CS1200-0185	CS1200-0084						
Pressure on receipt	----	EF001/WT	0.10	inches Hg	-7.76	-4.30	-5.72	-4.30	-5.52						
Volatile Organic Compounds															
Acetone	67-64-1	E621B/WT	1.0	ppbv	14.4	8.1	16.5	5.2	20.4						
Acetone	67-64-1	EC621B/WT	2.4	µg/m³	34.2	19.2	39.2	12.4	48.4						
Allyl chloride	107-05-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20						
Allyl chloride	107-05-1	EC621B/WT	0.63	µg/m³	<0.63	<0.63	<0.63	<0.63	<0.63						
Benzene	71-43-2	E621B/WT	0.10	ppbv	0.60	0.73	0.86	0.16	0.59						
Benzene	71-43-2	EC621B/WT	0.32	µg/m³	1.92	2.33	2.75	0.51	1.88						
Benzyl chloride	100-44-7	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20						
Benzyl chloride	100-44-7	EC621B/WT	1.0	µg/m³	<1.0	<1.0	<1.0	<1.0	<1.0						
Bromodichloromethane	75-27-4	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20						
Bromodichloromethane	75-27-4	EC621B/WT	1.3	µg/m³	<1.3	<1.3	<1.3	<1.3	<1.3						
Bromoform	75-25-2	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20						
Bromoform	75-25-2	EC621B/WT	2.1	µg/m³	<2.1	<2.1	<2.1	<2.1	<2.1						
Bromomethane	74-83-9	E621B/WT	0.20	ppbv	0.58	0.73	0.66	<0.20	0.51						
Bromomethane	74-83-9	EC621B/WT	0.78	µg/m³	2.25	2.83	2.56	<0.78	1.98						
Butadiene, 1,3-	106-99-0	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20						
Butadiene, 1,3-	106-99-0	EC621B/WT	0.44	µg/m³	<0.44	<0.44	<0.44	<0.44	<0.44						



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				1	2	3	4	5
Analyte	CAS Number	Method/Lab	Client sampling date / time		LOR	Unit	Result	Result	Result	Result
Volatile Organic Compounds										
Carbon disulfide	75-15-0	E621B/WT	0.50	ppbv	4.98 ^{AI}	<1.10 ^{DLQ}	<0.51 ^{DLQ}	<0.50	<1.54 ^{DLQ}	
Carbon disulfide	75-15-0	EC621B/WT	1.6	µg/m³	15.5	<3.4	<1.6	<1.6	<4.8	
Carbon tetrachloride	56-23-5	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Carbon tetrachloride	56-23-5	EC621B/WT	1.30	µg/m³	<1.26	<1.26	<1.26	<1.26	<1.26	
Chlorobenzene	108-90-7	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Chlorobenzene	108-90-7	EC621B/WT	0.92	µg/m³	<0.92	<0.92	<0.92	<0.92	<0.92	
Chloroethane	75-00-3	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Chloroethane	75-00-3	EC621B/WT	0.53	µg/m³	<0.53	<0.53	<0.53	<0.53	<0.53	
Chloroform	67-66-3	E621B/WT	0.20	ppbv	0.21	<0.20	0.26	<0.20	0.21	
Chloroform	67-66-3	EC621B/WT	0.98	µg/m³	1.02	<0.98	1.27	<0.98	1.02	
Chloromethane	74-87-3	E621B/WT	0.20	ppbv	2.38	2.89	2.56	0.85	2.29	
Chloromethane	74-87-3	EC621B/WT	0.41	µg/m³	4.91	5.97	5.29	1.76	4.73	
Cyclohexane	110-82-7	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Cyclohexane	110-82-7	EC621B/WT	0.69	µg/m³	<0.69	<0.69	<0.69	<0.69	<0.69	
Dibromochloromethane	124-48-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dibromochloromethane	124-48-1	EC621B/WT	1.7	µg/m³	<1.7	<1.7	<1.7	<1.7	<1.7	
Dibromoethane, 1,2-	106-93-4	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dibromoethane, 1,2-	106-93-4	EC621B/WT	1.5	µg/m³	<1.5	<1.5	<1.5	<1.5	<1.5	
Dichlorobenzene, 1,2-	95-50-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichlorobenzene, 1,2-	95-50-1	EC621B/WT	1.2	µg/m³	<1.2	<1.2	<1.2	<1.2	<1.2	
Dichlorobenzene, 1,3-	541-73-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				1	2	3	4	5
		Client sampling date / time				15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2511741-001	WT2511741-002	WT2511741-003	WT2511741-004	WT2511741-005	
Volatile Organic Compounds										
Dichlorobenzene, 1,3-	541-73-1	EC621BWT	1.2	µg/m³	<1.2	<1.2	<1.2	<1.2	<1.2	
	106-46-7	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	0.42	
Dichlorobenzene, 1,4-	106-46-7	EC621BWT	1.2	µg/m³	<1.2	<1.2	<1.2	<1.2	2.5	
Dichlorodifluoromethane	75-71-8	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	0.56	<0.20	
Dichlorodifluoromethane	75-71-8	EC621BWT	1.0	µg/m³	<1.0	<1.0	<1.0	2.8	<1.0	
Dichloroethane, 1,1-	75-34-3	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloroethane, 1,1-	75-34-3	EC621BWT	0.81	µg/m³	<0.81	<0.81	<0.81	<0.81	<0.81	
Dichloroethane, 1,2-	107-06-2	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloroethane, 1,2-	107-06-2	EC621BWT	0.81	µg/m³	<0.81	<0.81	<0.81	<0.81	<0.81	
Dichloroethylene, 1,1-	75-35-4	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloroethylene, 1,1-	75-35-4	EC621BWT	0.79	µg/m³	<0.79	<0.79	<0.79	<0.79	<0.79	
Dichloroethylene, cis-1,2-	156-59-2	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloroethylene, cis-1,2-	156-59-2	EC621BWT	0.79	µg/m³	<0.79	<0.79	<0.79	<0.79	<0.79	
Dichloroethylene, trans-1,2-	156-60-5	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloroethylene, trans-1,2-	156-60-5	EC621BWT	0.79	µg/m³	<0.79	<0.79	<0.79	<0.79	<0.79	
Dichloromethane	75-09-2	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloromethane	75-09-2	EC621BWT	0.69	µg/m³	<0.69	<0.69	<0.69	<0.69	<0.69	
Dichloropropane, 1,2-	78-87-5	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloropropane, 1,2-	78-87-5	EC621BWT	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9	<0.9	
Dichloropropylene, cis-1,3-	10061-01-5	E621BWT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	
Dichloropropylene, cis-1,3-	10061-01-5	EC621BWT	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9	<0.9	



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				1	2	3	4	5
Analyte	CAS Number	Method/Lab	Client sampling date / time		Unit	Result	Result	Result	Result	Result
			LOR							
Volatile Organic Compounds										
Dichloropropylene, cis+trans-1,3-	542-75-6	E621B/WT	0.30	ppbv	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, cis+trans-1,3-	542-75-6	EC621B/WT	1.3	µg/m³	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Dichloropropylene, trans-1,3-	10061-02-6	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropylene, trans-1,3-	10061-02-6	EC621B/WT	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	EC621B/WT	1.4	µg/m³	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Dioxane, 1,4-	123-91-1	E621B/WT	0.20	ppbv	3.23 ^{AI}	3.12 ^{AI}	1.83	<0.20	2.05 ^{AI}	2.05 ^{AI}
Dioxane, 1,4-	123-91-1	EC621B/WT	0.72	µg/m³	11.6	11.2	6.60	<0.72	7.39	7.39
Ethyl acetate	141-78-6	E621B/WT	0.20	ppbv	0.40	0.30	0.25	<0.20	0.53	0.53
Ethyl acetate	141-78-6	EC621B/WT	0.72	µg/m³	1.44	1.08	0.90	<0.72	1.91	1.91
Ethylbenzene	100-41-4	E621B/WT	0.10	ppbv	0.35	<0.10	<0.10	0.18	0.11	0.11
Ethylbenzene	100-41-4	EC621B/WT	0.43	µg/m³	1.52	<0.43	<0.43	0.78	0.48	0.48
Ethyltoluene, 4-	622-96-8	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	0.94	<0.20	<0.20
Ethyltoluene, 4-	622-96-8	EC621B/WT	1.0	µg/m³	<1.0	<1.0	<1.0	4.6	<1.0	<1.0
Heptane, n-	142-82-5	E621B/WT	0.20	ppbv	1.54	0.21	<0.20	<0.20	0.21	0.21
Heptane, n-	142-82-5	EC621B/WT	0.82	µg/m³	6.31	0.86	<0.82	<0.82	0.86	0.86
Hexachlorobutadiene	87-68-3	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexachlorobutadiene	87-68-3	EC621B/WT	2.1	µg/m³	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Hexane, n-	110-54-3	E621B/WT	0.20	ppbv	1.10	0.31	2.99	0.52	11.2	11.2
Hexane, n-	110-54-3	EC621B/WT	0.70	µg/m³	3.88	1.09	10.5	1.83	39.5	39.5
Hexanone, 2-	591-78-6	E621B/WT	1.0	ppbv	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				1	2	3	4	5
Analyte	CAS Number	Method/Lab	Client sampling date / time		Unit	Result	Result	Result	Result	Result
			LOR							
Volatile Organic Compounds										
Hexanone, 2-	591-78-6	EC621B/WT	4.10	µg/m³	<4.10	<4.10	<4.10	<4.10	<4.10	<4.10
Isopropanol	67-63-0	E621B/WT	1.0	ppbv	<5.0	<1.0	<5.0	<5.0	<5.0	<5.0
Isopropanol	67-63-0	EC621B/WT	2.5	µg/m³	<12.3	<2.4	<12.3	<12.3	<12.3	<12.3
Isopropylbenzene	98-82-8	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Isopropylbenzene	98-82-8	EC621B/WT	1.0	µg/m³	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl ethyl ketone [MEK]	78-93-3	E621B/WT	0.20	ppbv	1.52	0.88	0.72	0.38	1.51 ^{AI}	4.45
Methyl ethyl ketone [MEK]	78-93-3	EC621B/WT	0.59	µg/m³	4.48	2.60	2.12	1.12	<0.20	<0.20
Methyl isobutyl ketone [MIBK]	108-10-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl isobutyl ketone [MIBK]	108-10-1	EC621B/WT	0.82	µg/m³	<0.82	<0.82	<0.82	<0.82	<0.82	<0.82
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl-tert-butyl ether [MTBE]	1634-04-4	EC621B/WT	0.72	µg/m³	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72
Naphthalene	91-20-3	E621B/WT	0.10	ppbv	<0.10	0.20	<0.10	<0.10	<0.10	<0.10
Naphthalene	91-20-3	EC621B/WT	0.52	µg/m³	<0.52	1.05	<0.52	<0.52	<0.52	<0.52
Propylene	115-07-1	E621B/WT	0.20	ppbv	<0.93 ^{DLQ}	<2.90 ^{DLQ}	<2.30 ^{DLQ}	<0.43 ^{DLQ}	<2.22 ^{DLQ}	<2.22 ^{DLQ}
Propylene	115-07-1	EC621B/WT	0.34	µg/m³	<1.60	<4.99	<3.96	<0.74	<3.82	<3.82
Styrene	100-42-5	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene	100-42-5	EC621B/WT	0.85	µg/m³	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethane, 1,1,2,2-	79-34-5	EC621B/WT	1.4	µg/m³	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Tetrachloroethylene	127-18-4	E621B/WT	0.20	ppbv	0.26	<0.20	<0.20	1.87	<0.20	<0.20
Tetrachloroethylene	127-18-4	EC621B/WT	1.4	µg/m³	1.8	<1.4	<1.4	12.7	<1.4	<1.4



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID			1	2	3	4	5
		Client sampling date / time			15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2511741-001	WT2511741-002	WT2511741-003	WT2511741-004	WT2511741-005
Volatile Organic Compounds									
Tetrahydrofuran	109-99-9	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrahydrofuran	109-99-9	EC621B/WT	0.59	µg/m³	<0.59	<0.59	<0.59	<0.59	<0.59
Toluene	108-88-3	E621B/WT	0.10	ppbv	3.31	0.87	1.31	0.46	1.04
Toluene	108-88-3	EC621B/WT	0.38	µg/m³	12.5	3.28	4.94	1.73	3.92
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	EC621B/WT	1.5	µg/m³	<1.5	<1.5	<1.5	<1.5	<1.5
Trichlorobenzene, 1,2,4-	120-82-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorobenzene, 1,2,4-	120-82-1	EC621B/WT	1.5	µg/m³	<1.5	<1.5	<1.5	<1.5	<1.5
Trichloroethane, 1,1,1-	71-55-6	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	71-55-6	EC621B/WT	1.1	µg/m³	<1.1	<1.1	<1.1	<1.1	<1.1
Trichloroethane, 1,1,2-	79-00-5	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	79-00-5	EC621B/WT	1.1	µg/m³	<1.1	<1.1	<1.1	<1.1	<1.1
Trichloroethylene	79-01-6	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	79-01-6	EC621B/WT	1.1	µg/m³	<1.1	<1.1	<1.1	<1.1	<1.1
Trichlorofluoromethane	75-69-4	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	0.22	<0.20
Trichlorofluoromethane	75-69-4	EC621B/WT	1.1	µg/m³	<1.1	<1.1	<1.1	1.2	<1.1
Trimethylbenzene, 1,2,4-	95-63-6	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	3.26	<0.20
Trimethylbenzene, 1,2,4-	95-63-6	EC621B/WT	1.0	µg/m³	<1.0	<1.0	<1.0	16.0	<1.0
Trimethylbenzene, 1,3,5-	108-67-8	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	0.95	<0.20
Trimethylbenzene, 1,3,5-	108-67-8	EC621B/WT	1.0	µg/m³	<1.0	<1.0	<1.0	4.7	<1.0
Trimethylpentane, 2,2,4-	540-84-1	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID		1	2	3	4	5
		Client sampling date / time		15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00	15-May-2025 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2511741-001	WT2511741-002	WT2511741-003	WT2511741-005
Volatile Organic Compounds								
Trimethylpentane, 2,2,4-	540-84-1	EC621B/WT	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9
Vinyl acetate	108-05-4	E621B/WT	0.50	ppbv	<0.92 DLQ	<0.57 DLQ	<0.71 DLQ	<0.96 DLQ
Vinyl acetate	108-05-4	EC621B/WT	1.8	µg/m³	<3.2	<2.0	<2.5	<3.4
Vinyl bromide	593-60-2	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20
Vinyl bromide	593-60-2	EC621B/WT	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9
Vinyl chloride	75-01-4	E621B/WT	0.20	ppbv	<0.20	<0.20	<0.20	<0.20
Vinyl chloride	75-01-4	EC621B/WT	0.51	µg/m³	<0.51	<0.51	<0.51	<0.51
Xylene, m+p-	179601-23-1	E621B/WT	0.20	ppbv	0.32	0.21	<0.20	0.23
Xylene, m+p-	179601-23-1	EC621B/WT	0.87	µg/m³	1.39	0.91	<0.87	1.00
Xylene, o-	95-47-6	E621B/WT	0.10	ppbv	0.14	<0.10	<0.10	<0.10
Xylene, o-	95-47-6	EC621B/WT	0.43	µg/m³	0.61	<0.43	<0.43	<0.43
Xylenes, total	1330-20-7	E621B/WT	0.30	ppbv	0.46	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	EC621B/WT	1.3	µg/m³	2.0	<1.3	<1.3	<1.3
BTEX, total	---	E621B/WT	0.30	ppbv	4.72	1.81	2.17	1.97
BTEX, total	---	EC621B/WT	1.2	µg/m³	17.9	6.5	7.7	7.3
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	E621B/WT	0.20	%	81.6	71.3	82.2	81.2

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Air (Matrix: Air)			Client sample ID				6		BLANK		15-May-2025 00:00		15-May-2025 00:00		WT2511741-006		WT2511741-007		WT2511741-006		WT2511741-007	
Analyte	CAS Number	Method/Lab	Client sampling date / time		LOR	Unit	Result		Result		Result		Result		Result		Result		Result		Result	
Field Tests																						
ID, batch proof		EF001/WT	-	-	-	-	250331.119	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109	250403.109
ID, canister		EF001/WT	-	-	-	-	06000-0399	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236	06000-0236
ID, regulator		EF001/WT	-	-	-	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pressure on receipt		EF001/WT	0.10	inches Hg	0.10	inches Hg	-9.19	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07	-3.07
Volatile Organic Compounds																						
Acetone	67-64-1	E621B/WT	1.0	ppbv	1.0	ppbv	7.5	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
Acetone	67-64-1	EC621B/WT	2.4	µg/m³	2.4	µg/m³	17.8	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4
Allyl chloride	107-05-1	E621B/WT	0.20	ppbv	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Allyl chloride	107-05-1	EC621B/WT	0.63	µg/m³	0.63	µg/m³	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63
Benzene	71-43-2	E621B/WT	0.10	ppbv	0.10	ppbv	0.61	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzene	71-43-2	EC621B/WT	0.32	µg/m³	0.32	µg/m³	1.95	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
Benzyl chloride	100-44-7	E621B/WT	0.20	ppbv	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzyl chloride	100-44-7	EC621B/WT	1.0	µg/m³	1.0	µg/m³	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	75-27-4	E621B/WT	0.20	ppbv	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	75-27-4	EC621B/WT	1.3	µg/m³	1.3	µg/m³	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Bromoform	75-25-2	E621B/WT	0.20	ppbv	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	75-25-2	EC621B/WT	2.1	µg/m³	2.1	µg/m³	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Bromomethane	74-83-9	E621B/WT	0.20	ppbv	0.20	ppbv	0.48	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromomethane	74-83-9	EC621B/WT	0.78	µg/m³	0.78	µg/m³	1.86	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Butadiene, 1,3-	106-99-0	E621B/WT	0.20	ppbv	0.20	ppbv	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Butadiene, 1,3-	106-99-0	EC621B/WT	0.44	µg/m³	0.44	µg/m³	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				6	BLANK				
		Client sampling date / time				15-May-2025 00:00	15-May-2025 00:00				
Analyte		CAS Number	Method/Lab	LOR	Unit	WT2511741-006	WT2511741-007				
						Result	Result				
Volatile Organic Compounds											
Carbon disulfide	75-15-0	E621B/WT	0.50	ppbv	<1.96 ^{DLO}	<0.50					
Carbon disulfide	75-15-0	EC621B/WT	1.6	µg/m³	<6.1	<1.6					
Carbon tetrachloride	56-23-5	E621B/WT	0.20	ppbv	<0.20	<0.20					
Carbon tetrachloride	56-23-5	EC621B/WT	1.30	µg/m³	<1.26	<1.26					
Chlorobenzene	108-90-7	E621B/WT	0.20	ppbv	<0.20	<0.20					
Chlorobenzene	108-90-7	EC621B/WT	0.92	µg/m³	<0.92	<0.92					
Chloroethane	75-00-3	E621B/WT	0.20	ppbv	<0.20	<0.20					
Chloroethane	75-00-3	EC621B/WT	0.53	µg/m³	<0.53	<0.53					
Chloroform	67-66-3	E621B/WT	0.20	ppbv	0.22	<0.20					
Chloroform	67-66-3	EC621B/WT	0.98	µg/m³	1.07	<0.98					
Chloromethane	74-87-3	E621B/WT	0.20	ppbv	1.96	<0.20					
Chloromethane	74-87-3	EC621B/WT	0.41	µg/m³	4.05	<0.41					
Cyclohexane	110-82-7	E621B/WT	0.20	ppbv	<0.20	<0.20					
Cyclohexane	110-82-7	EC621B/WT	0.69	µg/m³	<0.69	<0.69					
Dibromochloromethane	124-48-1	E621B/WT	0.20	ppbv	<0.20	<0.20					
Dibromochloromethane	124-48-1	EC621B/WT	1.7	µg/m³	<1.7	<1.7					
Dibromoethane, 1,2-	106-93-4	E621B/WT	0.20	ppbv	<0.20	<0.20					
Dibromoethane, 1,2-	106-93-4	EC621B/WT	1.5	µg/m³	<1.5	<1.5					
Dichlorobenzene, 1,2-	95-50-1	E621B/WT	0.20	ppbv	<0.20	<0.20					
Dichlorobenzene, 1,2-	95-50-1	EC621B/WT	1.2	µg/m³	<1.2	<1.2					
Dichlorobenzene, 1,3-	541-73-1	E621B/WT	0.20	ppbv	<0.20	<0.20					



Analytical Results

Sub-Matrix: Air		Client sample ID		6		BLANK					
(Matrix: Air)		Client sampling date / time		15-May-2025 00:00		15-May-2025 00:00					
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	WT2511741-006	WT2511741-007	Result	Result		
Volatile Organic Compounds											
Dichlorobenzene, 1,3-	541-73-1	EC621B/W/T	1.2	µg/m³	<1.2	<1.2	<1.2	<1.2			
Dichlorobenzene, 1,4-	106-46-7	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichlorobenzene, 1,4-	106-46-7	EC621B/W/T	1.2	µg/m³	<1.2	<1.2	<1.2	<1.2			
Dichlorodifluoromethane	75-71-8	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichlorodifluoromethane	75-71-8	EC621B/W/T	1.0	µg/m³	<1.0	<1.0	<1.0	<1.0			
Dichloroethane, 1,1-	75-34-3	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloroethane, 1,1-	75-34-3	EC621B/W/T	0.81	µg/m³	<0.81	<0.81	<0.81	<0.81			
Dichloroethane, 1,2-	107-06-2	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloroethane, 1,2-	107-06-2	EC621B/W/T	0.81	µg/m³	<0.81	<0.81	<0.81	<0.81			
Dichloroethylene, 1,1-	75-35-4	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloroethylene, 1,1-	75-35-4	EC621B/W/T	0.79	µg/m³	<0.79	<0.79	<0.79	<0.79			
Dichloroethylene, cis-1,2-	156-59-2	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloroethylene, cis-1,2-	156-59-2	EC621B/W/T	0.79	µg/m³	<0.79	<0.79	<0.79	<0.79			
Dichloroethylene, trans-1,2-	156-60-5	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloroethylene, trans-1,2-	156-60-5	EC621B/W/T	0.79	µg/m³	<0.79	<0.79	<0.79	<0.79			
Dichloromethane	75-09-2	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloromethane	75-09-2	EC621B/W/T	0.69	µg/m³	<0.69	<0.69	<0.69	<0.69			
Dichloropropane, 1,2-	78-87-5	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloropropane, 1,2-	78-87-5	EC621B/W/T	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9			
Dichloropropylene, cis-1,3-	10061-01-5	E621B/W/T	0.20	ppbv	<0.20	<0.20	<0.20	<0.20			
Dichloropropylene, cis-1,3-	10061-01-5	EC621B/W/T	0.9	µg/m³	<0.9	<0.9	<0.9	<0.9			



Analytical Results

Sub-Matrix: Air		Client sample ID		6		BLANK					
(Matrix: Air)				15-May-2025 00:00		15-May-2025 00:00					
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2511741-006	WT2511741-007	Result	Result			
Volatile Organic Compounds											
Dichloropropylene, cis+trans-1,3-	542-75-6	E621B/WT	0.30	ppbv	<0.30	<0.30					
Dichloropropylene, cis+trans-1,3-	542-75-6	EC621B/WT	1.3	µg/m³	<1.8	<1.8					
Dichloropropylene, trans-1,3-	10061-02-6	E621B/WT	0.20	ppbv	<0.20	<0.20					
Dichloropropylene, trans-1,3-	10061-02-6	EC621B/WT	0.9	µg/m³	<0.9	<0.9					
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B/WT	0.20	ppbv	<0.20	<0.20					
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	EC621B/WT	1.4	µg/m³	<1.4	<1.4					
Dioxane, 1,4-	123-91-1	E621B/WT	0.20	ppbv	1.69 ^{AI}	<0.20					
Dioxane, 1,4-	123-91-1	EC621B/WT	0.72	µg/m³	6.09	<0.72					
Ethyl acetate	141-78-6	E621B/WT	0.20	ppbv	0.25	<0.20					
Ethyl acetate	141-78-6	EC621B/WT	0.72	µg/m³	0.90	<0.72					
Ethylbenzene	100-41-4	E621B/WT	0.10	ppbv	<0.10	<0.10					
Ethylbenzene	100-41-4	EC621B/WT	0.43	µg/m³	<0.43	<0.43					
Ethyltoluene, 4-	622-96-8	E621B/WT	0.20	ppbv	<0.20	<0.20					
Ethyltoluene, 4-	622-96-8	EC621B/WT	1.0	µg/m³	<1.0	<1.0					
Heptane, n-	142-82-5	E621B/WT	0.20	ppbv	<0.20	<0.20					
Heptane, n-	142-82-5	EC621B/WT	0.82	µg/m³	<0.82	<0.82					
Hexachlorobutadiene	87-68-3	E621B/WT	0.20	ppbv	<0.20	<0.20					
Hexachlorobutadiene	87-68-3	EC621B/WT	2.1	µg/m³	<2.1	<2.1					
Hexane, n-	110-54-3	E621B/WT	0.20	ppbv	<0.20	3.10					
Hexane, n-	110-54-3	EC621B/WT	0.70	µg/m³	<0.70	10.9					
Hexanone, 2-	591-78-6	E621B/WT	1.0	ppbv	<1.0	<1.0					



Analytical Results

Sub-Matrix: Air		Client sample ID		6		BLANK					
(Matrix: Air)		Client sampling date / time		15-May-2025 00:00		15-May-2025 00:00					
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2511741-006	WT2511741-007	Result	Result			
Volatile Organic Compounds											
Hexanone, 2-	591-78-6	EC621B/WT	4.10	µg/m³	<4.10	<4.10					
Isopropanol	67-63-0	E621B/WT	1.0	ppbv	<5.0	<5.0					
Isopropanol	67-63-0	EC621B/WT	2.5	µg/m³	<12.3	<12.3					
Isopropylbenzene	98-82-8	E621B/WT	0.20	ppbv	<0.20	<0.20					
Isopropylbenzene	98-82-8	EC621B/WT	1.0	µg/m³	<1.0	<1.0					
Methyl ethyl ketone [MEK]	78-93-3	E621B/WT	0.20	ppbv	1.01	<0.20					
Methyl ethyl ketone [MEK]	78-93-3	EC621B/WT	0.59	µg/m³	2.98	<0.59					
Methyl isobutyl ketone [MIBK]	108-10-1	E621B/WT	0.20	ppbv	<0.20	<0.20					
Methyl isobutyl ketone [MIBK]	108-10-1	EC621B/WT	0.82	µg/m³	<0.82	<0.82					
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B/WT	0.20	ppbv	<0.20	<0.20					
Methyl-tert-butyl ether [MTBE]	1634-04-4	EC621B/WT	0.72	µg/m³	<0.72	<0.72					
Naphthalene	91-20-3	E621B/WT	0.10	ppbv	<0.10	<0.10					
Naphthalene	91-20-3	EC621B/WT	0.52	µg/m³	<0.52	<0.52					
Propylene	115-07-1	E621B/WT	0.20	ppbv	<1.11 ^{DLG}	<0.20					
Propylene	115-07-1	EC621B/WT	0.34	µg/m³	<1.91	<0.34					
Styrene	100-42-5	E621B/WT	0.20	ppbv	<0.20	<0.20					
Styrene	100-42-5	EC621B/WT	0.85	µg/m³	<0.85	<0.85					
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B/WT	0.20	ppbv	<0.20	<0.20					
Tetrachloroethane, 1,1,2,2-	79-34-5	EC621B/WT	1.4	µg/m³	<1.4	<1.4					
Tetrachloroethylene	127-18-4	E621B/WT	0.20	ppbv	<0.20	<0.20					
Tetrachloroethylene	127-18-4	EC621B/WT	1.4	µg/m³	<1.4	<1.4					



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				6	BLANK				
		Client sampling date / time				15-May-2025 00:00	15-May-2025 00:00				
		Unit				WT2511741-006	WT2511741-007				
		Result									
Volatile Organic Compounds											



Analytical Results

Sub-Matrix: Air (Matrix: Air)		Client sample ID				6	BLANK				
Analyte		Client sampling date / time				15-May-2025 00:00	15-May-2025 00:00				
		CAS Number	Method/Lab	LOR	Unit	WT2511741-006	WT2511741-007				
						Result	Result				
Volatile Organic Compounds											
Trimethylpentane, 2,2,4-	Vinyl acetate	540-84-1	EC621B/WT	0.9	µg/m³	<0.9	<0.9				
	Vinyl acetate	108-05-4	E621B/WT	0.50	ppbv	<0.86	<0.50				
	Vinyl acetate	108-05-4	EC621B/WT	1.8	µg/m³	<3.0	<1.8				
	Vinyl bromide	593-60-2	E621B/WT	0.20	ppbv	<0.20	<0.20				
	Vinyl bromide	593-60-2	EC621B/WT	0.9	µg/m³	<0.9	<0.9				
	Vinyl chloride	75-01-4	E621B/WT	0.20	ppbv	<0.20	<0.20				
	Vinyl chloride	75-01-4	EC621B/WT	0.51	µg/m³	<0.51	<0.51				
	Xylene, m+p-	179601-23-1	E621B/WT	0.20	ppbv	<0.20	<0.20				
	Xylene, m+p-	179601-23-1	EC621B/WT	0.87	µg/m³	<0.87	<0.87				
	Xylene, o-	95-47-6	E621B/WT	0.10	ppbv	<0.10	<0.10				
	Xylene, o-	95-47-6	EC621B/WT	0.43	µg/m³	<0.43	<0.43				
	Xylenes, total	1330-20-7	E621B/WT	0.30	ppbv	<0.30	<0.30				
	Xylenes, total	1330-20-7	EC621B/WT	1.3	µg/m³	<1.3	<1.3				
	BTEX, total	-----	E621B/WT	0.30	ppbv	1.53	0.31				
BTEX, total	-----	EC621B/WT	1.2	µg/m³	5.4	<2.4					
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-				460-00-4	E621B/WT	0.20	%	84.0	88.6		

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: WT2511741	Page	: 1 of 6
Client	: Alliance Technical Group North Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Chris Belore	Account Manager	: Lynne Wrona
Address	: 804 Southdown Road Mississauga ON Canada L5J 2Y4	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 905 822 4120	Telephone	: +1 519 886 6910
Project	: AST-2025-2049 Reworld	Date Samples Received	: 15-May-2025 14:45
PO	: ----	Issue Date	: 28-May-2025 10:40
C-O-C number	: ----		
Sampler	: CLIENT		
Site	: ----		
Quote number	: SVOC Standing Offer		
No. of samples received	: 7		
No. of samples analysed	: 7		

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 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.



Page : 3 of 6
Work Order : WT2511741
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times	
					Rec	Actual				Rec
Field Tests : Air Canister Information										
Air Canister 1		EF001	15-May-2025					16-May-2025		
Field Tests : Air Canister Information										
Air Canister 2		EF001	15-May-2025					16-May-2025		
Field Tests : Air Canister Information										
Air Canister 3		EF001	15-May-2025					16-May-2025		
Field Tests : Air Canister Information										
Air Canister 4		EF001	15-May-2025					16-May-2025		
Field Tests : Air Canister Information										
Air Canister 5		EF001	15-May-2025					16-May-2025		
Field Tests : Air Canister Information										
Air Canister 6		EF001	15-May-2025					16-May-2025		
Field Tests : Air Canister Information										
Air Canister BLANK		EF001	15-May-2025					16-May-2025		



Page : 4 of 6
Work Order : WT2511741
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air										
Analyte Group : Analytical Method		Sampling Date	Method	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual
Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time										
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister 1		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 days	✔
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister 2		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 days	✔
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister 3		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 days	✔
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister 4		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 days	✔
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister 5		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 days	✔
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister 6		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 days	✔
Volatile Organic Compounds : VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)										
Air Canister BLANK		15-May-2025	E621B	-----	-----	-----	21-May-2025	30 days	7 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		QC Lot #	Count			Frequency (%)	
Analytical Methods	Method		QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)	E621B	2007417	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)	E621B	2007417	1	7	14.2	5.0	✓
Method Blanks (MB)							
VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)	E621B	2007417	1	7	14.2	5.0	✓
Air Canister Information	EF001	2001295	1	12	8.3	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 Descriptions
VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ppbV)	E621B ALS Environmental - Waterloo	Air	EPA TO-15 (mod)	Volatile Organic Compounds (VOC) in canisters (or bags) are transferred to a preconcentrator system and then thermally desorbed prior to injection into a GC-MS system for analysis.
VOCs (TO-15 List) in Air by Canister or Bag by GC-MS (ug/m3)	EC621B ALS Environmental - Waterloo	Air	unit conversion	Convert ppbV to ug/m3
Air Canister Information	EF001 ALS Environmental - Waterloo	Air	In-house	Air canister information provided by client and recorded on ALS report may affect the validity of results.

QUALITY CONTROL REPORT

Work Order	: WT2511741	Page	: 1 of 11
Client	: Alliance Technical Group North Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Chris Belore	Account Manager	: Lynne Wrona
Address	: 804 Southdown Road Mississauga ON Canada L5J 2Y4	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 905 822 4120	Telephone	: +1 519 886 6910
Project	: AST-2025-2049 Reworld	Date Samples Received	: 15-May-2025 14:45
PO	: ----	Date Analysis Commenced	: 16-May-2025
C-O-C number	: ----	Issue Date	: 28-May-2025 10:40
Sampler	: CLIENT		
Site	: ----		
Quote number	: SVOC Standing Offer		
No. of samples received	: 7		
No. of samples analysed	: 7		

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
- 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

David Tremblett	VOC Section Supervisor	Waterloo Air Quality, Waterloo, Ontario



Page : 2 of 11
Work Order : WT2511741
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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.



Page : 3 of 11
Work Order : WT2511741
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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

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
Volatile Organic Compounds (QC Lot: 2007417)											
WT2511741-001	1	Acetone	67-64-1	E621B	5.0	ppbv	14.4	14.4	0.06	Diff <2x LOR	----
		Allyl chloride	107-05-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Benzene	71-43-2	E621B	0.10	ppbv	0.60	0.63	0.02	Diff <2x LOR	----
		Benzyl chloride	100-44-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Bromoform	75-25-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E621B	0.20	ppbv	0.58	0.67	0.09	Diff <2x LOR	----
		Butadiene, 1,3-	106-99-0	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E621B	2.50	ppbv	4.98	4.73	0.25	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chloroform	67-66-3	E621B	0.20	ppbv	0.21	<0.20	0.008	Diff <2x LOR	----
		Chloromethane	74-87-3	E621B	0.20	ppbv	2.38	2.78	15.5%	30%	----
		Cyclohexane	110-82-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloropropylene, cis+trans-1,3-	542-75-6	E621B	0.3	ppbv	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----



Sub-Matrix: Air

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
Volatile Organic Compounds (QC Lot: 2007417) - continued											
WT2511741-001	1	Dichloropropylene, trans-1,3-	10061-02-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorotetrafluoroethane, 1,2-[Freon 114]	76-14-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dioxane, 1,4-	123-91-1	E621B	0.20	ppbv	3.23	3.34	3.43%	30%	----
		Ethyl acetate	141-78-6	E621B	0.20	ppbv	0.40	0.40	0.001	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E621B	0.10	ppbv	0.35	0.35	0.002	Diff <2x LOR	----
		Ethyltoluene, 4-	622-96-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Heptane, n-	142-82-5	E621B	0.20	ppbv	1.54	1.62	5.12%	30%	----
		Hexachlorobutadiene	87-68-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E621B	0.20	ppbv	1.10	1.09	0.007	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E621B	1.0	ppbv	<1.0	<1.0	0	Diff <2x LOR	----
		Isopropanol	67-63-0	E621B	5.0	ppbv	<5.0	<5.0	0	Diff <2x LOR	----
		Isopropylbenzene	98-82-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E621B	0.20	ppbv	1.52	1.39	8.80%	30%	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E621B	0.10	ppbv	<0.10	<0.10	0	Diff <2x LOR	----
		Propylene	115-07-1	E621B	1.05	ppbv	<0.93	<1.05	0.12	Diff <2x LOR	----
		Styrene	100-42-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E621B	0.20	ppbv	0.26	0.24	0.02	Diff <2x LOR	----
		Tetrahydrofuran	109-99-9	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Toluene	108-88-3	E621B	0.10	ppbv	3.31	3.38	2.16%	30%	----
		Trichloro-1,2,2-trifluoroethane, 1,1,2-[Freon 113]	76-13-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichlorobenzene, 1,2,4-	120-82-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trimethylbenzene, 1,2,4-	95-63-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trimethylbenzene, 1,3,5-	108-67-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trimethylpentane, 2,2,4-	540-84-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Vinyl acetate	108-05-4	E621B	1.00	ppbv	<0.92	<1.00	0	Diff <2x LOR	----
		Vinyl bromide	593-60-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----



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
Volatile Organic Compounds (QC Lot: 2007417) - continued											
WT2511741-001	1	Vinyl chloride	75-01-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	no data
		Xylene, m+p-	179601-23-1	E621B	0.20	ppbv	0.32	0.33	0.02	Diff <2x LOR	no data
		Xylene, o-	95-47-6	E621B	0.10	ppbv	0.14	0.14	0.002	Diff <2x LOR	no data



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
Field Tests (QCLot: 2001295)						
Pressure on receipt	---	EF001	0.1	Inches Hg	-30.0	----
Volatile Organic Compounds (QCLot: 2007417)						
Acetone	67-64-1	E621B	1	ppbv	<1.0	----
Allyl chloride	107-05-1	E621B	0.2	ppbv	<0.20	----
Benzene	71-43-2	E621B	0.1	ppbv	<0.10	----
Benzyl chloride	100-44-7	E621B	0.2	ppbv	<0.20	----
Bromodichloromethane	75-27-4	E621B	0.2	ppbv	<0.20	----
Bromoform	75-25-2	E621B	0.2	ppbv	<0.20	----
Bromomethane	74-83-9	E621B	0.2	ppbv	<0.20	----
Butadiene, 1,3-	106-99-0	E621B	0.2	ppbv	<0.20	----
Carbon disulfide	75-15-0	E621B	0.5	ppbv	<0.50	----
Carbon tetrachloride	56-23-5	E621B	0.2	ppbv	<0.20	----
Chlorobenzene	108-90-7	E621B	0.2	ppbv	<0.20	----
Chloroethane	75-00-3	E621B	0.2	ppbv	<0.20	----
Chloroform	67-66-3	E621B	0.2	ppbv	<0.20	----
Chloromethane	74-87-3	E621B	0.2	ppbv	<0.20	----
Cyclohexane	110-82-7	E621B	0.2	ppbv	<0.20	----
Dibromochloromethane	124-48-1	E621B	0.2	ppbv	<0.20	----
Dibromoethane, 1,2-	106-93-4	E621B	0.2	ppbv	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E621B	0.2	ppbv	<0.20	----
Dichlorobenzene, 1,3-	541-73-1	E621B	0.2	ppbv	<0.20	----
Dichlorobenzene, 1,4-	106-46-7	E621B	0.2	ppbv	<0.20	----
Dichlorodifluoromethane	75-71-8	E621B	0.2	ppbv	<0.20	----
Dichloroethane, 1,1-	75-34-3	E621B	0.2	ppbv	<0.20	----
Dichloroethane, 1,2-	107-06-2	E621B	0.2	ppbv	<0.20	----
Dichloroethylene, 1,1-	75-35-4	E621B	0.2	ppbv	<0.20	----
Dichloroethylene, cis-1,2-	156-59-2	E621B	0.2	ppbv	<0.20	----
Dichloroethylene, trans-1,2-	156-60-5	E621B	0.2	ppbv	<0.20	----
Dichloromethane	75-09-2	E621B	0.2	ppbv	<0.20	----
Dichloropropane, 1,2-	78-87-5	E621B	0.2	ppbv	<0.20	----
Dichloropropylene, cis-1,3-	10061-01-5	E621B	0.2	ppbv	<0.20	----
Dichloropropylene, trans-1,3-	10061-02-6	E621B	0.2	ppbv	<0.20	----



Sub-Matrix: Air

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2007417) - continued						
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B	0.2	ppbv	<0.20	---
Dioxane, 1,4-	123-91-1	E621B	0.2	ppbv	<0.20	---
Ethyl acetate	141-78-6	E621B	0.2	ppbv	<0.20	---
Ethylbenzene	100-41-4	E621B	0.1	ppbv	<0.10	---
Ethyltoluene, 4-	622-96-8	E621B	0.2	ppbv	<0.20	---
Heptane, n-	142-82-5	E621B	0.2	ppbv	<0.20	---
Hexachlorobutadiene	87-68-3	E621B	0.2	ppbv	<0.20	---
Hexane, n-	110-54-3	E621B	0.2	ppbv	<0.20	---
Hexanone, 2-	591-78-6	E621B	1	ppbv	<1.0	---
Isopropanol	67-63-0	E621B	1	ppbv	<1.0	---
Isopropylbenzene	98-82-8	E621B	0.2	ppbv	<0.20	---
Methyl ethyl ketone [MEK]	78-93-3	E621B	0.2	ppbv	<0.20	---
Methyl isobutyl ketone [MIBK]	108-10-1	E621B	0.2	ppbv	<0.20	---
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B	0.2	ppbv	<0.20	---
Napthalene	91-20-3	E621B	0.1	ppbv	<0.10	---
Propylene	115-07-1	E621B	0.2	ppbv	<0.20	---
Styrene	100-42-5	E621B	0.2	ppbv	<0.20	---
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B	0.2	ppbv	<0.20	---
Tetrachloroethylene	127-18-4	E621B	0.2	ppbv	<0.20	---
Tetrahydrofuran	109-99-9	E621B	0.2	ppbv	<0.20	---
Toluene	108-88-3	E621B	0.1	ppbv	<0.10	---
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B	0.2	ppbv	<0.20	---
Trichlorobenzene, 1,2,4-	120-82-1	E621B	0.2	ppbv	<0.20	---
Trichloroethane, 1,1,1-	71-55-6	E621B	0.2	ppbv	<0.20	---
Trichloroethane, 1,1,2-	79-00-5	E621B	0.2	ppbv	<0.20	---
Trichloroethylene	79-01-6	E621B	0.2	ppbv	<0.20	---
Trichlorofluoromethane	75-69-4	E621B	0.2	ppbv	<0.20	---
Trimethylbenzene, 1,2,4-	95-63-6	E621B	0.2	ppbv	<0.20	---
Trimethylbenzene, 1,3,5-	108-67-8	E621B	0.2	ppbv	<0.20	---
Trimethylpentane, 2,2,4-	540-84-1	E621B	0.2	ppbv	<0.20	---
Vinyl acetate	108-05-4	E621B	0.5	ppbv	<0.50	---
Vinyl bromide	593-60-2	E621B	0.2	ppbv	<0.20	---
Vinyl chloride	75-01-4	E621B	0.2	ppbv	<0.20	---
Xylene, m+p-	179601-23-1	E621B	0.2	ppbv	<0.20	---
Xylene, o-	95-47-6	E621B	0.1	ppbv	<0.10	---



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Work Order : WT2511741
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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

Sub-Matrix: Air									
Laboratory Control Sample (LCS) Report									
Spike		Recovery (%)		Recovery Limits (%)		Qualifier			
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	
Volatile Organic Compounds (QCLot: 2007417)									
Acetone	67-64-1	E621B	1						
Allyl chloride	107-05-1	E621B	0.2	ppbv	1.03 ppbv	115	70.0	130	-----
Benzene	71-43-2	E621B	0.1	ppbv	1.04 ppbv	85.3	70.0	130	-----
Benzyl chloride	100-44-7	E621B	0.2	ppbv	1.04 ppbv	96.5	70.0	130	-----
Bromodichloromethane	75-27-4	E621B	0.2	ppbv	0.99 ppbv	82.1	70.0	130	-----
Bromoform	75-25-2	E621B	0.2	ppbv	1.07 ppbv	106	70.0	130	-----
Bromomethane	74-83-9	E621B	0.2	ppbv	1.03 ppbv	111	70.0	130	-----
Butadiene, 1,3-	106-99-0	E621B	0.2	ppbv	1.01 ppbv	118	70.0	130	-----
Carbon disulfide	75-15-0	E621B	0.5	ppbv	1.05 ppbv	117	70.0	130	-----
Carbon tetrachloride	56-23-5	E621B	0.2	ppbv	0.99 ppbv	98.5	70.0	130	-----
Chlorobenzene	108-90-7	E621B	0.2	ppbv	1.05 ppbv	111	70.0	130	-----
Chloroethane	75-00-3	E621B	0.2	ppbv	1.03 ppbv	101	70.0	130	-----
Chloroform	67-66-3	E621B	0.2	ppbv	1.04 ppbv	112	70.0	130	-----
Chloromethane	74-87-3	E621B	0.2	ppbv	1.04 ppbv	111	70.0	130	-----
Cyclohexane	110-82-7	E621B	0.2	ppbv	1.03 ppbv	123	70.0	130	-----
Dibromochloromethane	124-48-1	E621B	0.2	ppbv	1.06 ppbv	103	70.0	130	-----
Dibromoethane, 1,2-	106-93-4	E621B	0.2	ppbv	1.05 ppbv	108	70.0	130	-----
Dichlorobenzene, 1,2-	95-50-1	E621B	0.2	ppbv	1.04 ppbv	103	70.0	130	-----
Dichlorobenzene, 1,3-	541-73-1	E621B	0.2	ppbv	0.97 ppbv	102	70.0	130	-----
Dichlorobenzene, 1,4-	106-46-7	E621B	0.2	ppbv	0.99 ppbv	99.4	70.0	130	-----
Dichlorodifluoromethane	75-71-8	E621B	0.2	ppbv	0.98 ppbv	93.1	70.0	130	-----
Dichloroethane, 1,1-	75-34-3	E621B	0.2	ppbv	1.05 ppbv	128	70.0	130	-----
Dichloroethane, 1,2-	107-06-2	E621B	0.2	ppbv	1.01 ppbv	106	70.0	130	-----
Dichloroethylene, 1,1-	75-35-4	E621B	0.2	ppbv	1.04 ppbv	101	70.0	130	-----
Dichloroethylene, cis-1,2-	156-59-2	E621B	0.2	ppbv	1.01 ppbv	93.4	70.0	130	-----
Dichloroethylene, trans-1,2-	156-60-5	E621B	0.2	ppbv	1.04 ppbv	98.3	70.0	130	-----
Dichloromethane	75-09-2	E621B	0.2	ppbv	1.06 ppbv	97.8	70.0	130	-----
Dichloropropane, 1,2-	78-87-5	E621B	0.2	ppbv	1.02 ppbv	102	70.0	130	-----
Dichloropropylene, cis-1,3-	10061-01-5	E621B	0.2	ppbv	1.05 ppbv	109	70.0	130	-----
Dichloropropylene, trans-1,3-	10061-02-6	E621B	0.2	ppbv	1.04 ppbv	94.5	70.0	130	-----
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B	0.2	ppbv	1.05 ppbv	88.3	70.0	130	-----
Dioxane, 1,4-	123-91-1	E621B	0.2	ppbv	0.96 ppbv	115	70.0	130	-----
Ethyl acetate	141-78-6	E621B	0.2	ppbv	1.05 ppbv	104	70.0	130	-----



Sub-Matrix: Air

Laboratory Control Sample (LCS) Report									
Analyte	CAS Number	Method	LOR	Unit	Spike	Recovery Limits (%)			Qualifier
						Recovery (%)	Low	High	
Volatile Organic Compounds (QCLot: 2007417) - continued									
Ethylbenzene	100-41-4	E621B	0.1	ppbv	1.04 ppbv	100	70.0	130	✓
Ethyltoluene, 4-	622-96-8	E621B	0.2	ppbv	1.01 ppbv	103	70.0	130	✓
Heptane, n-	142-82-5	E621B	0.2	ppbv	1.06 ppbv	105	70.0	130	✓
Hexachlorobutadiene	87-68-3	E621B	0.2	ppbv	1.02 ppbv	116	70.0	130	✓
Hexane, n-	110-54-3	E621B	0.2	ppbv	1.06 ppbv	103	70.0	130	✓
Hexanone, 2-	591-78-6	E621B	1	ppbv	1.04 ppbv	89.7	70.0	130	✓
Isopropanol	67-63-0	E621B	1	ppbv	1.09 ppbv	94.7	70.0	130	✓
Isopropylbenzene	98-82-8	E621B	0.2	ppbv	1 ppbv	107	70.0	130	✓
Methyl ethyl ketone [MEK]	78-93-3	E621B	0.2	ppbv	1.05 ppbv	111	70.0	130	✓
Methyl isobutyl ketone [MIBK]	108-10-1	E621B	0.2	ppbv	0.99 ppbv	98.7	70.0	130	✓
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B	0.2	ppbv	1.06 ppbv	98.4	70.0	130	✓
Naphthalene	91-20-3	E621B	0.1	ppbv	0.98 ppbv	76.2	70.0	130	✓
Propylene	115-07-1	E621B	0.2	ppbv	1.02 ppbv	112	70.0	130	✓
Styrene	100-42-5	E621B	0.2	ppbv	1.04 ppbv	93.7	70.0	130	✓
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B	0.2	ppbv	0.99 ppbv	114	70.0	130	✓
Tetrachloroethylene	127-18-4	E621B	0.2	ppbv	1.04 ppbv	110	70.0	130	✓
Tetrahydrofuran	109-99-9	E621B	0.2	ppbv	1.04 ppbv	95.1	70.0	130	✓
Toluene	108-88-3	E621B	0.1	ppbv	1.04 ppbv	107	70.0	130	✓
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B	0.2	ppbv	1.05 ppbv	107	70.0	130	✓
Trichlorobenzene, 1,2,4-	120-82-1	E621B	0.2	ppbv	0.99 ppbv	71.8	70.0	130	✓
Trichloroethane, 1,1,1-	71-55-6	E621B	0.2	ppbv	1.05 ppbv	105	70.0	130	✓
Trichloroethane, 1,1,2-	79-00-5	E621B	0.2	ppbv	1.03 ppbv	106	70.0	130	✓
Trichloroethylene	79-01-6	E621B	0.2	ppbv	1.01 ppbv	101	70.0	130	✓
Trichlorofluoromethane	75-69-4	E621B	0.2	ppbv	1.04 ppbv	107	70.0	130	✓
Trimethylbenzene, 1,2,4-	95-63-6	E621B	0.2	ppbv	1.05 ppbv	92.3	70.0	130	✓
Trimethylbenzene, 1,3,5-	108-67-8	E621B	0.2	ppbv	1 ppbv	111	70.0	130	✓
Trimethylpentane, 2,2,4-	540-84-1	E621B	0.2	ppbv	1.04 ppbv	108	70.0	130	✓
Vinyl acetate	108-05-4	E621B	0.5	ppbv	1.05 ppbv	91.9	70.0	130	✓
Vinyl bromide	593-60-2	E621B	0.2	ppbv	0.99 ppbv	108	70.0	130	✓
Vinyl chloride	75-01-4	E621B	0.2	ppbv	1.04 ppbv	119	70.0	130	✓
Xylene, m+p-	179601-23-1	E621B	0.2	ppbv	2.06 ppbv	105	70.0	130	✓
Xylene, o-	95-47-6	E621B	0.1	ppbv	1.03 ppbv	104	70.0	130	✓

APPENDIX 18

Aldehyde Recovery Data Sheet (1 page)

Alliance Technical Group North, Inc. - Recovery & Sample Log
NCASI Method ISS/FP-A105.01

Client: Reworld DYEC
 Job/Report Number: AST-2025-2049
 Received By: Chris Belore
 How Received: Train Recovery
 Job Assigned To: ALS
 Quote / PO #:

Environmental Division
 Burlington
 Work Order Reference
BU2501886



Telephone : +1 905 331 3111

Test Number	Test Location	Alliance Sample ID	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-101	July 10/25	ALD-1	115.9	160.0	164.7	177.0	186.4
2	APC Outlet #1	ALD-102		ALD-2	114.2	161.0	160.8	172.2	182.4
3	APC Outlet #1	ALD-103		ALD-3	113.6	157.2	158.7	173.2	184.4
Blank		Blank		ALD-4	113.8	159.1	158.0	173.2	181.0
1	APC Outlet #2	ALD-105		ALD-5	113.5	157.8	158.4	165.0	178.5
2	APC Outlet #2	ALD-106		ALD-6	113.4	161.4	164.1	174.4	184.5
3	APC Outlet #2	ALD-107		ALD-7	113.6	158.7	162.0	177.5	182.6
	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:

[Signature]

Relinquished to:

AARON BURTON

Date:

July 11/25

Date:

12th 11-July-2025 9:30
 6.2°C

APPENDIX 19

**Aldehyde Analytical Report
(11 pages)**



CERTIFICATE OF ANALYSIS

Work Order	: BU2501886	
Client	: Alliance Technical Group North Inc.	
Contact	: Chris Belore	
Address	: 804 Southdown Road	
	Mississauga Ontario Canada L5J 2Y4	
Telephone	: 905 822 4120	
Project	: AST-2025-2049 Reworld	
PO	: ---	
C-O-C number	: ---	
Sampler	: ---	
Site	: ---	
Quote number	: Reworld	
No. of samples received	: 9	
No. of samples analysed	: 9	
Laboratory Account Manager Address	: ALS Environmental - Burlington	
	: Lynne Wrona	
	: 1435 Norjohn Court, Unit 1	
	Burlington ON Canada L7L 0E6	
E-mail	: Lynne.Wrona@ALSGlobal.com	
Telephone	: +1 905 331 3111	
Date Samples Received	: 11-Jul-2025 09:30	
Date Analysis Commenced	: 29-Jul-2025	
Issue Date	: 01-Aug-2025 14:09	

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
Stephen Kennedy		Organics, 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
µg/sample	micrograms 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.

Workorder Comments

For the aldehydes, the field spike level is 12.5ug. The Acrolein recovery is below the control limit at 16%. As a result, sample acrolein results may be biased low.

Qualifiers

Qualifier	Description
[B]	The analyte was detected in the Method Blank at >10% of the sample concentration.

Sub-Matrix: Impinger
(Matrix: Air)

Please refer to the General Comments section for an explanation of any qualifiers detected.

Sub-Matrix: Impinger
(Matrix: Air)

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: BU2501886	Page	: 1 of 7
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 11-Jul-2025 09:30
PO	: -----	Issue Date	: 01-Aug-2025 14:09
C-O-C number	: -----		
Sampler	: -----		
Site	: -----		
Quote number	: Reworld		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

- Method Blank value outliers occur - please see following pages for full details.
- 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.



Outliers : Quality Control Samples
Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Air								
Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Aldehydes	QC-2101824-001	----	Formaldehyde	50-00-0	E690	1.23 B µg/sampl e	0.1 µg/sample	Blank result exceeds permitted value

Result Qualifiers	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



Page : 4 of 7
Work Order : BU2501886
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Preparation Date			Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-101 Test 1 - APC Outlet #1	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-102 Test 2 - APC Outlet #1	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-103 Test 3 - APC Outlet #1	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-105 Test 1 - APC Outlet #2	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-106 Test 2 - APC Outlet #2	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-107 Test 3 - APC Outlet #2	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-107 Test 3 - APC Outlet #2	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Aldehydes : Aldehydes in Air via BHA solution by GC-MS										
Amber glass/Teflon lined closed cap 25-2049-ALD-Blank	E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓



Page : 5 of 7
Work Order : BU2501886
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

Matrix: Air

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Rec	Holding Times Actual	Eval	Analysis Date	Rec	Holding Times Actual	Eval
Aldehydes : Aldehydes in Air via BHA solution by GC-MS											
Amber glass/Teflon lined closed cap		E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Field BHA Blank											
Aldehydes : Aldehydes in Air via BHA solution by GC-MS											
Amber glass/Teflon lined closed cap		E690	10-Jul-2025	17-Jul-2025	21 days	8 days	✓	29-Jul-2025	40 days	12 days	✓
Field BHA Spike											

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		QC Lot #	Count		Frequency (%)	
Analytical Methods			QC	Regular	Actual	Expected
			Evaluation			
Laboratory Control Samples (LCS)						
Aldehydes in Air via BHA solution by GC-MS	E690	2101824	1	9	11.1	10.0
Method Blanks (MB)						
Aldehydes in Air via BHA solution by GC-MS	E690	2101824	1	9	11.1	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 Descriptions
Aldehydes in Air via BHA solution by GC-MS	E690	Air	NCASI A105.01	Sample is collected in BHA Solution. Extracted compounds are analyzed by GC-MS.	
	ALS Environmental - Burlington				
Preparation Methods					
Extraction (Soxhlet and liquid-liquid) of Stack for Organic Analytes	EP800	Air	EPA Method 3540C (Soxhlet) and EPA Method 3510C (L-L)	Samples are extracted with Soxhlet and/or separatory funnel apparatus, followed by appropriate cleanup.	
	ALS Environmental - Burlington				



QUALITY CONTROL REPORT

Work Order	: BU2501886	Page	: 1 of 2
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 11-Jul-2025 09:30
PO	: ----	Date Analysis Commenced	: 17-Jul-2025
C-O-C number	: ----	Issue Date	: 01-Aug-2025 14:09
Sampler	: ----		
Site	: ----		
Quote number	: Reworld		
No. of samples received	: 9		
No. of samples analysed	: 9		

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:

- Reference Material (RM) 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

Stephen Kennedy	Department Manager - Organics	

	Burlington Organics, Burlington, Ontario	



Page : 2 of 2
Work Order : BU2501886
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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.

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

Sub-Matrix:		Reference Material (RM) Report						
		RM Target Concentration	Recovery (%)		Recovery Limits (%)		Qualifier	
			RM	Low	High			
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method				
Aldehydes (QCLot: 2101824)								
QC-2101824-002	LCS-LL	Acetaldehyde	75-07-0	E690	12.5 µg/sample	98.8	50.0	150
QC-2101824-002	LCS-LL	Acrolein	107-02-8	E690	12.5 µg/sample	63.1	50.0	150
QC-2101824-002	LCS-LL	Formaldehyde	50-00-0	E690	12.5 µg/sample	117	50.0	150

APPENDIX 20

**Proof Data
(30 pages)**

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250203.124

Canister ID: 06000-0209

Analysis Date: 11-Feb-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	103.33	%

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250306.121

Canister ID: 06000-0229

Analysis Date: 14-Mar-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	99.01	%

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250311.123

Canister ID: 06000-0217

Analysis Date: 20-Mar-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	99.28	%

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250325.106

Canister ID: 06000-0299

Analysis Date: 1-Apr-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	95.80	%

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250331.11
Canister ID: 06000-0215
Analysis Date: 16-Apr-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	99.87	%

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250403.109

Canister ID: 06000-0236

Analysis Date: 16-Apr-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	94.80	%

Batch Proof Report



right solutions.
right partner.

Batch Proof ID: 250412.224

Canister ID: 06000-0154

Analysis Date: 23-Apr-25

1,1,1-Trichloroethane	<0.02	ppb(V)	cis-1,3-Dichloropropene	<0.02	ppb(V)
1,1,1,2-Tetrachloroethane	<0.02	ppb(V)	Cyclohexane	<0.20	ppb(V)
1,1,2,2-Tetrachloroethane	<0.02	ppb(V)	Dibromochloromethane	<0.20	ppb(V)
1,1,2-Trichloroethane	<0.02	ppb(V)	Dichlorodifluoromethane	<0.20	ppb(V)
1,1-Dichloroethane	<0.02	ppb(V)	Ethyl Acetate	<0.20	ppb(V)
1,1-Dichloroethene	<0.02	ppb(V)	Ethyl Benzene	<0.02	ppb(V)
1,2,4-Trichlorobenzene	<0.20	ppb(V)	Freon 113	<0.20	ppb(V)
1,2,4-Trimethylbenzene	<0.20	ppb(V)	Freon 114	<0.20	ppb(V)
1,2-Dibromoethane	<0.01	ppb(V)	Hexachlorobutadiene	<0.02	ppb(V)
1,2-Dichlorobenzene	<0.02	ppb(V)	Isooctane	<0.20	ppb(V)
1,2-Dichloroethane	<0.01	ppb(V)	Isopropyl Alcohol	<0.20	ppb(V)
1,2-Dichloropropane	<0.02	ppb(V)	Isopropylbenzene	<0.20	ppb(V)
1,3,5-Trimethylbenzene	<0.20	ppb(V)	m&p-Xylene	<0.04	ppb(V)
1,3-Butadiene	<0.20	ppb(V)	Methyl Ethyl Ketone	<0.20	ppb(V)
1,3-Dichlorobenzene	<0.02	ppb(V)	Methylcyclohexane	<0.20	ppb(V)
1,4-Dichlorobenzene	<0.02	ppb(V)	Methyl Isobutyl Ketone	<0.20	ppb(V)
1,4-Dioxane	<0.20	ppb(V)	Methylene Chloride	<0.02	ppb(V)
2-Chlorophenol	<0.20	ppb(V)	MTBE	<0.20	ppb(V)
2-Hexanone	<1.0	ppb(V)	Naphthalene	<0.05	ppb(V)
4-Ethyltoluene	<0.20	ppb(V)	n-Decane	<0.20	ppb(V)
Acetone	<1.0	ppb(V)	n-Heptane	<0.20	ppb(V)
Acrolein	<0.10	ppb(V)	n-Hexane	<0.02	ppb(V)
Allyl Chloride	<0.20	ppb(V)	o-Xylene	<0.02	ppb(V)
Benzene	<0.02	ppb(V)	Propylene	<0.20	ppb(V)
Benzyl Chloride	<0.20	ppb(V)	Styrene	<0.02	ppb(V)
Bromodichloromethane	<0.20	ppb(V)	Tetrachloroethylene	<0.02	ppb(V)
Bromobenzene	<0.20	ppb(V)	Tetrahydrofuran	<0.20	ppb(V)
Bromoform	<0.02	ppb(V)	Toluene	<0.02	ppb(V)
Bromomethane	<0.20	ppb(V)	trans-1,2-Dichloroethene	<0.02	ppb(V)
Carbon Disulfide	<0.50	ppb(V)	trans-1,3-Dichloropropene	<0.02	ppb(V)
Carbon Tetrachloride	<0.02	ppb(V)	Trichloroethylene	<0.02	ppb(V)
Chlorobenzene	<0.20	ppb(V)	Trichlorofluoromethane	<0.20	ppb(V)
Chloroethane	<0.02	ppb(V)	Vinyl Acetate	<0.50	ppb(V)
Chloroform	<0.02	ppb(V)	Vinyl Bromide	<0.20	ppb(V)
Chloromethane	<0.20	ppb(V)	Vinyl Chloride	<0.02	ppb(V)
cis-1,2-Dichloroethene	<0.02	ppb(V)	4-Bromofluorobenzene	96.86	%

CERTIFICATE OF ANALYSIS

Work Order	: BU2500923	
Amendment	: 1	
Client	: Alliance Technical Group North Inc.	
Contact	: Chris Belore	
Address	: 804 Southdown Road	
	: Mississauga Ontario Canada L5J 2Y4	
Telephone	: 905 822 4120	
Project	: AST-2025-2049 Reworld	
PO	: 25-2049	
C-O-C number	: ---	
Sampler	: ---	
Site	: ---	
Quote number	: SVOC Standing Offer	
No. of samples received	: 68	
No. of samples analysed	: 68	
Laboratory	: ALS Environmental - Burlington	
Account Manager	: Lynne Wrona	
Address	: 1435 Norjohn Court, Unit 1	
	: Burlington ON Canada L7L 0E6	
E-mail	: Lynne.Wrona@ALSGlobal.com	
Telephone	: +1 905 331 3111	
Date Samples Received	: 11-Apr-2025 16:11	
Date Analysis Commenced	: 25-Apr-2025	
Issue Date	: 05-Aug-2025 10:22	

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- General Comments
- Analytical Results
- Surrogate Control Limits

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		Inorganics, Burlington, Ontario
Milithza Silva		Inorganics, Burlington, Ontario
Sabrina Jin		Organics, Burlington, Ontario
Stephen Kennedy		Organics, 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
ng/sample	nanograms per sample
µg/sample	micrograms 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.

Workorder Comments

Amendment (05/08/2025): This report has been amended as a result of changes to the contacts for the distribution of the report. All analysis results are as per the previous report.

Qualifiers

Qualifier	Description
SUR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detected results for associated samples were deemed to be unaffected.



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID				0.1N Sulphuric acid Proof				Glassware proof	Glassware proof	BHA Solution Proof
		CAS Number	Method/Lab	LOR	Unit	11-Apr-2025 00:00	11-Apr-2025 00:00	11-Apr-2025 00:00	11-Apr-2025 00:00	11-Apr-2025 00:00		
Analyte						Result	Result	Result	Result	Result	Result	
Physical Tests												
Volume, impinger	n/a	EF003.I/BU	0.0010	L	1.00							
Inorganics												
Chloride, average	16887-00-6	E252/BU	0.47	mg/L	<0.47							
Chloride, replicate 1	16887-00-6	E252/BU	0.47	mg/L	<0.47							
Chloride, replicate 2	16887-00-6	E252/BU	0.47	mg/L	<0.47							
Fluoride, average	----	E252/BU	0.31	mg/L	<0.31							
Fluoride, replicate 1	----	E252/BU	0.31	mg/L	<0.31							
Fluoride, replicate 2	----	E252/BU	0.31	mg/L	<0.31							
Hydrogen chloride, average	7647-01-0	EC252/BU	0.015	mg/sample	<0.480							
Hydrogen chloride, replicate 1	7647-01-0	EC252/BU	0.015	mg/sample	<0.480							
Hydrogen chloride, replicate 2	7647-01-0	EC252/BU	0.015	mg/sample	<0.480							
Hydrogen fluoride, average	7664-39-3	EC252/BU	0.0098	mg/sample	<0.330							
Hydrogen fluoride, replicate 1	7664-39-3	EC252/BU	0.0098	mg/sample	<0.330							
Hydrogen fluoride, replicate 2	7664-39-3	EC252/BU	0.0098	mg/sample	<0.330							
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	83-32-9	E649/BU	2.0	ng/sample	----	<12.0	<12.0	<12.0	<12.0			
Acenaphthylene	208-96-8	E649/BU	2.0	ng/sample	----	<12.0	<12.0	<12.0	<12.0			
Anthracene	120-12-7	E649/BU	2.0	ng/sample	----	<12.0	<12.0	<12.0	<12.0			
Benz(a)anthracene	56-55-3	E649/BU	2.0	ng/sample	----	<12.0	<12.0	<12.0	<12.0			



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID				0.1N Sulphuric acid Proof		Glassware proof		Glassware proof		Glassware proof		BHA Solution Proof	
		Client sampling date / time		LOR	Unit										
Analyte	CAS Number	Method/Lab			Result	Result	Result	Result	Result	Result	Result	Result	Result		
Polycyclic Aromatic Hydrocarbons															
Benz(b)anthracene + Chrysene + Triphenylene	n/a	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Benzo(a)pyrene	50-32-8	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Benzo(b)fluoranthene	205-99-2	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Benzo(e)pyrene	192-97-2	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Benzo(g,h,i)perylene	191-24-2	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Benzo(j+k)fluoranthenes	n/a	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Biphenyl	92-52-4	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Coronene	191-07-1	E649/BU	10	ng/sample	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	
Dibenz(a,c+a,h)anthracenes	n/a	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Fluoranthene	206-44-0	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Fluorene	86-73-7	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Indeno(1,2,3-c,d)pyrene	193-39-5	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Methylnaphthalene, 1-	90-12-0	E649/BU	2.0	ng/sample	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Methylnaphthalene, 2-	91-57-6	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Methylphenanthrene, 1-	832-69-9	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Naphthalene	91-20-3	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Perylene	198-55-0	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	
Phenanthrene	85-01-8	E649/BU	2.0	ng/sample	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID				Client sampling date / time		0.1N Sulphuric acid Proof		Glassware proof		Glassware proof		BHA Solution Proof	
Analyte	CAS Number	Method/Lab	LOR	Unit											
Polycyclic Aromatic Hydrocarbons															
Pyrene	129-00-0	E649/BU	2.0	ng/sample											
Polycyclic Aromatic Hydrocarbons Surrogates															
Acenaphthylene-d8	93951-97-4	E649/BU	2.0	%											
Anthracene-d10	1719-06-8	E649/BU	2.0	%											
Benz(a)anthracene-d12	1718-53-2	E649/BU	2.0	%											
Benzo(a)pyrene-d12	63466-71-7	E649/BU	2.0	%											
Benzo(b)fluoranthene-d12	93951-98-5	E649/BU	2.0	%											
Benzo(g,h,i)perylene-d12	93951-66-7	E649/BU	2.0	%											
Benzo(k)fluoranthene-d12	93952-01-3	E649/BU	2.0	%											
Chrysene-d12	1719-03-5	E649/BU	2.0	%											
Dibenz(a,h)anthracene-d14	13250-98-1	E649/BU	2.0	%											
Fluoranthene-d10	93951-69-0	E649/BU	2.0	%											
Indeno(1,2,3-cd)pyrene-d12	203578-33-0	E649/BU	2.0	%											
Methylnaphthalene-d10, 2-	38072-94-5	E649/BU	2.0	%											
Naphthalene-d8	1146-65-2	E649/BU	2.0	%											
Perylene-d12	1520-96-3	E649/BU	2.0	%											
Phenanthrene-d10	1517-22-2	E649/BU	2.0	%											
Aldehydes															
Acetaldehyde	75-07-0	E690/BU	0.10	µg/sample											<0.50
Acrolein	107-02-8	E690/BU	0.10	µg/sample											<0.50



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID		Client sampling date / time		0.1N Sulphuric acid Proof		Glassware proof		Glassware proof		Glassware proof		BHA Solution Proof	
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Aldehydes													
Formaldehyde	50-00-0	E690/BU	0.10	µg/sample									<0.50
Propionaldehyde	123-38-6	E690/BU	0.10	µg/sample									<0.50
Chlorinated Benzenes													
Chlorobenzene	108-90-7	E650/BU	2.0	ng/sample									
Dichlorobenzene, 1,2-	95-50-1	E650/BU	2.0	ng/sample									
Dichlorobenzene, 1,3-	541-73-1	E650/BU	2.0	ng/sample									
Dichlorobenzene, 1,4-	106-46-7	E650/BU	2.0	ng/sample									
Hexachlorobenzene	118-74-1	E650/BU	2.0	ng/sample									
Pentachlorobenzene	608-93-5	E650/BU	2.0	ng/sample									
Tetrachlorobenzene, 1,2,3,4-	634-66-2	E650/BU	2.0	ng/sample									
Tetrachlorobenzene, 1,2,3,5- + 1,2,4,5-	----	E650/BU	2.0	ng/sample									
Trichlorobenzene, 1,2,3-	87-61-6	E650/BU	2.0	ng/sample									
Trichlorobenzene, 1,2,4-	120-82-1	E650/BU	2.0	ng/sample									
Trichlorobenzene, 1,3,5-	108-70-3	E650/BU	2.0	ng/sample									
Chlorinated Benzenes Surrogates													
Chlorobenzene-13C6	287389-52-0	E650/BU	2.0	%									
Dichlorobenzene-13C6, 1,4-	----	E650/BU	2.0	%									
Hexachlorobenzene-13C6	----	E650/BU	2.0	%									
Pentachlorobenzene-13C6	----	E650/BU	2.0	%									



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Sub-Matrix: Impinger (Matrix: Air)		Client sample ID				0.1N Sulphuric acid Proof		Glassware proof	Glassware proof	Glassware proof	BHA Solution Proof
Analyte	CAS Number	Method/Lab	Client sampling date / time		0.1N Sulphuric acid Proof	Glassware proof	Glassware proof	Glassware proof	BHA Solution Proof		
			LOR	Unit							
Chlorinated Benzenes Surrogates											
Tetrachlorobenzene-13C6, 1,2,3,4-	-----	E650/BU	2.0	%	-----	109	118	123	-----	-----	
Trichlorobenzene-13C6, 1,2,3-	-----	E650/BU	2.0	%	-----	97.8	99.6	109	-----	-----	
Chlorinated Phenolics											
Chlorophenol, 2-	95-57-8	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Chlorophenol, 3+4-	n/a	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Dichlorophenol, 2,3-	576-24-9	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Dichlorophenol, 2,4- + 2,5-	-----	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Dichlorophenol, 2,6-	87-65-0	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Dichlorophenol, 3,4-	95-77-2	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Dichlorophenol, 3,5-	591-35-5	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Hexachlorophene	70-30-4	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Pentachlorophenol	87-86-5	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Tetrachlorophenol, 2,3,4,5- + 2,3,4,6-	n/a	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Tetrachlorophenol, 2,3,5,6-	935-95-5	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Trichlorophenol, 2,3,4-	15950-66-0	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Trichlorophenol, 2,3,5-	933-78-8	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Trichlorophenol, 2,3,6-	933-75-5	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Trichlorophenol, 2,4,5-	95-95-4	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	
Trichlorophenol, 2,4,6-	88-06-2	E651L/BU	10	ng/sample	-----	<60	<60	<60	-----	-----	



Analytical Results

Sub-Matrix: Impinger
(Matrix: Air)

Client sample ID		Client sampling date / time		0.1N Sulphuric acid Proof		Glassware proof		Glassware proof		Glassware proof		BHA Solution Proof	
Analyte	CAS Number	Method/Lab	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorinated Phenolics													
Trichlorophenol, 3,4,5-	609-19-8	E651L/BU	10	ng/sample	<60	<60	<60	<60	<60	<60	<60	<60	<60
Chlorinated Phenolics Surrogates													
Chlorophenol-13C6, 4-	n/a	E651L/BU	10	%	38.9 SUR-ND	72.4	49.5 SUR-ND	42.1 SUR-ND	48.1 SUR-ND	62.2	58.5	70.4	75.8
Dichlorophenol-13C6, 2,4-	n/a	E651L/BU	10	%	46.3 SUR-ND	42.1 SUR-ND	46.3 SUR-ND	42.1 SUR-ND	48.1 SUR-ND	62.2	58.5	70.4	75.8
Pentachlorophenol-13C6	85380-74-1	E651L/BU	10	%	46.5 SUR-ND	68.9	46.5 SUR-ND	68.9	62.2	58.5	70.4	75.8	75.8
Tetrachlorophenol-13C6, 2,3,4,5-	n/a	E651L/BU	10	%	79.7	69.0	79.7	69.0	58.5	70.4	75.8	75.8	75.8
Trichlorophenol-13C6, 2,4,5-	n/a	E651L/BU	10	%	40.5 SUR-ND	75.8	40.5 SUR-ND	75.8	70.4	75.8	75.8	75.8	75.8

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: BU2500923	Page	: 1 of 6
Amendment	: 1		
Client	: Alliance Technical Group North 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	: AST-2025-2049 Reworld	Date Samples Received	: 11-Apr-2025 16:11
PO	: 25-2049	Issue Date	: 05-Aug-2025 10:21
C-O-C number	: ---		
Sampler	: ---		
Site	: ---		
Quote number	: SVOC Standing Offer		
No. of samples received	: 68		
No. of samples analysed	: 5		

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.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



Regular Sample Surrogates

Sub-Matrix: Impinger

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Chlorinated Phenolics Surrogates	BU2500923-051	Glassware proof	Chlorophenol-13C6, 4-	n/a	38.9 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2500923-053	Glassware proof	Chlorophenol-13C6, 4-	n/a	49.5 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2500923-051	Glassware proof	Dichlorophenol-13C6, 2,4-	n/a	46.3 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2500923-052	Glassware proof	Dichlorophenol-13C6, 2,4-	n/a	42.1 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2500923-053	Glassware proof	Dichlorophenol-13C6, 2,4-	n/a	48.1 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2500923-051	Glassware proof	Pentachlorophenol-13C6	85380-74-1	46.5 %	50.0-150 %	Recovery less than lower data quality objective
Chlorinated Phenolics Surrogates	BU2500923-051	Glassware proof	Trichlorophenol-13C6, 2,4,5-	n/a	40.5 %	50.0-150 %	Recovery less than lower data quality objective



Page : 4 of 6
Work Order : BU2500923 Amendment 1
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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		Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)				Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aldehydes : Aldehydes in Air via BHA solution by GC-MS											
Amber glass/Teflon lined closed cap BHA Solution Proof		E690	11-Apr-2025	29-Apr-2025	21 days	19 days	✓	05-May-2025	40 days	6 days	✓
Chlorinated Benzenes : Chlorobenzenes in Stack by GC-MS											
XAD Sorbent Trap Glassware proof, Glassware proof, Glassware proof		E650	11-Apr-2025	24-Apr-2025	14 days	14 days	✓	27-Jun-2025	40 days	64 days	✗ EHT
Chlorinated Phenolics : Chlorophenols in Stack by GC-MS											
XAD Sorbent Trap Glassware proof, Glassware proof, Glassware proof		E651L	11-Apr-2025	24-Apr-2025	14 days	14 days	✓	10-Jul-2025	14 days	14 days	✗ EHT
Inorganics : Ion Chromatography Analysis (M26/26A Anions)											
M26/A: HDPE (0.1N H2SO4) 0.1N Sulphuric acid Proof		E252	11-Apr-2025	25-Apr-2025	28 days	14 days	✓	25-Apr-2025	28 days	14 days	✓
Physical Tests : Stack Emission Impinger volume (L)											
M26/A: HDPE (0.1N H2SO4) 0.1N Sulphuric acid Proof		EF003.I	11-Apr-2025	----	----	----		25-Apr-2025	----	----	
Polycyclic Aromatic Hydrocarbons : PAHs - Extended List in Stack by GC-MS											
XAD Sorbent Trap Glassware proof, Glassware proof, Glassware proof		E649	11-Apr-2025	24-Apr-2025	21 days	14 days	✓	07-May-2025	40 days	13 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		QC Lot #	Count		Frequency (%)		
Analytical Methods			QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Ion Chromatography Analysis (M26/26A Anions)	E252	1965543	1	1	100.0	5.0	✓
	E651L	1962157	0	3	0.0	5.0	✗
Laboratory Control Samples (LCS)							
Ion Chromatography Analysis (M26/26A Anions)	E252	1965543	1	1	100.0	5.0	✓
	E649	1962154	0	3	0.0	5.0	✗
PAHs - Extended List in Stack by GC-MS	E650	1962158	0	3	0.0	5.0	✗
Chlorobenzenes in Stack by GC-MS	E651L	1962157	0	3	0.0	5.0	✗
Chlorophenols in Stack by GC-MS	E690	1969698	0	1	0.0	10.0	✗
Method Blanks (MB)							
Ion Chromatography Analysis (M26/26A Anions)	E252	1965543	1	1	100.0	5.0	✓
	E649	1962154	1	3	33.3	5.0	✓
PAHs - Extended List in Stack by GC-MS	E650	1962158	1	3	33.3	5.0	✓
Chlorobenzenes in Stack by GC-MS	E651L	1962157	1	3	33.3	5.0	✓
Chlorophenols in Stack by GC-MS	E690	1969698	1	1	100.0	5.0	✓
Matrix Spikes (MS)							
Ion Chromatography Analysis (M26/26A Anions)	E252	1965543	1	1	100.0	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 Descriptions
Ion Chromatography Analysis (M26/26A Anions)	ALS Environmental - Burlington	E252	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).
	PAHs - Extended List in Stack by GC-MS	ALS Environmental - Burlington	E649	Air	Modified CARB 429
Chlorobenzenes in Stack by GC-MS	ALS Environmental - Burlington	E650	Air	EPA Method 8270E	Sample extracts are analyzed for chlorobenzene analytes using selected ion monitoring (SIM) by GC-MS, using isotope dilution.
	Chlorophenols in Stack by GC-MS	ALS Environmental - Burlington	E651L	Air	EPA Method 8270E
Aldehydes in Air via BHA solution by GC-MS	ALS Environmental - Burlington	E690	Air	NCASI A105.01	Sample is collected in BHA Solution. Extracted compounds are analyzed by GC-MS.
Ion Chromatography Analysis (M26/26A Anions)	ALS Environmental - Burlington	EC252	Air	unit conversion	Convert mg/L to mg/sample
Stack Emission Impinger volume (L)	ALS Environmental - Burlington	EF003.I	Air		Volume of impinger contents is measured in the laboratory for use in later calculations.
Preparation Methods					
Extraction (Soxhlet and liquid-liquid) of Stack for Organic Analytes	ALS Environmental - Burlington	EP800	Air	EPA Method 3540C (Soxhlet) and EPA Method 3510C (L-L)	Samples are extracted with Soxhlet and/or separatory funnel apparatus, followed by appropriate cleanup.



QUALITY CONTROL REPORT

Work Order	: BU2500923	Page	: 1 of 5
Amendment	: 1		
Client	: Alliance Technical Group North Inc.	Laboratory	: ALS Environmental - Burlington
Contact	: Chris Before	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	: AST-2025-2049 Reworld	Date Samples Received	: 11-Apr-2025 16:11
PO	: 25-2049	Date Analysis Commenced	: 24-Apr-2025
C-O-C number	: ----	Issue Date	: 05-Aug-2025 10:21
Sampler	: ----		
Site	: ----		
Quote number	: SVOC Standing Offer		
No. of samples received	: 68		
No. of samples analysed	: 5		

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Gamini Nadu	Analyst	Burlington Inorganics, Burlington, Ontario
Milithza Silva	Manager - Inorganics	Burlington Inorganics, Burlington, Ontario
Sabrina Jin	Analyst	Burlington Organics, Burlington, Ontario
Stephen Kennedy	Department Manager - Organics	Burlington Organics, Burlington, Ontario



Page : 2 of 5
Work Order : BU2500923 Amendment 1
Client : Alliance Technical Group North Inc.
Project : AST-2025-2049 Reworld

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

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: 1965543)											
BU2500923-032	0.1N Sulphuric acid Proof	Chloride, average	16887-00-6	E252	0.47	mg/L	<0.47	<0.47	0	Diff <2x LOR	----
		Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	<0.47	<0.47	0	Diff <2x LOR	----
		Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	<0.47	<0.47	0	Diff <2x LOR	----
		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	----



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: 1965543)						
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	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1962154)						
Acenaphthene	83-32-9	E649	2	ng/sample	<12.0	----
Acenaphthylene	208-96-8	E649	2	ng/sample	<12.0	----
Anthracene	120-12-7	E649	2	ng/sample	<12.0	----
Benz(a)anthracene	56-55-3	E649	2	ng/sample	<12.0	----
Benz(b)anthracene + Chrysene + Triphenylene	n/a	E649	2	ng/sample	<2.0	----
Benzo(a)pyrene	50-32-8	E649	2	ng/sample	<12.0	----
Benzo(b)fluoranthene	205-99-2	E649	2	ng/sample	<2.0	----
Benzo(e)pyrene	192-97-2	E649	2	ng/sample	<12.0	----
Benzo(g,h,i)perylene	191-24-2	E649	2	ng/sample	<12.0	----
Benzo(j+k)fluoranthenes	n/a	E649	2	ng/sample	<2.0	----
Biphenyl	92-52-4	E649	2	ng/sample	<12.0	----
Coronene	191-07-1	E649	10	ng/sample	<12	----
Dibenz(a,c+a,h)anthracenes	n/a	E649	2	ng/sample	<2.0	----
Fluoranthene	206-44-0	E649	2	ng/sample	<12.0	----
Fluorene	86-73-7	E649	2	ng/sample	<12.0	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E649	2	ng/sample	<12.0	----
Methylnaphthalene, 1-	90-12-0	E649	2	ng/sample	<2.0	----
Methylnaphthalene, 2-	91-57-6	E649	2	ng/sample	<12.0	----
Methylphenanthrene, 1-	832-69-9	E649	2	ng/sample	<12.0	----
Naphthalene	91-20-3	E649	2	ng/sample	<12.0	----
Perylene	198-55-0	E649	2	ng/sample	<12.0	----
Phenanthrene	85-01-8	E649	2	ng/sample	<12.0	----
Pyrene	129-00-0	E649	2	ng/sample	<12.0	----
Aldehydes (QCLot: 1969698)						
Acetaldehyde	75-07-0	E690	0.1	µg/sample	<0.50	----



Sub-Matrix: Air

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Aldehydes (QCLot: 1969698) - continued						
Acrolein	107-02-8	E690	0.1	µg/sample	<0.50	----
Formaldehyde	50-00-0	E690	0.1	µg/sample	<0.50	----
Propionaldehyde	123-38-6	E690	0.1	µg/sample	<0.50	----
Chlorinated Benzenes (QCLot: 1962158)						
Chlorobenzene	108-90-7	E650	2	ng/sample	<2.0	----
Dichlorobenzene, 1,2-	95-50-1	E650	2	ng/sample	<2.0	----
Dichlorobenzene, 1,3-	541-73-1	E650	2	ng/sample	<2.0	----
Dichlorobenzene, 1,4-	106-46-7	E650	2	ng/sample	<2.0	----
Hexachlorobenzene	118-74-1	E650	2	ng/sample	<2.0	----
Pentachlorobenzene	608-93-5	E650	2	ng/sample	<2.0	----
Tetrachlorobenzene, 1,2,3,4-	634-66-2	E650	2	ng/sample	<2.0	----
Tetrachlorobenzene, 1,2,3,5- + 1,2,4,5-	----	E650	2	ng/sample	<2.0	----
Trichlorobenzene, 1,2,3-	87-61-6	E650	2	ng/sample	<2.0	----
Trichlorobenzene, 1,2,4-	120-82-1	E650	2	ng/sample	<2.0	----
Trichlorobenzene, 1,3,5-	108-70-3	E650	2	ng/sample	<2.0	----
Chlorinated Phenolics (QCLot: 1962157)						
Chlorophenol, 2-	95-57-8	E651L	10	ng/sample	<60	----
Chlorophenol, 3+4-	n/a	E651L	10	ng/sample	<60	----
Dichlorophenol, 2,3-	576-24-9	E651L	10	ng/sample	<60	----
Dichlorophenol, 2,4- + 2,5-	----	E651L	10	ng/sample	<60	----
Dichlorophenol, 2,6-	87-65-0	E651L	10	ng/sample	<60	----
Dichlorophenol, 3,4-	95-77-2	E651L	10	ng/sample	<60	----
Dichlorophenol, 3,5-	591-35-5	E651L	10	ng/sample	<60	----
Hexachlorophene	70-30-4	E651L	10	ng/sample	<60	----
Pentachlorophenol	87-86-5	E651L	10	ng/sample	<60	----
Tetrachlorophenol, 2,3,4,5- + 2,3,4,6-	n/a	E651L	10	ng/sample	<60	----
Tetrachlorophenol, 2,3,5,6-	935-95-5	E651L	10	ng/sample	<60	----
Trichlorophenol, 2,3,4-	15950-66-0	E651L	10	ng/sample	<60	----
Trichlorophenol, 2,3,5-	933-78-8	E651L	10	ng/sample	<60	----
Trichlorophenol, 2,3,6-	933-75-5	E651L	10	ng/sample	<60	----
Trichlorophenol, 2,4,5-	95-95-4	E651L	10	ng/sample	<60	----
Trichlorophenol, 2,4,6-	88-06-2	E651L	10	ng/sample	<60	----
Trichlorophenol, 3,4,5-	609-19-8	E651L	10	ng/sample	<60	----



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

Sub-Matrix: Air									
Laboratory Control Sample (LCS) Report									
Analyte	CAS Number	Method	LOR	Unit	Spike	Recovery (%)	Recovery Limits (%)	Qualifier	
					Target Concentration	LCS	Low		High
Inorganics (QCLot: 1965543)									
Chloride, average	16887-00-6	E252	0.47	mg/L	15 mg/L	103	90.0	110	10-120.00
Chloride, replicate 1	16887-00-6	E252	0.47	mg/L	15 mg/L	103	90.0	110	10-120.00
Chloride, replicate 2	16887-00-6	E252	0.47	mg/L	15 mg/L	104	90.0	110	10-120.00
Fluoride, average	----	E252	0.31	mg/L	10 mg/L	104	90.0	110	10-120.00
Fluoride, replicate 1	----	E252	0.31	mg/L	10 mg/L	104	90.0	110	10-120.00
Fluoride, replicate 2	----	E252	0.31	mg/L	10 mg/L	105	90.0	110	10-120.00

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

Sub-Matrix: Air										
				Matrix Spike (MS) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery Limits (%)		Qualifier	
					Concentration	Target	MS	Low		High
Inorganics (QCLot: 1965543)										
BU2500923-032	0.1N Sulphuric acid Proof	Chloride, average	16887-00-6	E252	15.9 mg/L	15 mg/L	106	90.0	110	MSD MS
		Chloride, replicate 1	16887-00-6	E252	15.9 mg/L	15 mg/L	106	90.0	110	MSD MS
		Chloride, replicate 2	16887-00-6	E252	15.9 mg/L	15 mg/L	106	90.0	110	MSD MS
		Fluoride, average	-----	E252	10.2 mg/L	10 mg/L	102	90.0	110	MSD MS
		Fluoride, replicate 1	-----	E252	10.1 mg/L	10 mg/L	101	90.0	110	MSD MS
		Fluoride, replicate 2	-----	E252	10.2 mg/L	10 mg/L	102	90.0	110	MSD MS



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
ALS Project ID: ORTE100
ALS WO#: BU2500923
Date of Report 9-May-25
Date of Sample Receipt 11-Apr-25

Client Name: Alliance Technical Group North Inc.
Client Address: 804 Southdown Road
Mississauga
Client Contact: Chris Belore
Client Project ID: AST-2025-2049

COMMENTS: PCDD/F by EPA M23

The proofs consist of the pooled solvent rinses of 10 sets of the following:

BU2500923-051 U-BENDS, S-TUBES, BYPASS TUBES, TRAPS
BU2500923-052 IMPOINGERS, J-JOINTS
BU2500923-053 HOUSING PARTS, FILTER HOLDERS

Certified by:

Steve Kennedy
Technical Supervisor

Results in this certificate relate only to the samples as submitted to the laboratory.

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ALS Life Sciences

Sample Analysis summary Report

Sample Name	Method Blank	Glassware proof	Glassware proof	Glassware proof
ALS Sample ID	QC-MRG5-1962154-	BU2500923-051	BU2500923-052	BU2500923-053
Sample Size	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample
Percent Moisture	n/a	n/a	n/a	n/a
Sample Matrix	QC	Media Prep	Media Prep	Media Prep
Sampling Date	n/a	11-Apr-25	11-Apr-25	11-Apr-25
Extraction Date	24-Apr-25	24-Apr-25	24-Apr-25	24-Apr-25
Target Analytes	pg	pg	pg	pg
2,3,7,8-TCDD	<2.4	<2.4	<2.3	<2.5
1,2,3,7,8-PeCDD	<1.8	<2.1	<1.7	<3.5
1,2,3,4,7,8-HxCDD	1.82	<2.8	<2.7	<3.3
1,2,3,6,7,8-HxCDD	<1.5	<2.7	<2.7	<3.2
1,2,3,7,8,9-HxCDD	3.18	<2.7	<2.7	<3.2
1,2,3,4,6,7,8-HpCDD	<5.5	<4.0	<3.0	<3.5
OCDD	<26	<30	<21	<33
2,3,7,8-TCDF	<2.8	<3.2	<2.6	<2.5
1,2,3,7,8-PeCDF	2.38	<2.1	<1.5	<1.9
2,3,4,7,8-PeCDF	<1.4	<1.9	<1.4	<1.7
1,2,3,4,7,8-HxCDF	1.27	<1.7	<1.2	<1.7
1,2,3,6,7,8-HxCDF	<1.1	1.77	<1.1	<1.6
2,3,4,6,7,8-HxCDF	<1.1	<1.6	<1.1	<1.7
1,2,3,7,8,9-HxCDF	<1.7	<1.9	1.85	<1.9
1,2,3,4,6,7,8-HpCDF	<3.0	2.48	2.88	<2.6
1,2,3,4,7,8,9-HpCDF	<3.6	<2.3	2.20	<3.0
OCDF	<16	<8.4	<7.8	<7.8
Extraction Standards				
13C12-2,3,7,8-TCDD	93	85	94	80
13C12-1,2,3,7,8-PeCDD	95	82	96	77
13C12-1,2,3,6,7,8-HxCDD	93	87	99	82
13C12-1,2,3,4,6,7,8-HpCDD	106	84	98	70
13C12-OCDD	81	59	86	57
13C12-2,3,7,8-TCDF	102	91	101	84
13C12-1,2,3,7,8-PeCDF	105	90	103	81
13C12-1,2,3,6,7,8-HxCDF	102	97	112	90
13C12-1,2,3,4,6,7,8-HpCDF	100	83	98	68
Homologue Group Totals	pg	pg	pg	pg
Total-TCDD	5.12	<2.4	6.34	<2.5
Total-PeCDD	<1.8	<2.1	<1.7	<3.5
Total-HxCDD	10.5	<2.8	4.69	<3.3
Total-HpCDD	2.76	<2.7	2.76	5.05
Total-TCDF	<2.8	9.56	<2.6	9.29
Total-PeCDF	2.38	<2.1	<1.5	<1.9
Total-HxCDF	3.70	<1.9	1.85	<1.9
Total-HpCDF	<3.6	2.48	5.08	<3.0
Toxic Equivalency - (WHO 2005)				
Lower Bound PCDD/F TEQ (WHO 2005)	0.698	0.202	0.236	0.00
Mid Point PCDD/F TEQ (WHO 2005)	3.60	3.66	3.21	4.31
Upper Bound PCDD/F TEQ (WHO 2005)	6.27	7.07	6.15	8.58



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
ALS Project ID: ORTE100
ALS WO#: BU2500923
Date of Report: 9-May-25
Date of Sample Receipt: 11-Apr-25

Client Name: Alliance Technical Group North Inc.
Client Address: 804 Southdown Road
Mississauga ON
L5J 2Y4
Client Contact: Chris Belore
Client Project ID: AST-2025-2049

COMMENTS: Toxic PCB Congeners by EPA 1668C

The proofs consist of the pooled solvent rinses of 10 sets of the following:

BU2500923-051	U-BENDS, S-TUBES, BYPASS TUBES, TRAPS
BU2500923-052	IMPOINGERS, J-JOINTS
BU2500923-053	HOUSING PARTS, FILTER HOLDERS

Certified by:

A handwritten signature in black ink, appearing to read "Steve Kennedy", is written over a horizontal line.

Steve Kennedy
Technical Supervisor

Results in this certificate relate only to the samples as submitted to the laboratory.

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ALS Life Sciences

Sample Analysis Summary Report

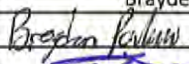
Sample Name	MB	Glassware proof	Glassware proof	Glassware proof
ALS Sample ID	QC-MRG5-	BU2500923-051	BU2500923-052	BU2500923-053
Sample Size	1	1	1	1
Sample size units	Sample	Sample	Sample	Sample
Splits	6	6	6	6
Percent Moisture	n/a	n/a	n/a	n/a
Sample Matrix	QC	Media Prep	Media Prep	Media Prep
Sampling Date	n/a	11-Apr-25	11-Apr-25	11-Apr-25
Extraction Date	24-Apr-25	24-Apr-25	24-Apr-25	24-Apr-25
Target Analytes	pg	pg	pg	pg
PCB-081	<12	<3.4	<5.2	<3.3
PCB-077	<13	4.60	<5.4	10.2
PCB-123	<11	<4.4	<5.7	<3.5
PCB-118	<8.5	<6.6	<4.4	217
PCB-114	<9.9	<4.2	<4.9	<5.4
PCB-105	<10	<4.2	<5.4	<74
PCB-126	<9.7	<4.2	<5.1	<3.5
PCB-167	<5.6	<2.2	<2.8	<2.5
PCB-156/157	<6.7	3.26	<3.2	<8.4
PCB-169	<4.8	<2.0	<2.6	<2.2
PCB-189	<4.1	<2.2	<2.6	<2.0
Extraction Standards	% Rec	% Rec	% Rec	% Rec
13C12-PCB-081	75	98	86	88
13C12-PCB-077	72	102	84	93
13C12-PCB-123	78	96	83	87
13C12-PCB-118	91	108	98	97
13C12-PCB-114	85	98	89	90
13C12-PCB-105	81	96	85	85
13C12-PCB-126	91	100	89	90
13C12-PCB-167	85	96	90	89
13C12-PCB-156/157	101	119	108	106
13C12-PCB-169	110	118	108	116
13C12-PCB-189	113	115	103	106
Toxic Equivalency - (WHO 2005)				
Lower Bound PCB TEQ	0.00	0.000558	0.00	0.00753
Mid Point PCB TEQ	0.560	0.242	0.295	0.219
Upper Bound PCB TEQ	1.12	0.482	0.591	0.427

APPENDIX 21

Equipment Calibration Data (16 pages)

ORTECH Alliance Consulting Inc.
Pitot Tube Calibration

Date	January 20, 2025
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	Alliance Testing Group North
Calibrated By	Brayden Pacheco
Signature	
Reviewed/Accepted By	

Cp = Cpstd *	Pstd
	Ps

Nozzle Size inches	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H ₂ O Pstd	Velocity Head S-Type Pitot in. H ₂ O Ps	S-Type Pitot Coefficient Cp_s	Deviation From The Mean
NA	8.38	0.170	0.240	0.841	0.0011
	10.37	0.260	0.370	0.838	0.0023
	12.37	0.370	0.520	0.843	0.0030
	14.59	0.515	0.730	0.839	0.0006
	17.49	0.740	1.050	0.839	0.0011
			Mean	0.840	0.0016

Note: Pitots must always be used in the orientation that they are calibrated in.

Acceptance Criteria:

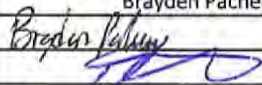
The Cp of Standard Pitots must be in the range of 0.99 ±0.01.

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 Alliance Consulting Inc.
Pitot Tube Calibration

Date	January 20, 2025
Probe/Pitot ID	S8
MII Number	B03769
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

Calibration Facility	Alliance Testing Group North
Calibrated By	Brayden Pacheco
Signature	
Reviewed/Accepted By	

Cp = Cpstd *	Pstd
	Ps

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H ₂ O Pstd	Velocity Head S-Type Pitot in. H ₂ O Ps	S-Type Pitot Coefficient Cp _s	Deviation From The Mean
With Nozzle	7.88	0.150	0.210	0.845	0.0047
(0.25")	9.54	0.220	0.310	0.842	0.0020
	11.32	0.310	0.440	0.839	0.0011
	13.64	0.450	0.640	0.838	0.0019
	16.14	0.630	0.900	0.836	0.0038
			Mean	0.840	0.0027

Without Nozzle	7.88	0.150	0.210	0.845	0.0056
	9.75	0.230	0.325	0.841	0.0017
	11.68	0.330	0.470	0.837	0.0016
	13.33	0.430	0.615	0.836	0.0034
	16.77	0.680	0.970	0.837	0.0023
			Mean	0.839	0.0029

Note: Pitots must always be used in the orientation that they are calibrated in (marked F for front and B for back).

Acceptance Criteria:

The Cp of Standard Pitots must be in the range of 0.99 ±0.01.

For Stausscheibe (S-Type) Pitots refer to the measurement criteria as specified in Method 2 of the Ontario Source Testing Code. If the pitot meets these measurement requirements it is assigned a Cp of 0.84. Otherwise, calculate the absolute differences between the average pitot tube coefficient and the coefficient obtained for each of the wind tunnel settings. The average of these differences must not exceed 0.01. Otherwise, the calibration must be repeated. (Environment Canada Reference Method EPS 1/RM/8, Section 6).

ORTECH Alliance Consulting Inc.
Pitot Tube Calibration

Date	January 21, 2025
Probe/Pitot ID	S10
MII Number	B03771
Calibrated Against	B02911
Cp standard	0.99777
Calibration Procedure	03-SOP-007

Calibration Facility	Alliance Testing Group North
Calibrated By	Brayden Pacheco
Signature	
Reviewed/Accepted By	

Cp = Cpstd * $\frac{P_{std}}{P_s}$	Pstd
	Ps

Configuration	Wind Tunnel Velocity m/s	Velocity Head Standard Pitot in. H ₂ O Pstd	Velocity Head S-Type Pitot in. H ₂ O Ps	S-Type Pitot Coefficient Cp _s	Deviation From The Mean
With Nozzle	8.63	0.180	0.255	0.840	0.0003
(0.25")	10.95	0.290	0.410	0.841	0.0006
	12.78	0.395	0.560	0.839	0.0006
	15.22	0.560	0.790	0.842	0.0015
	17.90	0.775	1.100	0.839	0.0011
			Mean	0.840	0.0008

Without Nozzle	8.51	0.175	0.245	0.845	0.0013
	10.95	0.290	0.410	0.841	0.0028
	13.02	0.410	0.580	0.840	0.0030
	15.22	0.560	0.785	0.844	0.0008
	18.07	0.790	1.100	0.847	0.0037
			Mean	0.843	0.0023

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).

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		Effective Date	1/31/24
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Equipment Detail - Dry Gas Meter

Console ID: MB 17
 Meter S/N: 2610
 Critical Orifice S/N: CO-2035s

Calibration Detail

Initial Barometric Pressure, in. Hg	(P _b)	29.62					
Final Barometric Pressure, in. Hg	(P _{bF})	29.62					
Average Barometric Pressure, in. Hg	(P _b)	29.62					
Critical Orifice ID	(Y)	2035-26	2035-26	2035-20	2035-20	2035-17	2035-17
K' Factor, ft ³ ·R ^{1/2} / in. WC·min	(K')	0.7036	0.7036	0.5459	0.546	0.4672	0.467
Vacuum Pressure, in. Hg	(V _p)	19.0	19.0	20.5	20.5	21.5	20.5
Initial DGM Volume, ft ³	(V _m)	1.670	20.090	29.320	36.480	43.650	49.810
Final DGM Volume, ft ³	(V _{mF})	10.860	29.320	36.480	43.650	49.810	55.960
Total DGM Volume, ft ³	(V _m)	9.190	9.230	7.160	7.170	6.160	6.150
Ambient Temperature, °F	(T _a)	68	68	68	68	68	68
Initial DGM Temperature, °F	(T _m)	64	65	66	66	67	67
Final DGM Temperature, °F	(T _{mF})	65	66	66	67	67	67
Average DGM Temperature, °F	(T _m)	65	66	66	67	67	67
Elapsed Time	(Θ)	10.00	10.00	10.00	10.00	10.00	10.00
Meter Orifice Pressure, in. WC	(ΔH)	2.85	2.85	1.75	1.75	1.30	1.30
Standard Meter volume, ft ³	(V _{mstd})	9.2251	9.2476	7.1474	7.1506	6.1307	6.1207
Standard Critical Orifice Volume, ft ³	(V _{cr})	9.0724	9.0724	7.0390	7.0390	6.0242	6.0242
Meter Correction Factor	(Y)	0.983	0.981	0.985	0.984	0.983	0.984
Tolerance	--	0.000	0.002	0.001	0.001	0.001	0.001
Orifice Calibration Value	(ΔH @)	1.955	1.951	1.983	1.981	2.005	2.005
Tolerance	--	0.025	0.029	0.003	0.001	0.025	0.025
Orifice Cal Check	--	0.24		0.24		0.12	
Meter Correction Factor	(Y)	0.983					
Orifice Calibration Value	(ΔH @)	1.980					
Positive Pressure Leak Check		Yes					

Equipment Detail - Thermocouple Sensor

Reference Calibrator Make: Fluke
 Reference Calibrator Model: 714
 Reference Calibrator S/N: 2923036 - COE 20024

Calibration Detail

Reference Temp.		Display Temp.		Accuracy	Absolute Difference
°F	°R	°F	°R	%	°F
32	492	31	491	0.2	1
68	528	66	526	0.4	2
100	560	99	559	0.2	1
200	660	199	659	0.2	1
250	710	250	710	0.0	0
300	760	299	759	0.1	1
400	860	398	858	0.2	2
500	960	497	957	0.3	3
600	1,060	598	1,058	0.2	2
700	1,160	700	1,160	0.0	0
800	1,260	799	1,259	0.1	1
900	1,360	899	1,359	0.1	1
1,000	1,460	999	1,459	0.1	1
1,100	1,560	1,099	1,559	0.1	1
1,200	1,660	1,199	1,659	0.1	1

Personnel

Calibration By: Brayden Pacheco
 Calibration Date: 5/5/2025
 Reviewed By: Stacey Cunningham

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Equipment Detail - Dry Gas Meter

Console ID: MB 18
 Meter S/N: 2612
 Critical Orifice S/N: CO-2035s

Calibration Detail

Initial Barometric Pressure, in. Hg	(P _b)	29.59					
Final Barometric Pressure, in. Hg	(P _{bF})	29.62					
Average Barometric Pressure, in. Hg	(P _b)	29.61					
Critical Orifice ID	(Y)	2035-26	2035-26	2035-20	2035-20	2035-17	2035-17
K' Factor, ft ³ ·R ^{1/2} / in. WC·min	(K')	0.7036	0.7036	0.5459	0.546	0.4672	0.467
Vacuum Pressure, in. Hg	(V _p)	19.0	19.0	20.5	20.5	21.5	21.5
Initial DGM Volume, ft ³	(V _m)	22.810	35.640	44.820	51.950	59.090	65.190
Final DGM Volume, ft ³	(V _{mF})	35.640	44.820	51.950	59.090	65.190	71.300
Total DGM Volume, ft ³	(V _m)	12.830	9.180	7.130	7.140	6.100	6.110
Ambient Temperature, °F	(T _a)	67	67	68	68	68	68
Initial DGM Temperature, °F	(T _m)	65	65	66	67	68	68
Final DGM Temperature, °F	(T _{mF})	65	66	67	68	68	68
Average DGM Temperature, °F	(T _m)	65	66	67	68	68	68
Elapsed Time	(Θ)	14.00	10.00	10.00	10.00	10.00	10.00
Meter Orifice Pressure, in. WC	(ΔH)	2.85	2.85	1.75	1.75	1.30	1.30
Standard Meter volume, ft ³	(V _{mstd})	12.8603	9.1929	7.1071	7.1036	6.0564	6.0663
Standard Critical Orifice Volume, ft ³	(V _{cr})	12.7057	9.0764	7.0354	7.0354	6.0211	6.0211
Meter Correction Factor	(Y)	0.988	0.987	0.990	0.990	0.994	0.993
Tolerance	--	0.002	0.003	0.000	0.000	0.004	0.002
Orifice Calibration Value	(ΔH @)	1.951	1.949	1.982	1.979	2.003	2.003
Tolerance	--	0.027	0.029	0.005	0.001	0.025	0.025
Orifice Cal Check	--	0.57		0.32		0.58	
Meter Correction Factor	(Y)	0.990					
Orifice Calibration Value	(ΔH @)	1.978					
Positive Pressure Leak Check		Yes					

Equipment Detail - Thermocouple Sensor

Reference Calibrator Make: Fluke
 Reference Calibrator Model: 714
 Reference Calibrator S/N: 2923036 - COE 20024

Calibration Detail

Reference Temp.		Display Temp.		Accuracy	Absolute Difference
°F	°R	°F	°R	%	°F
32	492	32	492	0.0	0
68	528	67	527	0.2	1
100	560	99	559	0.2	1
200	660	201	661	-0.2	1
250	710	251	711	-0.1	1
300	760	301	761	-0.1	1
400	860	399	859	0.1	1
500	960	498	958	0.2	2
600	1,060	599	1,059	0.1	1
700	1,160	701	1,161	-0.1	1
800	1,260	801	1,261	-0.1	1
900	1,360	901	1,361	-0.1	1
1,000	1,460	1,001	1,461	-0.1	1
1,100	1,560	1,101	1,561	-0.1	1
1,200	1,660	1,201	1,661	-0.1	1

Personnel

Calibration By: Brayden Pacheco
 Calibration Date: 5/5/2025
 Reviewed By: Stacey Cunningham

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Equipment Detail - Dry Gas Meter

Console ID: Team 2
 Meter S/N: COE20092
 Critical Orifice S/N: 2035s

Calibration Detail

Initial Barometric Pressure, in. Hg	(P _b)	29.77					
Final Barometric Pressure, in. Hg	(P _{bF})	29.74					
Average Barometric Pressure, in. Hg	(P _b)	29.76					
Critical Orifice ID	(Y)	2035-26	2035-26	2035-20	2035-20	2035-17	2035-17
K' Factor, ft ³ -R ^{1/2} / in. WC·min	(K')	0.7036	0.7036	0.5459	0.546	0.4672	0.467
Vacuum Pressure, in. Hg	(V _p)	18.0	18.0	19.5	19.5	21.0	21.0
Initial DGM Volume, ft ³	(V _m)	10.06	19.23	29.32	36.44	43.56	49.69
Final DGM Volume, ft ³	(V _{mF})	19.23	29.32	36.44	43.56	49.69	55.82
Total DGM Volume, ft ³	(V _m)	9.170	10.090	7.120	7.120	6.130	6.130
Ambient Temperature, °F	(T _a)	72	72	72	72	72	72
Initial DGM Temperature, °F	(T _m)	73	73	74	74	75	75
Final DGM Temperature, °F	(T _{mF})	73	74	74	75	75	75
Average DGM Temperature, °F	(T _m)	73	74	74	75	75	75
Elapsed Time	(Θ)	10.0	11.0	10.0	10.0	10.0	10.0
Meter Orifice Pressure, in. WC	(ΔH)	2.70	2.70	1.60	1.60	1.20	1.20
Standard Meter volume, ft ³	(V _{mstd})	9.0958	9.9990	7.0301	7.0235	6.0354	6.0382
Standard Critical Orifice Volume, ft ³	(V _{cr})	9.0828	9.9911	7.0470	7.0470	6.0311	6.0311
Meter Correction Factor	(Y)	0.999	0.999	1.002	1.003	0.999	0.999
Tolerance	--	0.002	0.001	0.002	0.003	0.001	0.001
Orifice Calibration Value	(ΔH @)	1.826	1.824	1.789	1.788	1.827	1.828
Tolerance	--	0.012	0.011	0.024	0.026	0.013	0.014
Orifice Cal Check	--	0.40		0.40		0.38	
Meter Correction Factor	(Y)	1.000					
Orifice Calibration Value	(ΔH @)	1.814					
Positive Pressure Leak Check		Yes					

Equipment Detail - Thermocouple Sensor

Reference Calibrator Make: Fluke
 Reference Calibrator Model: 714
 Reference Calibrator S/N: 2923036 - COE 20024

Calibration Detail

Reference Temp.		Display Temp.		Accuracy	Absolute Difference
°F	°R	°F	°R	%	°F
32	492	34	494	-0.4	2
68	528	69	529	-0.2	1
100	560	100	560	0.0	0
200	660	203	663	-0.5	3
250	710	253	713	-0.4	3
300	760	303	763	-0.4	3
400	860	401	861	-0.1	1
500	960	501	961	-0.1	1
600	1,060	602	1,062	-0.2	2
700	1,160	703	1,163	-0.3	3
800	1,260	802	1,262	-0.2	2
900	1,360	903	1,363	-0.2	3
1,000	1,460	1,004	1,464	-0.3	4
1,100	1,560	1,104	1,564	-0.3	4
1,200	1,660	1,204	1,664	-0.2	4

Personnel

Calibration By: Brayden Pacheco
 Calibration Date: 1/15/2025
 Reviewed By: Stacey Cunningham

	Low Volume DGM Calibration-Orifices	Document ID	620.005							
		Revision	24.1							
		Effective Date	8/22/24							
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Low Volume Dry Gas Meter Calibration										
Console ID	--	VOST 4								
Meter S/N	--	A11542								
Critical Orifice S/N	--	CO-2807								
Initial Barometric Pressure, in. Hg	(P _b) _i	29.44								
Final Barometric Pressure, in. Hg	(P _b) _F	29.38								
Average Barometric Pressure, in. Hg	(P _b)	29.41								
Orifice Nominal Flow, lpm	(Q)	0.54		1.04		1.54				
Run No.	--	1	2	3	1	2	3	1	2	3
K' Factor, L·R ^{1/2} / in. WC·min	(K')	0.4256	0.4256	0.4256	0.8112	0.8112	0.8112	1.2075	1.2075	1.2075
Vacuum Pressure, in. Hg	(V _p)	19.0	19.0	19.0	18.0	18.0	18.0	17.0	17.0	17.0
Initial DGM Volume, L	(V _m) _i	31.550	37.000	42.610	48.200	58.720	69.470	80.050	95.820	11.870
Final DGM Volume, L	(V _m) _F	37.000	42.610	48.200	58.720	69.470	80.050	95.820	111.870	27.950
Total DGM Volume, L	(V _m)	5.450	5.610	5.590	10.520	10.750	10.580	15.770	16.050	16.080
Ambient Temperature, °C	(T _a)	23	23	23	23	23	23	23	23	23
Initial Inlet DGM Temperature, °C	(T _m) _i	22	24	26	27	28	29	30	30	31
Final Inlet DGM Temperature, °C	(T _m) _F	24	26	27	29	29	30	30	31	32
Initial Outlet DGM Temperature, °C	(T _m) _o	22	24	26	27	28	29	30	30	31
Final Outlet DGM Temperature, °C	(T _m) _{Fo}	24	26	27	29	29	30	30	31	32
Average Outlet DGM Temperature, °C	(T _m)	23	25	26.5	28	29	30	30	31	32
Elapsed Time	(Θ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Meter Orifice Pressure, in. WC	(ΔH)	0.80	0.80	0.80	1.20	1.20	1.20	1.60	1.60	1.60
Standard Meter volume, L	(V _m std)	5.3144	5.4338	5.3873	10.0981	10.3018	10.1053	15.0527	15.2947	15.2730
Standard Critical Orifice Volume, L	(V _c r)	5.4212	5.4212	5.4212	10.3329	10.3329	10.3329	15.3809	15.3809	15.3809
Meter Correction Factor	(Y)	1.0201	0.9977	1.0063	1.0233	1.0030	1.0225	1.0218	1.0056	1.0071
Tolerance	--	1.20%	-1.03%	-0.17%	0.69%	-1.30%	0.62%	1.02%	-0.58%	-0.44%
Orifice Cal Check	--	0.81			0.82			0.47		
Average Meter Correction Factor	(Y)	1.0080			1.0163			1.0115		
Meter Correction Factor	(Y)	1.0119								

Reference Calibrator Make		Fluke			
Reference Calibrator Model		714			
Reference Calibrator S/N		COE 20024			
Reference Temp.		Display Temp.		Accuracy	Absolute Difference
°C	°K	°C	°K	%	°C
0	273	0	275	-0.7	0
20	293	19	294	-0.3	1
50	323	49	324	-0.3	1
100	373	100	375	-0.5	0
150	423	150	425	-0.5	0
200	473	199	474	-0.2	1
300	573	300	575	-0.3	0
400	673	400	675	-0.3	0
500	773	500	775	-0.3	0
600	873	600	875	-0.2	0

Calibration Performed By: Tyler Curtis

Date Conducted: 8/13/25

Reviewed By: Stacey Cunningham

	Low Volume DGM Calibration-Orifices						Document ID	620.005		
							Revision	24.1		
							Effective Date	8/22/24		
Issuing Department	Tech Services						Page	1 of 1		
Low Volume Dry Gas Meter Calibration										
Console ID	--	VOST 5								
Meter S/N	--	COE20018								
Critical Orifice S/N	--	CO-2807								
Initial Barometric Pressure, in. Hg	(P _b)	29.50								
Final Barometric Pressure, in. Hg	(P _b)	29.47								
Average Barometric Pressure, in. Hg	(P _b)	29.485								
Orifice Nominal Flow, lpm	(Q)	0.54			1.04			1.54		
Run No.	--	1	2	3	1	2	3	1	2	3
K' Factor, L-R ^{1/2} / in. WC·min	(K')	0.4256	0.4256	0.4256	0.8112	0.8112	0.8112	1.2075	1.2075	1.2075
Vacuum Pressure, in. Hg	(V _p)	22.0	22.5	22.5	20.0	20.0	20.0	18.0	18.0	18.0
Initial DGM Volume, L	(V _m)	87.260	92.780	98.320	104.000	114.700	125.500	136.350	152.330	168.320
Final DGM Volume, L	(V _m)	92.780	98.320	104.000	114.700	125.500	136.350	152.330	168.320	184.330
Total DGM Volume, L	(V _m)	5.520	5.540	5.680	10.700	10.800	10.850	15.980	15.990	16.010
Ambient Temperature, °C	(T _a)	24	24	24	24	24	24	24	24	24
Initial Inlet DGM Temperature, °C	(T _m)	23	23	23	24	24	25	25	25	26
Final Inlet DGM Temperature, °C	(T _m)	23	23	24	24	25	25	25	26	26
Initial Outlet DGM Temperature, °C	(T _m)	23	23	23	24	24	25	25	25	26
Final Outlet DGM Temperature, °C	(T _m)	23	23	24	24	25	25	25	26	26
Average Outlet DGM Temperature, °C	(T _m)	23	23	23.5	24	25	25	25	26	26
Elapsed Time	(Θ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Meter Orifice Pressure, in. WC	(ΔH)	1.20	1.30	1.30	1.90	2.00	2.00	2.80	2.80	3.00
Standard Meter volume, L	(V _m)	5.4018	5.4227	5.5504	10.4537	10.5363	10.5674	15.5946	15.5783	15.5794
Standard Critical Orifice Volume, L	(V _c)	5.4259	5.4259	5.4259	10.3418	10.3418	10.3418	15.3942	15.3942	15.3942
Meter Correction Factor	(Y)	1.0045	1.0006	0.9776	0.9893	0.9815	0.9787	0.9871	0.9882	0.9881
Tolerance	--	1.03%	0.64%	-1.67%	0.62%	-0.17%	-0.46%	-0.07%	0.04%	0.03%
Orifice Cal Check	--	1.12			1.11			0.64		
Average Meter Correction Factor	(Y)	0.9942			0.9832			0.9878		
Meter Correction Factor	(Y)	0.9884								

Reference Calibrator Make		Fluke			
Reference Calibrator Model		714			
Reference Calibrator S/N		COE 20024			
Reference Temp.		Display Temp.		Accuracy	Absolute Difference
°C	°K	°C	°K	%	°C
0	273	4	277	-1.5	4
20	293	22	295	-0.7	2
50	323	53	326	-0.9	3
100	373	103	376	-0.8	3
150	423	155	428	-1.2	5
200	473	204	477	-0.8	4
300	573	304	577	-0.7	4
400	673	405	678	-0.7	5
500	773	505	778	-0.6	5
600	873	605	878	-0.6	5

Calibration Performed By: Tyler Curtis

Date Conducted: 6/11/25

Reviewed By: Stacey Cunningham

Calibration Data

Location: Reworld Durham York Renewable Energy L.P - Courtice
Source: APC Outlet No. 1
Project No.: AST-2025-2049
Date: 5-12-25

Parameter	THC - Outlet
Desired Span	100.00
Actual Concentration (% or ppm)	
Zero	0.00
Low	22.35
Mid	44.70
High	89.40
Upscale Calibration Gas (C _{MA})	Low
Instrument Response (% or ppm)	
Zero	0.13
Low	21.93
Mid	44.58
High	89.70
Performance (% of Span or Cal. Gas Conc.)	
Zero	0.00
Low	-2.65
Mid	-0.75
High	0.00
Status	
Zero	PASS
Low	PASS
Mid	PASS
High	PASS

Bias/Drift Determinations

Location: Reworld Durham York Renewable Energy
Source: APC Outlet No. 1
Project No.: AST-2025-2049

Parameter			THC - Outlet
Run 1	Date	5-12-25	
Span Value			100.00
Initial Instrument Zero Cal Response			0.13
Initial Instrument Upscale Cal Response			21.93
Pretest System Zero Response			0.13
Posttest System Zero Response			0.25
Pretest System Upscale Response			21.93
Posttest System Upscale Response			22.40
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.12
Mid			0.47
Run 2	Date	5-12-25	
Span Value			100.00
Instrument Zero Cal Response			0.13
Instrument Upscale Cal Response			21.93
Pretest System Zero Response			0.25
Posttest System Zero Response			0.00
Pretest System Upscale Response			22.40
Posttest System Upscale Response			22.41
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			-0.25
Mid			0.01
Run 3	Date	5-12-25	
Span Value			100.00
Instrument Zero Cal Response			0.13
Instrument Upscale Cal Response			21.93
Pretest System Zero Response			0.00
Posttest System Zero Response			0.00
Pretest System Upscale Response			22.41
Posttest System Upscale Response			22.83
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.00
Mid			0.42

Calibration Data

Location: Reworld Durham York Renewable Energy L.P - Courtice
Source: No. 1 Quench Inlet
Project No.: AST-2025-2049
Date: 5-12-25

Parameter	THC - Inlet
Desired Span	100.00
Actual Concentration (% or ppm)	
Zero	0.00
Low	22.35
Mid	44.70
High	89.40
Upscale Calibration Gas (C _{MA})	Low
Instrument Response (% or ppm)	
Zero	0.00
Low	21.83
Mid	44.20
High	90.10
Performance (% of Span or Cal. Gas Conc.)	
Zero	0.00
Low	-3.11
Mid	-1.90
High	0.00
Status	
Zero	PASS
Low	PASS
Mid	PASS
High	PASS

Bias/Drift Determinations

Location: Reworld Durham York Renewable Energy
Source: No. 1 Quench Inlet
Project No.: AST-2025-2049

Parameter			THC - Inlet
Run 1	Date	5-12-25	
Span Value			100.00
Initial Instrument Zero Cal Response			0.00
Initial Instrument Upscale Cal Response			21.83
Pretest System Zero Response			0.00
Posttest System Zero Response			0.08
Pretest System Upscale Response			21.83
Posttest System Upscale Response			21.82
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.08
Mid			-0.01
Run 2	Date	5-12-25	
Span Value			100.00
Instrument Zero Cal Response			0.00
Instrument Upscale Cal Response			21.83
Pretest System Zero Response			0.08
Posttest System Zero Response			0.31
Pretest System Upscale Response			21.82
Posttest System Upscale Response			22.48
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.23
Mid			0.66
Run 3	Date	5-12-25	
Span Value			100.00
Instrument Zero Cal Response			0.00
Instrument Upscale Cal Response			21.83
Pretest System Zero Response			0.31
Posttest System Zero Response			0.23
Pretest System Upscale Response			22.48
Posttest System Upscale Response			22.37
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			-0.08
Mid			-0.11

Calibration Data

Location: Reworld Durham York Renewable Energy L.P - Courtice
Source: APC Outlet No. 2
Project No.: AST-2025-2049
Date: 5-13-25

Parameter	THC - Outlet
Desired Span	22.35
Actual Concentration (% or ppm)	
Zero	0.00
Low	22.35
Mid	44.70
High	89.40
Upscale Calibration Gas (C _{MA})	Low
Instrument Response (% or ppm)	
Zero	0.05
Low	21.67
Mid	44.30
High	89.91
Performance (% of Span or Cal. Gas Conc.)	
Zero	0.00
Low	-3.78
Mid	-1.52
High	0.00
Status	
Zero	PASS
Low	PASS
Mid	PASS
High	PASS

Bias/Drift Determinations

Location: Reworld Durham York Renewable Energy
Source: APC Outlet No. 2
Project No.: AST-2025-2049

Parameter			THC - Outlet
Run 1	Date	5-13-25	
Span Value			22.35
Initial Instrument Zero Cal Response			0.05
Initial Instrument Upscale Cal Response			21.67
Pretest System Zero Response			0.05
Posttest System Zero Response			0.01
Pretest System Upscale Response			21.97
Posttest System Upscale Response			22.60
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			-0.18
Mid			2.82
Run 2	Date	5-13-25	
Span Value			22.35
Instrument Zero Cal Response			0.05
Instrument Upscale Cal Response			21.67
Pretest System Zero Response			0.01
Posttest System Zero Response			0.13
Pretest System Upscale Response			22.60
Posttest System Upscale Response			22.87
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.54
Mid			1.21
Run 3	Date	5-13-25	
Span Value			22.35
Instrument Zero Cal Response			0.05
Instrument Upscale Cal Response			21.67
Pretest System Zero Response			0.13
Posttest System Zero Response			0.00
Pretest System Upscale Response			22.87
Posttest System Upscale Response			22.71
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			-0.58
Mid			-0.72

Calibration Data

Location: Reworld Durham York Renewable Energy L.P - Courtice
Source: No. 2 Quench Inlet
Project No.: AST-2025-2049
Date: 5-13-25

Parameter	THC - Inlet
Desired Span	22.35
Actual Concentration (% or ppm)	
Zero	0.00
Low	22.35
Mid	44.70
High	89.40
Upscale Calibration Gas (C _{MA})	Low
Instrument Response (% or ppm)	
Zero	0.05
Low	21.69
Mid	44.40
High	89.71
Performance (% of Span or Cal. Gas Conc.)	
Zero	0.00
Low	-3.47
Mid	-1.07
High	0.00
Status	
Zero	PASS
Low	PASS
Mid	PASS
High	PASS

Bias/Drift Determinations

Location: Reworld Durham York Renewable Energy
Source: No. 2 Quench Inlet
Project No.: AST-2025-2049

Parameter			THC - Inlet
Run 1	Date	5-13-25	
Span Value			22.35
Initial Instrument Zero Cal Response			0.05
Initial Instrument Upscale Cal Response			21.69
Pretest System Zero Response			0.05
Posttest System Zero Response			0.10
Pretest System Upscale Response			21.69
Posttest System Upscale Response			22.19
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.22
Mid			2.24
Run 2	Date	5-13-25	
Span Value			22.35
Instrument Zero Cal Response			0.05
Instrument Upscale Cal Response			21.69
Pretest System Zero Response			0.10
Posttest System Zero Response			0.00
Pretest System Upscale Response			22.19
Posttest System Upscale Response			21.86
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			-0.45
Mid			-1.48
Run 3	Date	5-13-25	
Span Value			22.35
Instrument Zero Cal Response			0.05
Instrument Upscale Cal Response			21.69
Pretest System Zero Response			0.00
Posttest System Zero Response			0.11
Pretest System Upscale Response			21.86
Posttest System Upscale Response			22.18
Bias (%)			
Pretest Zero			NA
Posttest Zero			NA
Pretest Span			NA
Posttest Span			NA
Drift (%)			
Zero			0.49
Mid			1.43

APPENDIX 22

Particulate and Metals Test Emission Calculations (10 pages)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter PM, Metals

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-12-25	5-13-25
Start Time		9:32	13:24	15:12
Stop Time		12:41	16:31	18:18
Run Time, min	(θ)	180.0	180.0	180.0
INPUT DATA				
Barometric Pressure, kPa	(Pb)	101.321	101.050	100.711
Meter Correction Factor	(Y)	0.983	0.983	0.983
Orifice Calibration Value	($\Delta H @$)	1.98	1.98	1.98
Meter Volume, m ³	(Vm)	3.578	3.644	3.699
Meter Temperature, °C	(Tm)	26.3	28.9	31.7
Meter Temperature, °K	(Tm)	299.4	302.1	304.8
Meter Orifice Pressure, kPa	(ΔH)	0.422	0.434	0.436
Volume H ₂ O Collected, mL	(Vlc)	477.6	461.4	507.7
Nozzle Diameter, mm	(Dn)	6.203	6.203	6.203
ISOKINETIC DATA				
Reference Meter Volume, Rm ³	(Vmref)	3.514	3.538	3.547
Reference Water Volume, Rm ³	(Vwref)	0.650	0.628	0.690
Moisture Fraction Measured	(BWSmsd)	0.156	0.151	0.163
Moisture Fraction @ Saturation	(BWSsat)	3.514	3.341	3.428
Moisture Fraction	(BWS)	0.156	0.151	0.163
Meter Pressure, kPa	(Pm)	101.743	101.484	101.147
Volume at Nozzle, m ³	(Vn)	5.895	5.887	6.036
Isokinetic Sampling Rate, (%)	(I)	99.8	98.9	100.3

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Cour
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter PM, Metals

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-12-25	5-13-25
Start Time		9:32	13:24	15:12
Stop Time		12:41	16:31	18:18
Run Time, min		180.0	180.0	180.0
CALCULATED DATA				
Square Root of ΔP , (in. WC) ^{1/2}	(ΔP)	0.868	0.876	0.885
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	101.321	101.050	100.711
Static Pressure, kPa	(Pg)	-2.091	-2.091	-2.365
Stack Pressure, kPa	(Ps)	99.230	98.959	98.347
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	140.2	138.3	139.0
Temperature, °K	(Ts)	413.3	411.4	412.1
Moisture Fraction Measured	(BWSmsd)	0.156	0.151	0.163
Moisture Fraction @ Saturation	(BWSsat)	3.514	3.341	3.428
Moisture Fraction	(BWS)	0.156	0.151	0.163
O ₂ Concentration, %	(O ₂)	9.15	9.45	9.4
CO ₂ Concentration, %	(CO ₂)	10.08	9.92	9.82
CO Concentration, ppmvd	(CO)	9.7	8.3	6.5
Ar Concentration, %	(Ar)	0.95	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.09	30.08	30.06
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.21	28.26	28.10
Velocity, m/s	(Vs)	18.1	18.3	18.5
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	26.77	26.99	27.28
At Reference Conditions, dry Rm ³ /s	(Qs)	15.96	16.22	16.03
At Reference Conditions (corrected), dry Rm ³ /s	(Qsc)	18.94	18.76	18.62
At Reference Conditions, wet Rm ³ /s	(Qsw)	18.91	19.10	19.15

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 9:32		Source: APC Outlet No. 1								
Date: 5-12-25		Run 1		VALID		End Time: 12:41		Project No.: AST-2025-2049		Parameter: PM, Metals				
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA	
Moisture: 15.6 % est.			Meter Box ID: MB 17			Est. Tm: 80 °F					Pb: 29.92 in. Hg		Vlc (ml)	
Barometric: 29.60 in. Hg			Y: 0.983			Est. Ts: 282 °F					Pg: -8.40 in. WC		477.6	
Static Press: -8.40 in. WC			AH @ (in.WC): 1.98			Est. AP: 0.78 in. WC					O ₂ : 9.15 %		K-FACTOR	
Stack Press: 28.98 in. Hg			Probe ID: M29			Est. Dn: 0.238 in.					CO ₂ : 10.08 %		2.267	
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm					CO: 9.7 ppm			
O ₂ : 8.8 %			Pitot ID: S10								Check Pt.		Initial Final Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type			LEAK CHECK		Pre Mid 1 Mid 2 Mid 3 Post		Mid 1 (cf) 158.470 ##### 0.540	
CO: 5.80 ppm			Nozzle ID: B			glass			Leak Rate (cfm): 0.004 0.004 0.003		-- 0.003		Mid 2 (cf) --	
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2442						Vacuum (in Hg): 15 15 15		-- 16		Mid 3 (cf) --	
Ms: 28.24 lb/lb-mole									Pitot Tube: Pass -- --		Pass		Mid-Point Leak Check Vol (cf): 0.540	

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)
					DGM Average	Stack				Probe	Filter	Imp Exit	NA		
					Amb.	Amb.	Amb.	Amb.		Amb.	Amb.				
	Begin	End					Ideal	Actual							
1	0.00	2.50	97.840	0.77	70	280	1.72	1.70	3	255	250	60	-	100.4	18.26
	2.50	5.00	99.600	0.78	70	281	1.74	1.70	3	252	250	50	-	99.3	18.39
	5.00	7.50	101.350	0.82	71	284	1.82	1.80	3	250	256	48	-	99.6	18.89
2	7.50	10.00	103.150	0.81	71	284	1.80	1.80	3	255	258	46	-	101.4	18.78
	10.00	12.50	104.970	0.80	71	284	1.78	1.75	3	250	256	45	-	98.6	18.66
	12.50	15.00	106.730	0.80	71	284	1.78	1.75	3	257	251	44	-	98.6	18.66
3	15.00	17.50	108.490	0.84	72	284	1.87	1.85	3	250	250	44	-	99.9	19.12
	17.50	20.00	110.320	0.84	72	284	1.87	1.85	3	258	251	44	-	99.4	19.12
	20.00	22.50	112.140	0.85	72	284	1.89	1.85	3	250	250	44	-	99.9	19.24
4	22.50	25.00	113.980	0.78	73	284	1.74	1.75	3	256	250	43	-	100.1	18.43
	25.00	27.50	115.750	0.78	73	285	1.74	1.75	3	250	256	43	-	99.6	18.44
	27.50	30.00	117.510	0.79	74	285	1.76	1.75	3	257	257	43	-	99.3	18.56
5	30.00	32.50	119.280	0.71	74	285	1.59	1.60	3	250	260	43	-	100.6	17.59
	32.50	35.00	120.980	0.70	74	285	1.56	1.55	3	255	258	43	-	100.1	17.47
	35.00	37.50	122.660	0.70	75	285	1.57	1.55	3	252	254	43	-	99.9	17.47
6	37.50	40.00	124.340	0.64	75	286	1.43	1.40	2	255	250	43	-	99.5	16.72
	40.00	42.50	125.940	0.64	76	285	1.44	1.40	2	253	250	43	-	98.0	16.70
	42.50	45.00	127.520	0.63	76	286	1.41	1.40	2	252	251	44	-	99.5	16.58
7	45.00	47.50	129.110	0.65	76	286	1.46	1.45	2	256	250	44	-	99.8	16.85
	47.50	50.00	130.730	0.64	76	286	1.43	1.45	2	250	250	44	-	100.6	16.72
	50.00	52.50	132.350	0.62	77	286	1.39	1.40	2	257	255	44	-	102.0	16.45
8	52.50	55.00	133.970	0.62	77	286	1.39	1.35	2	250	255	44	-	99.5	16.45
	55.00	57.50	135.550	0.63	77	285	1.42	1.40	2	257	258	44	-	98.0	16.57
	57.50	60.00	137.120	0.62	78	285	1.40	1.40	2	250	258	45	-	100.5	16.44
9	60.00	62.50	138.720	0.67	78	284	1.51	1.50	3	255	257	45	-	99.1	17.08
	62.50	65.00	140.360	0.70	78	283	1.58	1.60	3	250	255	45	-	101.6	17.45
	65.00	67.50	142.080	0.72	79	284	1.63	1.60	3	257	250	45	-	100.1	17.71
10	67.50	70.00	143.800	0.68	79	283	1.54	1.50	3	250	251	45	-	99.9	17.19
	70.00	72.50	145.470	0.68	79	282	1.54	1.50	3	256	250	45	-	99.2	17.18
	72.50	75.00	147.130	0.68	79	281	1.54	1.50	3	250	252	45	-	99.7	17.17
11	75.00	77.50	148.800	0.65	80	281	1.48	1.45	3	257	251	45	-	99.4	16.79
	77.50	80.00	150.430	0.65	80	281	1.48	1.45	3	250	255	46	-	98.2	16.79
	80.00	82.50	152.040	0.64	80	281	1.45	1.45	3	254	257	46	-	98.9	16.66
12	82.50	85.00	153.650	0.63	80	280	1.43	1.40	3	250	257	46	-	99.0	16.52
	85.00	87.50	155.250	0.63	80	280	1.43	1.40	3	254	258	46	-	99.0	16.52
	87.50	90.00	156.850	0.63	81	280	1.44	1.40	3	252	254	47	-	100.1	16.52
1	90.00	92.50	158.470	0.82	81	282	1.86	1.85	3	253	250	55	-	99.3	18.87
	92.50	95.00	160.840	0.86	80	283	1.95	1.90	3	253	252	49	-	99.4	19.34
	95.00	97.50	162.710	0.84	81	283	1.91	1.90	3	253	260	48	-	99.8	19.11
2	97.50	100.00	164.570	0.84	81	283	1.91	1.90	3	251	260	48	-	99.3	19.11
	100.00	102.50	166.420	0.85	81	283	1.93	1.90	3	254	259	48	-	99.2	19.22
	102.50	105.00	168.280	0.86	81	283	1.95	1.95	3	250	256	47	-	98.7	19.34
3	105.00	107.50	170.140	0.88	81	283	2.00	2.00	3	256	250	48	-	101.2	19.56
	107.50	110.00	172.070	0.86	82	284	1.95	1.95	3	250	251	48	-	99.1	19.35
	110.00	112.50	173.940	0.86	82	284	1.95	1.95	3	255	251	48	-	98.5	19.35
4	112.50	115.00	175.800	0.87	82	284	1.97	1.95	3	250	255	48	-	98.5	19.46
	115.00	117.50	177.670	0.89	82	285	2.02	2.00	3	258	260	48	-	99.5	19.70
	117.50	120.00	179.580	0.91	82	285	2.06	2.05	3	250	260	49	-	100.0	19.92
5	120.00	122.50	181.520	0.85	82	285	1.93	1.90	3	258	257	49	-	99.2	19.25
	122.50	125.00	183.380	0.86	82	285	1.95	1.95	3	250	257	49	-	99.1	19.36
	125.00	127.50	185.250	0.86	83	286	1.95	1.95	3	258	260	50	-	99.5	19.38
6	127.50	130.00	187.130	0.74	83	287	1.68	1.65	3	248	258	50	-	99.9	17.99
	130.00	132.50	188.880	0.76	83	287	1.72	1.70	3	257	256	50	-	99.7	18.23
	132.50	135.00	190.650	0.76	83	287	1.72	1.70	3	250	252	51	-	100.3	18.23
7	135.00	137.50	192.430	0.75	83	287	1.70	1.70	3	258	250	51	-	99.2	18.11
	137.50	140.00	194.180	0.72	83	286	1.63	1.60	3	250	250	51	-	98.9	17.73
	140.00	142.50	195.890	0.74	83	286	1.68	1.65	3	257	252	51	-	98.7	17.97
8	142.50	145.00	197.620	0.78	83	286	1.77	1.75	3	250	255	52	-	100.0	18.45
	145.00	147.50	199.420	0.78	83	286	1.77	1.75	3	258	254	53	-	100.0	18.45
	147.50	150.00	201.220	0.78	84	287	1.77	1.75	3	250	252	54	-	99.4	18.47
9	150.00	152.50	203.010	0.80	84	286	1.82	1.80	3	254	250	54	-	100.8	18.69
	152.50	155.00	204.850	0.80	84	286	1.82	1.85	3	251	250	53	-	101.4	18.69
	155.00	157.50	206.700	0.80	84	286	1.82	1.85	3	254	251	53	-	101.4	18.69
10	157.50	160.00	208.550	0.81	84	287	1.84	1.85	3	250	253	53	-	100.8	18.82
	160.00	162.50	210.400	0.80	84	286	1.82	1.85	3	253	254	52	-	100.3	18.69
	162.50	165.00	212.230	0.80	84	286	1.82	1.85	3	253	254	53	-	100.3	18.69
11	165.00	167.50	214.060	0.78	84	286	1.77	1.80	3	255	253	52	-	99.9	18.45
	167.50	170.00	215.860	0.75	85	286	1.71	1.70	3	253	253	52	-	100.5	18.09
	170.00	172.50	217.640	0.75	84	285	1.71	1.70	3	252	252	51	-	101.2	18.08
12	172.50	175.00	219.430	0.74	85	284	1.69	1.70	3	255	251	51	-	101.6	17.95
	175.00	177.50	221.220	0.71	85	284	1.62	1.65	3	252	252	51	-	100.2	17.58
	177.50	180.00	222.950	0.75	85	283	1.71	1.70	3	256	252	51	-	100.3	18.06
Final DGM:			224.730												

RESULTS	Run Time		Vm		AP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{gs}	
	180.0	min	126.350	ft³	0.76	in. WC	79.3	°F	284.3	°F	3		1.695	in. WC	99.8	0.156			0.6	

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 13:24		Source: APC Outlet No. 1											
Date: 5-12-25		Run 2		VALID		End Time: 16:31		Project No.: AST-2025-2049		Parameter: PM, Metals							
STACK DATA (EST)				EQUIPMENT				STACK DATA (EST)				FILTER NO.		STACK DATA (FINAL)		MOIST. DATA	
Moisture: 16.0 % est.				Meter Box ID: MB 17				Est. Tm: 79 °F						Pb: 29.84 in. Hg		Vlc (ml)	
Barometric: 29.60 in. Hg				Y: 0.983				Est. Ts: 284 °F						Pg: -8.40 in. WC		461.4	
Static Press: -8.40 in. WC				AH @ (in.WC): 1.98				Est. AP: 0.76 in. WC						O ₂ : 9.45 %		K-FACTOR	
Stack Press: 28.98 in. Hg				Probe ID: M29				Est. Dn: 0.240 in.						CO ₂ : 9.92 %		2.24	
CO ₂ : 10.4 %				Liner Material: glass				Target Rate: 0.67 scfm						CO: 8.3 ppm			
O ₂ : 8.8 %				Pitot ID: S10										Check Pt.		Initial Final Corr.	
N ₂ : 79.9 %				Pitot Cp/Type: 0.840 S-type				LEAK CHECK Pre Mid 1 Mid 2 Mid 3 Post				Mid 1 (cf) 89.580 90.160 0.580					
CO: 5.80 ppm				Nozzle ID: B glass				Leak Rate (cfm): 0.006 0.005 0.005 -- 0.003				Mid 2 (cf) --					
Md: 30.13 lb/lb-mole				Nozzle Dn (in.): 0.2442				Vacuum (in Hg): 15 15 15 -- 15				Mid 3 (cf) --					
Ms: 28.19 lb/lb-mole								Pitot Tube: Pass -- --				Mid-Point Leak Check Vol (cf): 0.580					

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	NA				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
					--	--				--	--	--	--			--	--
1	0.00	2.50	25.540	0.94	80	282	2.11	2.10	4	253	256	62	-	98.4	20.22		
-	2.50	5.00	27.490	0.94	81	284	2.11	2.10	4	253	257	60	-	99.3	20.25		
-	5.00	7.50	29.460	0.92	81	284	2.07	2.10	4	250	258	58	-	98.9	20.03		
2	7.50	10.00	31.400	0.93	80	283	2.09	2.10	4	255	253	57	-	99.0	20.13		
-	10.00	12.50	33.350	0.93	80	283	2.09	2.10	4	250	250	57	-	98.0	20.13		
-	12.50	15.00	35.280	0.95	80	283	2.13	2.10	4	257	250	57	-	98.4	20.34		
3	15.00	17.50	37.240	0.92	80	283	2.07	2.10	4	250	251	58	-	101.0	20.02		
-	17.50	20.00	39.220	0.92	80	283	2.07	2.05	4	256	255	60	-	98.5	20.02		
-	20.00	22.50	41.150	0.92	80	283	2.07	2.05	4	250	256	60	-	99.0	20.02		
4	22.50	25.00	43.090	0.86	81	283	1.94	1.95	4	258	254	58	-	99.0	19.35		
-	25.00	27.50	44.970	0.85	81	283	1.91	1.90	3	250	251	58	-	99.6	19.24		
-	27.50	30.00	46.850	0.83	81	282	1.87	1.85	3	257	250	58	-	98.0	19.00		
5	30.00	32.50	48.680	0.78	81	282	1.76	1.75	3	250	250	60	-	98.9	18.42		
-	32.50	35.00	50.470	0.75	81	282	1.69	1.70	3	257	252	59	-	99.1	18.06		
-	35.00	37.50	52.230	0.75	81	281	1.69	1.70	3	251	256	59	-	98.5	18.05		
6	37.50	40.00	53.980	0.65	82	281	1.47	1.45	3	254	254	58	-	98.3	16.80		
-	40.00	42.50	55.610	0.65	82	280	1.47	1.45	3	252	253	57	-	98.2	16.79		
-	42.50	45.00	57.240	0.71	82	280	1.61	1.60	3	253	251	57	-	99.2	17.55		
7	45.00	47.50	58.960	0.72	82	280	1.63	1.65	3	251	253	56	-	99.1	17.67		
-	47.50	50.00	60.690	0.70	82	280	1.59	1.60	3	251	252	55	-	98.8	17.43		
-	50.00	52.50	62.390	0.70	82	280	1.59	1.60	3	256	251	54	-	99.3	17.43		
8	52.50	55.00	64.100	0.73	83	279	1.66	1.65	3	250	252	53	-	99.3	17.78		
-	55.00	57.50	65.850	0.70	83	278	1.59	1.60	3	257	253	52	-	99.6	17.40		
-	57.50	60.00	67.570	0.70	83	278	1.59	1.60	3	250	253	51	-	98.4	17.40		
9	60.00	62.50	69.270	0.70	83	278	1.59	1.60	3	258	251	50	-	99.0	17.40		
-	62.50	65.00	70.980	0.70	83	278	1.59	1.60	3	250	253	50	-	99.6	17.40		
-	65.00	67.50	72.700	0.69	83	278	1.57	1.55	3	259	255	50	-	98.0	17.28		
10	67.50	70.00	74.380	0.68	84	278	1.55	1.55	3	250	254	49	-	99.1	17.15		
-	70.00	72.50	76.070	0.71	84	277	1.62	1.60	3	259	251	49	-	98.7	17.51		
-	72.50	75.00	77.790	0.71	84	277	1.62	1.60	3	250	252	49	-	98.7	17.51		
11	75.00	77.50	79.510	0.69	84	276	1.58	1.55	3	258	253	49	-	99.4	17.25		
-	77.50	80.00	81.220	0.68	84	276	1.56	1.55	3	250	253	49	-	99.0	17.13		
-	80.00	82.50	82.910	0.66	84	276	1.51	1.50	3	258	253	49	-	99.3	16.87		
12	82.50	85.00	84.580	0.65	84	276	1.49	1.50	3	250	254	49	-	98.8	16.75		
-	85.00	87.50	86.230	0.65	84	276	1.49	1.50	3	257	254	49	-	100.0	16.75		
-	87.50	90.00	87.900	0.66	85	276	1.51	1.50	3	248	253	49	-	99.7	16.87		
1	90.00	92.50	89.580	0.80	84	282	1.81	1.80	4	260	250	59	-	99.8	18.65		
-	92.50	95.00	92.000	0.82	84	280	1.86	1.85	4	250	254	50	-	98.5	18.86		
-	95.00	97.50	93.840	0.83	84	277	1.89	1.90	4	256	255	49	-	99.8	18.94		
2	97.50	100.00	95.720	0.90	85	277	2.06	2.05	4	250	254	49	-	97.7	19.72		
-	100.00	102.50	97.640	0.89	85	278	2.03	2.05	4	258	252	49	-	99.9	19.62		
-	102.50	105.00	99.590	0.87	85	279	1.98	1.95	4	250	252	49	-	98.5	19.41		
3	105.00	107.50	101.490	0.85	85	279	1.94	1.95	4	258	253	50	-	99.1	19.19		
-	107.50	110.00	103.380	0.85	85	280	1.93	1.95	4	250	253	50	-	99.2	19.20		
-	110.00	112.50	105.270	0.88	85	280	2.00	2.00	4	256	252	50	-	100.1	19.54		
4	112.50	115.00	107.210	0.78	85	281	1.77	1.75	4	250	254	50	-	98.1	18.41		
-	115.00	117.50	109.000	0.83	85	282	1.88	1.90	4	254	252	51	-	98.9	19.00		
-	117.50	120.00	110.860	0.84	85	282	1.91	1.90	4	251	251	51	-	98.8	19.11		
5	120.00	122.50	112.730	0.77	85	283	1.75	1.75	4	255	252	51	-	99.4	18.31		
-	122.50	125.00	114.530	0.76	86	283	1.73	1.70	4	253	253	51	-	99.3	18.19		
-	125.00	127.50	116.320	0.76	86	284	1.73	1.70	4	252	253	52	-	98.2	18.21		
6	127.50	130.00	118.090	0.67	86	284	1.52	1.50	3	254	254	52	-	97.5	17.09		
-	130.00	132.50	119.740	0.67	86	283	1.52	1.50	3	251	253	52	-	99.8	17.08		
-	132.50	135.00	121.430	0.68	86	283	1.55	1.55	3	255	253	52	-	97.9	17.21		
7	135.00	137.50	123.100	0.76	86	283	1.73	1.70	4	252	253	53	-	97.6	18.19		
-	137.50	140.00	124.860	0.77	86	283	1.75	1.75	4	256	252	53	-	98.1	18.31		
-	140.00	142.50	126.640	0.79	86	283	1.80	1.80	4	250	253	53	-	100.1	18.55		
8	142.50	145.00	128.480	0.80	86	284	1.82	1.80	4	257	252	53	-	99.0	18.68		
-	145.00	147.50	130.310	0.80	87	284	1.82	1.80	4	250	253	54	-	97.8	18.68		
-	147.50	150.00	132.120	0.80	87	284	1.82	1.80	4	258	254	54	-	99.4	18.68		
9	150.00	152.50	133.960	0.80	87	285	1.82	1.80	4	250	253	54	-	98.9	18.69		
-	152.50	155.00	135.790	0.81	87	284	1.84	1.85	4	259	252	54	-	98.8	18.80		
-	155.00	157.50	137.630	0.81	87	284	1.84	1.85	4	250	253	55	-	98.8	18.80		
10	157.50	160.00	139.470	0.79	87	284	1.80	1.80	4	257	252	56	-	97.8	18.56		
-	160.00	162.50	141.270	0.77	87	282	1.76	1.75	4	250	252	56	-	99.0	18.30		
-	162.50	165.00	143.070	0.77	87	282	1.76	1.75	4	258	253	57	-	98.4	18.30		
11	165.00	167.50	144.860	0.65	87	282	1.48	1.45	3	250	252	57	-	98.1	16.81		
-	167.50	170.00	146.500	0.67	87	281	1.53	1.50	3	258	254	58	-	97.7	17.06		
-	170.00	172.50	148.160	0.65	88	281	1.49	1.50	3	250	252	58	-	99.6	16.80		
12	172.50	175.00	149.830	0.66	87	281	1.51	1.50	3	258	253	59	-	97.9	16.93		
-	175.00	177.50	151.480	0.66	88	281	1.51	1.50	3	250	253	59	-	97.7	16.93		
-	177.50	180.00	153.130	0.65	88	281	1.49	1.50	3	258	252	60	-	100.2	16.80		
Final DGM:			154.810														

RESULTS	Run Time		Vm	AP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{qs}					
	180.0	min	128.690	ft ³	0.77	in. WC	84.1	°F	280.9	°F	4	1.744	in. WC	98.9	0.151	0.4

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 15:12		Source: APC Outlet No. 1								
Date: 5-13-25		Run 3		VALID		End Time: 18:18		Project No.: AST-2025-2049		Parameter: PM, Metals				
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA	
Moisture: 16.0 % est.			Meter Box ID: MB 17			Est. Tm: 84 °F					Pb: 29.74 in. Hg		Vlc (ml)	
Barometric: 29.60 in. Hg			Y: 0.983			Est. Ts: 281 °F					Pg: -9.50 in. WC		507.7	
Static Press: -8.40 in. WC			AH @ (in.WC): 1.98			Est. AP: 0.77 in. WC					O ₂ : 9.4 %		K-FACTOR	
Stack Press: 28.98 in. Hg			Probe ID: 6 series			Est. Dn: 0.238 in.					CO ₂ : 9.82 %		2.270	
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm					CO: 6.5 ppm			
O ₂ : 8.8 %			Pitot ID: S10								Check Pt.		Initial Final Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type			LEAK CHECK		Pre Mid 1 Mid 2 Mid 3 Post		Mid 1 (cf) 142.470 ##### 0.380	
CO: 5.80 ppm			Nozzle ID: N008			glass			Leak Rate (cfm): 0.004 0.004 0.004 -- 0.006		Mid 2 (cf)		--	
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2442						Vacuum (in Hg): 21 15 15 -- 15		Mid 3 (cf)		--	
Ms: 28.19 lb/lb-mole									Pitot Tube: Pass -- --		Mid-Point Leak Check Vol (cf): 0.380			

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	Aux				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
					--	--				--	--	--	--			--	--
1	0.00	2.50	77.130	0.82	80	278	1.86	1.80	3	247	251	60	213	106.3	18.83		
--	2.50	5.00	79.070	0.84	82	279	1.90	1.90	3	256	251	57	225	97.7	19.08		
--	5.00	7.50	80.880	0.76	82	280	1.72	1.60	3	256	252	55	229	98.7	18.16		
2	7.50	10.00	82.620	0.79	82	280	1.79	1.80	3	246	252	54	231	101.3	18.51		
--	10.00	12.50	84.440	0.80	82	280	1.81	1.80	3	256	252	53	232	99.0	18.63		
--	12.50	15.00	86.230	0.73	82	280	1.65	1.70	3	245	253	52	233	104.8	17.80		
3	15.00	17.50	88.040	0.80	82	280	1.81	1.80	3	257	252	52	233	100.1	18.63		
--	17.50	20.00	89.850	0.80	82	282	1.81	1.80	3	246	253	52	233	102.5	18.65		
--	20.00	22.50	91.700	0.79	83	283	1.79	1.80	3	256	252	51	233	99.7	18.55		
4	22.50	25.00	93.490	0.77	83	283	1.74	1.80	3	249	253	51	233	103.2	18.31		
--	25.00	27.50	95.320	0.76	83	282	1.72	1.70	3	253	252	51	232	101.0	18.18		
--	27.50	30.00	97.100	0.76	84	283	1.72	1.70	3	249	252	50	232	101.4	18.19		
5	30.00	32.50	98.890	0.72	84	283	1.63	1.65	3	252	252	49	231	101.9	17.71		
--	32.50	35.00	100.640	0.72	84	282	1.63	1.65	3	250	252	48	231	102.9	17.70		
--	35.00	37.50	102.410	0.73	85	282	1.66	1.70	3	250	252	48	230	104.9	17.82		
6	37.50	40.00	104.230	0.69	85	282	1.57	1.60	3	253	252	48	231	106.1	17.32		
--	40.00	42.50	106.020	0.70	85	281	1.59	1.55	3	248	252	48	229	101.2	17.44		
--	42.50	45.00	107.740	0.69	86	281	1.57	1.55	3	255	252	47	230	101.7	17.31		
7	45.00	47.50	109.460	0.67	86	281	1.53	1.45	3	247	252	47	230	99.6	17.06		
--	47.50	50.00	111.120	0.66	86	281	1.51	1.40	3	256	252	47	230	98.5	16.93		
--	50.00	52.50	112.750	0.73	87	281	1.67	1.60	3	246	252	47	230	98.7	17.81		
8	52.50	55.00	114.470	0.73	87	281	1.67	1.60	3	258	252	47	231	102.2	17.81		
--	55.00	57.50	116.250	0.70	87	281	1.60	1.50	3	246	254	47	231	99.6	17.44		
--	57.50	60.00	117.950	0.73	87	281	1.67	1.60	3	257	253	47	231	95.3	17.81		
9	60.00	62.50	119.610	0.75	88	282	1.71	1.60	3	246	252	48	230	99.0	18.06		
--	62.50	65.00	121.360	0.74	88	282	1.69	1.60	3	255	252	48	230	99.1	17.94		
--	65.00	67.50	123.100	0.75	88	283	1.71	1.65	3	246	251	48	230	100.2	18.07		
10	67.50	70.00	124.870	0.95	89	283	2.17	2.10	3	256	252	48	230	99.0	20.34		
--	70.00	72.50	126.840	0.93	89	284	2.12	2.10	3	248	253	48	232	99.1	20.14		
--	72.50	75.00	128.790	0.93	90	284	2.12	2.10	3	254	253	48	233	100.5	20.14		
11	75.00	77.50	130.770	0.95	90	284	2.17	2.10	3	249	255	48	233	98.4	20.36		
--	77.50	80.00	132.730	0.93	91	285	2.13	2.10	3	253	254	49	234	99.8	20.15		
--	80.00	82.50	134.700	0.94	90	284	2.15	2.10	3	250	253	49	233	98.9	20.25		
12	82.50	85.00	136.660	0.89	91	284	2.04	1.95	3	251	253	49	233	99.4	19.70		
--	85.00	87.50	138.580	0.90	91	284	2.06	1.95	3	252	252	49	232	98.3	19.81		
--	87.50	90.00	140.490	0.89	91	284	2.04	1.95	3	250	253	50	232	102.5	19.70		
1	90.00	92.50	142.470	0.83	91	283	1.90	1.80	3	254	253	50	232	96.4	19.01		
--	92.50	95.00	144.650	0.85	90	282	1.95	1.90	3	245	254	51	220	101.2	19.23		
--	95.00	97.50	146.560	0.86	90	283	1.97	1.95	3	258	258	48	234	101.2	19.35		
2	97.50	100.00	148.480	0.85	91	283	1.95	1.95	3	249	256	48	237	102.1	19.24		
--	100.00	102.50	150.410	0.85	91	283	1.95	1.85	3	254	252	48	236	100.0	19.24		
--	102.50	105.00	152.300	0.85	91	283	1.95	1.85	3	248	250	49	233	98.9	19.24		
3	105.00	107.50	154.170	0.87	91	283	1.99	1.95	3	254	249	49	232	100.4	19.47		
--	107.50	110.00	156.090	0.87	92	283	2.00	1.95	3	248	252	49	234	99.2	19.47		
--	110.00	112.50	157.990	0.90	91	283	2.06	2.00	3	255	254	49	235	100.8	19.80		
4	112.50	115.00	159.950	0.82	92	283	1.88	1.80	3	248	255	49	236	100.0	18.90		
--	115.00	117.50	161.810	0.82	92	284	1.88	1.80	3	255	255	50	236	99.5	18.91		
--	117.50	120.00	163.660	0.84	92	284	1.93	1.85	3	250	253	50	236	98.4	19.14		
5	120.00	122.50	165.510	0.86	92	284	1.97	1.90	3	253	252	50	235	99.3	19.37		
--	122.50	125.00	167.400	0.83	92	284	1.90	1.85	3	250	251	49	235	101.1	19.03		
--	125.00	127.50	169.290	0.83	92	284	1.90	1.85	3	252	253	50	235	100.5	19.03		
6	127.50	130.00	171.170	0.66	93	284	1.52	1.45	3	254	253	51	236	100.5	16.97		
--	130.00	132.50	172.850	0.64	92	284	1.47	1.40	3	250	254	51	235	99.2	16.71		
--	132.50	135.00	174.480	0.64	92	283	1.47	1.40	3	252	254	51	234	100.3	16.70		
7	135.00	137.50	176.130	0.74	92	283	1.70	1.65	3	249	253	50	233	93.4	17.95		
--	137.50	140.00	177.780	0.76	92	283	1.75	1.70	3	254	253	50	233	99.4	18.19		
--	140.00	142.50	179.560	0.76	92	283	1.75	1.70	3	250	252	50	233	99.9	18.19		
8	142.50	145.00	181.350	0.72	92	283	1.65	1.60	3	255	251	49	233	100.9	17.71		
--	145.00	147.50	183.110	0.72	93	283	1.66	1.60	3	247	252	50	233	100.8	17.71		
--	147.50	150.00	184.870	0.73	93	283	1.68	1.70	3	256	252	50	233	102.9	17.83		
9	150.00	152.50	186.680	0.76	93	283	1.75	1.70	3	246	253	50	233	100.3	18.19		
--	152.50	155.00	188.480	0.75	93	282	1.73	1.70	3	256	253	50	234	100.9	18.06		
--	155.00	157.50	190.280	0.73	93	282	1.68	1.65	3	246	253	50	234	101.1	17.82		
10	157.50	160.00	192.060	0.70	93	282	1.61	1.55	3	257	252	51	233	99.2	17.45		
--	160.00	162.50	193.770	0.70	93	281	1.62	1.55	3	246	253	51	231	104.9	17.44		
--	162.50	165.00	195.580	0.79	93	280	1.83	1.75	3	256	253	51	232	96.6	18.51		
11	165.00	167.50	197.350	0.76	93	280	1.76	1.70	3	245	253	51	232	97.9	18.16		
--	167.50	170.00	199.110	0.77	93	280	1.78	1.75	3	257	252	51	232	98.9	18.28		
--	170.00	172.50	200.900	0.77	93	280	1.78	1.75	3	246	253	51	232	101.1	18.28		
12	172.50	175.00	202.730	0.77	93	279	1.78	1.75	3	257	253	51	233	101.1	18.26		
--	175.00	177.50	204.560	0.75	93	279	1.74	1.65	3	246	253	52	233	99.6	18.03		
--	177.50	180.00	206.340	0.75	94	279	1.74	1.65	3	256	252	52	234	100.5	18.03		
Final DGM:			208.140														

RESULTS	Run Time		Vm	AP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{qs}					
	180.0	min	130.630	ft ³	0.79	in. WC	89.0	°F	282.2	°F	3	1.749	in. WC	100.3	0.163	1.1

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter PM, Metals

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-13-25	5-13-25
Start Time		16:39	7:56	11:46
Stop Time		19:47	11:06	14:53
Run Time, min	(θ)	180.0	180.0	180.0
INPUT DATA				
Barometric Pressure, kPa	(Pb)	100.881	100.847	100.779
Meter Correction Factor	(Y)	0.99	0.99	0.99
Orifice Calibration Value	($\Delta H @$)	1.978	1.978	1.978
Meter Volume, m ³	(Vm)	3.591	3.554	3.697
Meter Temperature, °C	(Tm)	30.1	29.1	32.3
Meter Temperature, °K	(Tm)	303.2	302.2	305.4
Meter Orifice Pressure, kPa	(ΔH)	0.401	0.413	0.439
Volume H ₂ O Collected, mL	(Vlc)	506.1	469.6	523.4
Nozzle Diameter, mm	(Dn)	6.253	6.253	6.253
ISOKINETIC DATA				
Reference Meter Volume, Rm ³	(Vmref)	3.491	3.466	3.566
Reference Water Volume, Rm ³	(Vwref)	0.688	0.639	0.712
Moisture Fraction Measured	(BWSmsd)	0.165	0.156	0.166
Moisture Fraction @ Saturation	(BWSsat)	3.360	3.369	3.459
Moisture Fraction	(BWS)	0.165	0.156	0.166
Meter Pressure, kPa	(Pm)	101.281	101.260	101.218
Volume at Nozzle, m ³	(Vn)	5.934	5.825	6.088
Isokinetic Sampling Rate, (%)	(I)	100.4	100.4	101.8

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Cour
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter PM, Metals

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-13-25	5-13-25
Start Time		16:39	7:56	11:46
Stop Time		19:47	11:06	14:53
Run Time, min		180.0	180.0	180.0
CALCULATED DATA				
Square Root of ΔP , (in. WC) ^{1/2}	(ΔP)	0.855	0.840	0.865
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	100.881	100.847	100.779
Static Pressure, kPa	(Pg)	-2.365	-2.265	-2.265
Stack Pressure, kPa	(Ps)	98.516	98.582	98.514
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	138.3	138.4	139.4
Temperature, °K	(Ts)	411.5	411.6	412.5
Moisture Fraction Measured	(BWSmsd)	0.165	0.156	0.166
Moisture Fraction @ Saturation	(BWSsat)	3.360	3.369	3.459
Moisture Fraction	(BWS)	0.165	0.156	0.166
O ₂ Concentration, %	(O ₂)	8.17	8.37	8.36
CO ₂ Concentration, %	(CO ₂)	10.72	10.53	10.5
CO Concentration, ppmvd	(CO)	19.6	14.2	12.2
Ar Concentration, %	(Ar)	0.95	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.16	30.13	30.13
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.16	28.25	28.11
Velocity, m/s	(Vs)	17.8	17.5	18.0
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	26.33	25.87	26.67
At Reference Conditions, dry Rm ³ /s	(Qs)	15.50	15.39	15.62
At Reference Conditions (corrected), dry I	(Qsc)	19.93	19.48	19.79
At Reference Conditions, wet Rm ³ /s	(Qsw)	18.55	18.23	18.74

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 16:39		Source: APC Outlet No. 2																			
Date: 5-12-25		Run 1		VALID		End Time: 19:47		Project No.: AST-2025-2049		Parameter: PM, Metals															
STACK DATA (EST)				EQUIPMENT				STACK DATA (EST)				FILTER NO.		STACK DATA (FINAL)		MOIST. DATA									
Moisture: 16.0 % est.				Meter Box ID: MB18				Est. Tm: 82 °F						Pb: 29.79 in. Hg		Vlc (ml)									
Barometric: 29.70 in. Hg				Y: 0.99				Est. Ts: 282 °F						Pg: -9.50 in. WC		506.1									
Static Press: -9.50 in. WC				AH @ (in.WC): 1.978				Est. AP: 0.78 in. WC						O ₂ : 8.17 %		K-FACTOR									
Stack Press: 29.00 in. Hg				Probe ID: 6 series				Est. Dn: 0.238 in.						CO ₂ : 10.72 %		2.324									
CO ₂ : 10.4 %				Liner Material: glass				Target Rate: 0.67 scfm						CO: 19.6 ppm											
O ₂ : 8.8 %				Pitot ID: S8										Check Pt.		Initial		Final		Corr.					
N ₂ : 79.9 %				Pitot Cp/Type: 0.840				S-type		LEAK CHECK		Pre		Mid 1		Mid 2		Mid 3		Post					
CO: 5.70 ppm				Nozzle ID: N007				glass		Leak Rate (cfm): 0.002		0.003		0.003		--		0.006		Mid 1 (cf) 906.350		#####		0.380	
Md: 30.13 lb/lb-mole				Nozzle Dn (in.): 0.2462						Vacuum (in Hg): 15		15		15		--		17		Mid 2 (cf)				--	
Ms: 28.19 lb/lb-mole										Pitot Tube:		Pass		--		--		Pass		Mid-Point Leak Check Vol (cf): 0.380					

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)	
					DGM Average	Stack				Probe	Filter	Imp Exit	NA			
	Amb.	Amb.			Amb.	Amb.	Amb.	Amb.								
	Ideal	Actual			-	-	-	-								
1	0.00	2.50	844.070	0.78	78	282	1.80	1.70	3	252	255	75	275	99.3	18.41	
	2.50	5.00	845.840	0.78	78	283	1.80	1.70	3	252	252	69	280	101.1	18.42	
	5.00	7.50	847.640	0.75	78	282	1.73	1.60	3	252	249	66	281	99.6	18.05	
2	7.50	10.00	849.380	0.75	78	283	1.73	1.60	3	252	252	66	220	100.2	18.07	
	10.00	12.50	851.130	0.75	78	282	1.73	1.60	3	252	254	66	223	100.1	18.05	
	12.50	15.00	852.880	0.71	79	283	1.64	1.55	3	252	255	67	225	99.3	17.58	
3	15.00	17.50	854.570	0.72	79	280	1.67	1.60	3	252	253	67	226	100.7	17.67	
	17.50	20.00	856.300	0.72	79	282	1.67	1.55	3	252	252	66	226	100.3	17.69	
	20.00	22.50	858.020	0.72	79	282	1.67	1.55	3	252	251	65	226	99.1	17.69	
4	22.50	25.00	859.720	0.75	80	283	1.74	1.60	3	252	251	64	225	100.4	18.07	
	25.00	27.50	861.480	0.80	80	283	1.85	1.75	3	252	252	63	226	98.9	18.66	
	27.50	30.00	863.270	0.80	80	283	1.85	1.75	3	252	253	63	227	101.1	18.66	
5	30.00	32.50	865.100	0.73	81	283	1.69	1.60	3	252	253	62	227	104.5	17.82	
	32.50	35.00	866.910	0.73	81	283	1.69	1.60	3	252	252	62	227	103.9	17.82	
	35.00	37.50	868.710	0.75	81	283	1.74	1.65	3	252	252	62	225	99.1	18.07	
6	37.50	40.00	870.450	0.71	81	283	1.65	1.55	3	252	252	61	227	99.5	17.58	
	40.00	42.50	872.150	0.71	82	283	1.65	1.55	3	252	252	59	227	101.1	17.58	
	42.50	45.00	873.880	0.71	82	282	1.65	1.55	3	252	252	58	228	101.6	17.57	
7	45.00	47.50	875.620	0.60	83	282	1.40	1.30	2	252	252	57	228	102.0	16.15	
	47.50	50.00	877.230	0.60	83	282	1.40	1.30	2	252	252	56	226	98.8	16.15	
	50.00	52.50	878.790	0.60	83	281	1.40	1.30	2	252	252	55	227	100.6	16.14	
8	52.50	55.00	880.380	0.61	83	281	1.42	1.30	2	253	253	55	227	99.8	16.27	
	55.00	57.50	881.970	0.61	84	281	1.43	1.30	2	252	252	54	227	99.0	16.27	
	57.50	60.00	883.550	0.67	84	281	1.57	1.45	2	253	252	54	227	99.3	17.05	
9	60.00	62.50	885.210	0.67	84	281	1.57	1.45	2	252	252	53	228	99.3	17.05	
	62.50	65.00	886.870	0.67	84	280	1.57	1.50	2	252	252	53	228	100.4	17.04	
	65.00	67.50	888.550	0.66	85	280	1.55	1.45	2	252	252	52	229	101.0	16.91	
10	67.50	70.00	890.230	0.75	85	280	1.76	1.65	3	252	252	52	228	99.3	18.03	
	70.00	72.50	891.990	0.73	85	279	1.71	1.60	3	252	252	51	229	100.0	17.78	
	72.50	75.00	893.740	0.73	85	279	1.71	1.60	3	252	252	51	230	100.6	17.78	
11	75.00	77.50	895.500	0.76	86	278	1.79	1.70	3	252	252	50	229	100.0	18.13	
	77.50	80.00	897.290	0.76	86	278	1.79	1.70	3	252	252	50	230	101.1	18.13	
	80.00	82.50	899.100	0.76	86	277	1.79	1.70	3	252	252	50	230	100.5	18.11	
12	82.50	85.00	900.900	0.76	87	277	1.80	1.70	3	252	252	50	230	100.9	18.11	
	85.00	87.50	902.710	0.76	87	277	1.80	1.70	3	252	252	50	231	100.3	18.11	
	87.50	90.00	904.510	0.78	87	277	1.84	1.75	3	253	253	50	231	101.2	18.35	
1	90.00	92.50	906.350	0.85	87	277	2.01	1.75	3	253	253	50	231	97.5	19.16	
	92.50	95.00	908.580	0.85	88	280	2.00	1.90	3	252	249	53	219	102.3	19.19	
	95.00	97.50	910.520	0.86	88	280	2.03	1.90	3	252	251	50	228	98.0	19.31	
2	97.50	100.00	912.390	0.84	88	280	1.98	1.90	3	252	253	49	230	100.8	19.08	
	100.00	102.50	914.290	0.84	88	281	1.98	1.90	3	252	254	48	231	100.3	19.09	
	102.50	105.00	916.180	0.82	88	281	1.93	1.80	3	252	253	48	231	103.1	18.87	
3	105.00	107.50	918.100	0.82	88	281	1.93	1.80	3	252	251	48	231	99.4	18.87	
	107.50	110.00	919.950	0.84	89	281	1.98	1.85	3	252	251	49	230	99.1	19.09	
	110.00	112.50	921.820	0.84	89	281	1.98	1.85	3	253	252	49	230	99.6	19.09	
4	112.50	115.00	923.700	0.74	89	281	1.75	1.60	3	253	252	49	231	101.0	17.92	
	115.00	117.50	925.490	0.74	89	281	1.75	1.60	3	253	253	49	231	100.4	17.92	
	117.50	120.00	927.270	0.74	89	281	1.75	1.60	3	253	253	49	230	99.3	17.92	
5	120.00	122.50	929.030	0.69	89	281	1.63	1.50	3	252	252	49	230	100.5	17.31	
	122.50	125.00	930.750	0.70	89	281	1.65	1.55	3	253	252	49	230	99.2	17.43	
	125.00	127.50	932.460	0.70	90	281	1.65	1.55	3	253	253	49	230	99.0	17.43	
6	127.50	130.00	934.170	0.70	90	282	1.65	1.55	3	253	253	49	230	99.6	17.44	
	130.00	132.50	935.890	0.73	90	282	1.72	1.60	3	253	252	48	230	100.4	17.81	
	132.50	135.00	937.660	0.75	90	283	1.77	1.65	3	253	253	48	231	100.8	18.07	
7	135.00	137.50	939.460	0.78	90	284	1.84	1.70	4	253	253	49	231	99.5	18.44	
	137.50	140.00	941.270	0.78	90	284	1.84	1.70	4	253	253	48	231	101.7	18.44	
	140.00	142.50	943.120	0.71	91	284	1.67	1.55	4	253	253	47	231	100.0	17.59	
8	142.50	145.00	944.860	0.71	91	284	1.67	1.55	4	253	253	46	230	99.5	17.59	
	145.00	147.50	946.590	0.70	91	283	1.65	1.55	4	253	252	46	230	101.3	17.45	
	147.50	150.00	948.340	0.72	91	283	1.70	1.60	4	253	252	45	230	101.0	17.70	
9	150.00	152.50	950.110	0.72	91	284	1.70	1.60	4	253	253	45	230	101.1	17.71	
	152.50	155.00	951.880	0.72	91	284	1.70	1.60	4	253	253	45	231	101.1	17.71	
	155.00	157.50	953.650	0.74	91	281	1.75	1.65	4	253	253	44	231	101.2	17.92	
10	157.50	160.00	955.450	0.72	91	278	1.71	1.60	4	253	253	44	231	101.8	17.64	
	160.00	162.50	957.240	0.75	91	278	1.78	1.70	4	253	252	44	230	101.4	18.01	
	162.50	165.00	959.060	0.70	91	278	1.66	1.60	4	253	252	44	230	102.7	17.40	
11	165.00	167.50	960.840	0.69	91	279	1.64	1.50	3	253	252	44	229	99.4	17.28	
	167.50	170.00	962.550	0.70	91	279	1.66	1.55	3	253	252	44	229	100.4	17.41	
	170.00	172.50	964.290	0.70	92	279	1.67	1.55	3	253	254	44	230	103.1	17.41	
12	172.50	175.00	966.080	0.68	92	279	1.62	1.50	3	253	254	44	230	99.3	17.16	
	175.00	177.50	967.780	0.68	92	279	1.62	1.50	3	253	253	45	230	101.1	17.16	
	177.50	180.00	969.510	0.68	92	279	1.62	1.50	3	253	252	44	230	102.3	17.16	
Final DGM:			971.260													

RESULTS	Run Time		Vm		AP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{gs}	
	180.0	min	126.810	ft ³	0.73	in. WC	86.1	°F	281.0	°F	4		1.609	in. WC	100.4	0.165		3.3		

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 7:56		Source: APC Outlet No. 2								
Date: 5-13-25		Run 2		VALID		End Time: 11:06		Project No.: AST-2025-2049		Parameter: PM, Metals				
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA	
Moisture: 16.0 % est.			Meter Box ID: MB18			Est. Tm: 86 °F					Pb: 29.78 in. Hg		Vlc (ml)	
Barometric: 29.70 in. Hg			Y: 0.99			Est. Ts: 281 °F					Pg: -9.10 in. WC		469.6	
Static Press: -9.50 in. WC			AH @ (in.WC): 1.978			Est. AP: 0.73 in. WC					O ₂ : 8.37 %		K-FACTOR	
Stack Press: 29.00 in. Hg			Probe ID: 6-series			Est. Dn: 0.241 in.					CO ₂ : 10.53 %		2.34	
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm					CO: 14.2 ppm			
O ₂ : 8.8 %			Pitot ID: S8								Check Pt.		Initial Final Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type			LEAK CHECK		Pre Mid 1 Mid 2 Mid 3 Post		Mid 1 (cf) 133.360 ##### 0.490	
CO: 5.70 ppm			Nozzle ID: A			glass			Leak Rate (cfm): 0.005 0.003 0.003 -- 0.002		Mid 2 (cf)		--	
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2462						Vacuum (in Hg): 17 15 15 -- 15		Mid 3 (cf)		--	
Ms: 28.19 lb/lb-mole									Pitot Tube: Pass -- --		Mid-Point Leak Check Vol (cf): 0.490			

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	NA				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
					--	--				--	--	--	--			--	--
1	0.00	2.50	71.770	0.85	79	282	1.96	1.95	4	252	252	60	-	100.3	19.22		
--	2.50	5.00	73.660	0.85	79	281	1.97	1.95	4	250	250	60	-	99.2	19.21		
--	5.00	7.50	75.530	0.88	80	282	2.03	2.50	4	252	250	59	-	100.1	19.56		
2	7.50	10.00	77.450	0.85	80	282	1.97	1.95	4	252	251	58	-	100.1	19.22		
--	10.00	12.50	79.340	0.83	80	282	1.92	1.90	4	252	253	59	-	100.2	18.99		
--	12.50	15.00	81.210	0.83	80	281	1.92	1.90	4	252	255	59	-	99.1	18.98		
3	15.00	17.50	83.060	0.79	80	281	1.83	1.80	4	252	255	58	-	100.4	18.52		
--	17.50	20.00	84.890	0.79	81	282	1.83	1.80	4	252	253	58	-	100.3	18.53		
--	20.00	22.50	86.720	0.80	81	282	1.86	1.85	4	252	252	57	-	99.2	18.65		
4	22.50	25.00	88.540	0.76	81	282	1.76	1.75	3	253	250	56	-	101.2	18.17		
--	25.00	27.50	90.350	0.72	82	282	1.67	1.65	3	253	250	56	-	99.7	17.69		
--	27.50	30.00	92.090	0.73	82	282	1.70	1.70	3	252	252	54	-	100.7	17.81		
5	30.00	32.50	93.860	0.66	82	283	1.53	1.50	3	252	253	54	-	98.8	16.95		
--	32.50	35.00	95.510	0.66	83	283	1.54	1.50	3	252	254	53	-	99.8	16.95		
--	35.00	37.50	97.180	0.65	83	283	1.51	1.50	3	252	254	52	-	101.8	16.82		
6	37.50	40.00	98.870	0.60	83	283	1.40	1.40	3	252	252	51	-	100.9	16.16		
--	40.00	42.50	100.480	0.60	83	283	1.40	1.40	3	252	251	51	-	100.9	16.16		
--	42.50	45.00	102.090	0.60	84	282	1.40	1.40	3	252	251	51	-	100.0	16.15		
7	45.00	47.50	103.690	0.61	84	282	1.42	1.40	3	253	251	50	-	100.4	16.28		
--	47.50	50.00	105.310	0.61	84	282	1.42	1.40	3	252	253	50	-	98.6	16.28		
--	50.00	52.50	106.900	0.60	84	282	1.40	1.40	3	252	254	49	-	100.0	16.15		
8	52.50	55.00	108.500	0.61	84	281	1.43	1.40	3	252	254	49	-	99.1	16.27		
--	55.00	57.50	110.100	0.61	84	281	1.43	1.45	3	252	253	49	-	100.4	16.27		
--	57.50	60.00	111.720	0.61	84	281	1.43	1.45	3	252	252	49	-	101.6	16.27		
9	60.00	62.50	113.360	0.62	84	280	1.45	1.45	3	252	251	49	-	100.7	16.39		
--	62.50	65.00	115.000	0.59	84	280	1.38	1.35	3	252	252	49	-	100.1	15.99		
--	65.00	67.50	116.590	0.57	85	280	1.34	1.30	3	253	252	49	-	99.7	15.72		
10	67.50	70.00	118.150	0.59	85	280	1.38	1.40	3	253	252	50	-	101.2	15.99		
--	70.00	72.50	119.760	0.59	85	280	1.38	1.35	3	253	253	49	-	101.1	15.99		
--	72.50	75.00	121.370	0.60	85	280	1.41	1.40	3	253	253	50	-	100.9	16.13		
11	75.00	77.50	122.990	0.67	85	280	1.57	1.55	3	253	253	50	-	99.7	17.04		
--	77.50	80.00	124.680	0.69	85	280	1.62	1.60	3	253	253	50	-	100.0	17.29		
--	80.00	82.50	126.400	0.69	85	281	1.62	1.60	3	253	252	50	-	100.6	17.31		
12	82.50	85.00	128.130	0.70	85	281	1.64	1.65	3	253	252	50	-	101.1	17.43		
--	85.00	87.50	129.880	0.68	85	281	1.59	1.60	3	253	252	50	-	101.9	17.18		
--	87.50	90.00	131.620	0.70	85	281	1.64	1.65	3	253	252	50	-	100.5	17.43		
1	90.00	92.50	133.360	0.93	85	284	2.17	2.15	4	253	253	60	-	100.0	20.13		
--	92.50	95.00	135.840	0.94	84	284	2.19	2.20	4	252	252	52	-	101.2	20.24		
--	95.00	97.50	137.860	0.90	85	284	2.10	2.10	4	252	252	50	-	101.2	19.80		
2	97.50	100.00	139.840	0.88	85	284	2.05	2.10	4	253	252	49	-	100.2	19.58		
--	100.00	102.50	141.780	0.87	85	284	2.03	2.05	4	252	253	49	-	101.3	19.47		
--	102.50	105.00	143.730	0.85	85	283	1.98	2.05	4	252	253	49	-	100.9	19.23		
3	105.00	107.50	145.650	0.84	84	282	1.96	2.00	4	252	253	49	-	100.0	19.11		
--	107.50	110.00	147.540	0.78	85	281	1.83	1.95	4	253	253	49	-	101.8	18.40		
--	110.00	112.50	149.400	0.77	85	281	1.80	1.80	4	253	253	50	-	100.8	18.28		
4	112.50	115.00	151.230	0.75	85	280	1.76	1.80	4	252	252	50	-	99.8	18.03		
--	115.00	117.50	153.020	0.75	85	280	1.76	1.80	4	253	252	50	-	101.0	18.03		
--	117.50	120.00	154.830	0.74	85	280	1.73	1.75	4	253	252	50	-	101.1	17.91		
5	120.00	122.50	156.630	0.70	85	280	1.64	1.65	4	252	253	50	-	100.4	17.42		
--	122.50	125.00	158.370	0.70	85	280	1.64	1.65	4	253	253	50	-	101.6	17.42		
--	125.00	127.50	160.130	0.70	85	280	1.64	1.65	4	253	253	50	-	99.8	17.42		
6	127.50	130.00	161.860	0.62	85	280	1.45	1.45	3	253	253	50	-	100.5	16.39		
--	130.00	132.50	163.500	0.61	86	280	1.43	1.40	3	253	253	51	-	100.5	16.26		
--	132.50	135.00	165.130	0.61	86	280	1.43	1.40	3	253	253	51	-	99.9	16.26		
7	135.00	137.50	166.750	0.65	86	280	1.53	1.50	3	253	253	51	-	100.4	16.79		
--	137.50	140.00	168.430	0.68	86	280	1.60	1.60	4	253	253	51	-	100.5	17.17		
--	140.00	142.50	170.150	0.67	86	280	1.57	1.60	4	253	253	51	-	101.9	17.04		
8	142.50	145.00	171.880	0.70	86	280	1.64	1.65	4	253	253	51	-	101.4	17.42		
--	145.00	147.50	173.640	0.70	86	281	1.64	1.65	4	253	252	51	-	100.3	17.43		
--	147.50	150.00	175.380	0.73	86	281	1.71	1.70	4	253	253	51	-	99.9	17.80		
9	150.00	152.50	177.150	0.76	86	281	1.78	1.75	4	253	251	51	-	100.7	18.16		
--	152.50	155.00	178.970	0.76	86	282	1.78	1.75	4	253	252	51	-	99.7	18.17		
--	155.00	157.50	180.770	0.74	87	281	1.74	1.75	4	253	253	51	-	99.6	17.92		
10	157.50	160.00	182.550	0.75	87	280	1.76	1.75	4	253	252	51	-	100.0	18.03		
--	160.00	162.50	184.350	0.73	87	281	1.72	1.70	4	253	253	51	-	99.7	17.80		
--	162.50	165.00	186.120	0.73	87	281	1.72	1.70	4	253	253	51	-	99.7	17.80		
11	165.00	167.50	187.890	0.63	87	280	1.48	1.45	3	253	253	51	-	100.0	16.53		
--	167.50	170.00	189.540	0.62	87	280	1.46	1.45	3	253	252	51	-	100.2	16.39		
--	170.00	172.50	191.180	0.62	87	280	1.46	1.45	3	253	253	51	-	101.4	16.39		
12	172.50	175.00	192.840	0.61	87	280	1.44	1.40	3	253	253	51	-	98.5	16.26		
--	175.00	177.50	194.440	0.60	87	280	1.41	1.40	3	253	252	52	-	100.6	16.13		
--	177.50	180.00	196.060	0.65	87	280	1.53	1.50	3	253	252	52	-	101.4	16.79		
Final DGM:			197.760														

RESULTS	Run Time		Vm		AP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qs}	
	180.0	min	125.500	ft ³	0.71	in. WC	84.3	°F	281.2	°F	4		1.660	in. WC	100.4	0.156	1.1			

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 11:46		Source: APC Outlet No. 2								
Date: 5-13-25		Run 3		VALID		End Time: 14:53		Project No.: AST-2025-2049		Parameter: PM, Metals				
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA	
Moisture: 16.0 % est.			Meter Box ID: MB18			Est. Tm: 84 °F					Pb: 29.76 in. Hg		Vlc (ml)	
Barometric: 29.70 in. Hg			Y: 0.99			Est. Ts: 281 °F					Pg: -9.10 in. WC		523.4	
Static Press: -9.50 in. WC			AH @ (in.WC): 1.978			Est. AP: 0.71 in. WC					O ₂ : 8.36 %		K-FACTOR	
Stack Press: 29.00 in. Hg			Probe ID: G-series			Est. Dn: 0.243 in.					CO ₂ : 10.5 %		2.337	
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm					CO: 12.2 ppm			
O ₂ : 8.8 %			Pitot ID: S8								Check Pt.		Initial Final Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type			LEAK CHECK		Pre Mid 1 Mid 2 Mid 3 Post		Mid 1 (cf) 163.480 ##### 0.420	
CO: 5.70 ppm			Nozzle ID: A			glass			Leak Rate (cfm): 0.002		0.002 0.002 0.002 -- 0.002		Mid 2 (cf) --	
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2462						Vacuum (in Hg): 15		15 15 -- 15		Mid 3 (cf) --	
Ms: 28.19 lb/lb-mole									Pitot Tube: Pass		-- -- --		Mid-Point Leak Check Vol (cf): 0.420	

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)	Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)	
	Begin	End			DGM Average	Stack			Probe	Filter	Imp Exit	NA			
					Amb.	Amb.									Amb.
						Ideal	Actual								
1	0.00	2.50	98.250	0.85	86	281	1.99	2.00	3	252	256	60	-	101.3	19.21
-	2.50	5.00	100.160	0.83	86	282	1.94	1.95	3	252	253	60	-	103.1	18.99
-	5.00	7.50	102.080	0.84	87	282	1.97	1.95	3	252	253	59	-	101.2	19.11
2	7.50	10.00	103.980	0.82	87	282	1.92	1.90	3	252	254	58	-	101.4	18.88
-	10.00	12.50	105.860	0.82	87	282	1.92	1.90	3	252	252	57	-	100.8	18.88
-	12.50	15.00	107.730	0.82	87	281	1.93	1.90	3	252	252	57	-	100.2	18.87
3	15.00	17.50	109.590	0.78	87	281	1.83	1.80	3	252	252	57	-	100.5	18.40
-	17.50	20.00	111.410	0.78	87	282	1.83	1.80	3	252	252	57	-	101.7	18.41
-	20.00	22.50	113.250	0.78	87	281	1.83	1.80	3	252	252	56	-	101.1	18.40
4	22.50	25.00	115.080	0.77	87	282	1.81	1.80	3	252	252	56	-	101.3	18.29
-	25.00	27.50	116.900	0.73	87	282	1.71	1.70	3	252	252	55	-	100.0	17.81
-	27.50	30.00	118.650	0.75	88	282	1.76	1.75	3	252	252	55	-	102.4	18.05
5	30.00	32.50	120.470	0.68	88	282	1.60	1.60	3	252	252	54	-	101.0	17.19
-	32.50	35.00	122.180	0.74	88	282	1.74	1.70	3	252	252	54	-	101.9	17.93
-	35.00	37.50	123.980	0.79	88	282	1.86	1.85	3	252	252	54	-	101.4	18.53
6	37.50	40.00	125.830	0.77	88	282	1.81	1.80	3	252	252	53	-	101.6	18.29
-	40.00	42.50	127.660	0.70	89	283	1.65	1.60	3	252	252	53	-	101.8	17.45
-	42.50	45.00	129.410	0.68	89	284	1.60	1.60	3	253	252	53	-	102.1	17.21
7	45.00	47.50	131.140	0.72	89	283	1.69	1.70	3	253	253	53	-	103.8	17.70
-	47.50	50.00	132.950	0.70	89	284	1.64	1.65	3	253	253	53	-	101.8	17.47
-	50.00	52.50	134.700	0.70	90	283	1.65	1.65	3	253	252	53	-	101.0	17.45
8	52.50	55.00	136.440	0.72	90	283	1.70	1.70	3	253	252	53	-	102.5	17.70
-	55.00	57.50	138.230	0.72	90	283	1.70	1.70	3	253	252	54	-	101.3	17.70
-	57.50	60.00	140.000	0.72	90	284	1.69	1.70	3	253	253	54	-	102.5	17.71
9	60.00	62.50	141.790	0.76	90	283	1.79	1.80	3	253	252	53	-	103.7	18.19
-	62.50	65.00	143.650	0.76	91	283	1.79	1.75	3	253	253	53	-	101.2	18.19
-	65.00	67.50	145.470	0.77	91	284	1.82	1.80	3	253	253	53	-	101.2	18.32
10	67.50	70.00	147.300	0.75	91	284	1.77	1.75	3	253	252	53	-	102.0	18.08
-	70.00	72.50	149.120	0.75	91	284	1.77	1.75	3	253	253	53	-	100.3	18.08
-	72.50	75.00	150.910	0.75	91	284	1.77	1.75	3	253	253	53	-	102.5	18.08
11	75.00	77.50	152.740	0.71	91	280	1.68	1.65	3	253	253	53	-	100.5	17.54
-	77.50	80.00	154.490	0.72	91	280	1.71	1.70	3	253	253	53	-	102.1	17.67
-	80.00	82.50	156.280	0.74	91	280	1.75	1.75	3	253	253	53	-	102.4	17.91
12	82.50	85.00	158.100	0.72	91	280	1.71	1.70	3	253	253	52	-	102.6	17.67
-	85.00	87.50	159.900	0.72	91	280	1.71	1.70	3	253	253	52	-	101.5	17.67
-	87.50	90.00	161.680	0.72	92	280	1.71	1.70	3	253	253	53	-	102.5	17.67
1	90.00	92.50	163.480	0.84	91	282	1.98	1.95	4	252	253	60	-	101.6	19.11
-	92.50	95.00	165.820	0.85	90	282	2.00	2.00	4	252	250	55	-	102.2	19.22
-	95.00	97.50	167.760	0.87	90	282	2.05	2.05	4	252	250	53	-	102.6	19.45
2	97.50	100.00	169.730	0.87	91	283	2.05	2.05	4	252	251	51	-	101.5	19.46
-	100.00	102.50	171.680	0.87	91	282	2.06	2.05	4	252	254	51	-	101.4	19.45
-	102.50	105.00	173.630	0.88	91	283	2.08	2.05	4	252	254	50	-	103.5	19.57
3	105.00	107.50	175.630	0.85	91	282	2.01	2.00	3	253	253	50	-	102.0	19.22
-	107.50	110.00	177.570	0.81	91	284	1.91	2.00	3	252	251	50	-	102.5	18.79
-	110.00	112.50	179.470	0.84	91	285	1.98	1.90	3	253	251	50	-	103.9	19.15
4	112.50	115.00	181.430	0.72	91	285	1.69	1.98	3	253	252	50	-	103.1	17.73
-	115.00	117.50	183.230	0.72	91	284	1.70	1.70	3	253	253	50	-	101.2	17.71
-	117.50	120.00	185.000	0.70	91	284	1.65	1.70	3	253	254	50	-	102.6	17.47
5	120.00	122.50	186.770	0.66	91	284	1.56	1.65	3	253	253	50	-	101.5	16.96
-	122.50	125.00	188.470	0.68	91	284	1.60	1.55	3	253	252	50	-	100.6	17.21
-	125.00	127.50	190.180	0.69	91	284	1.63	1.60	3	253	251	50	-	101.6	17.34
6	127.50	130.00	191.920	0.66	91	285	1.55	1.60	3	253	252	50	-	102.2	16.97
-	130.00	132.50	193.630	0.67	91	285	1.58	1.55	3	252	252	50	-	101.4	17.10
-	132.50	135.00	195.340	0.68	91	285	1.60	1.60	3	253	253	50	-	100.7	17.23
7	135.00	137.50	197.050	0.75	91	285	1.77	1.60	3	252	253	50	-	99.8	18.09
-	137.50	140.00	198.830	0.75	91	285	1.77	1.75	3	252	252	50	-	101.5	18.09
-	140.00	142.50	200.640	0.74	91	285	1.74	1.80	3	252	252	50	-	102.7	17.97
8	142.50	145.00	202.460	0.78	91	285	1.84	1.75	3	253	251	50	-	101.7	18.45
-	145.00	147.50	204.310	0.77	91	285	1.81	1.85	3	253	252	50	-	101.8	18.33
-	147.50	150.00	206.150	0.76	91	285	1.79	1.80	3	252	253	50	-	103.1	18.21
9	150.00	152.50	208.000	0.75	92	284	1.77	1.80	3	252	253	50	-	100.7	18.08
-	152.50	155.00	209.800	0.75	92	284	1.77	1.75	3	253	253	50	-	102.4	18.08
-	155.00	157.50	211.630	0.73	92	284	1.72	1.80	3	252	252	50	-	99.8	17.84
10	157.50	160.00	213.390	0.73	92	284	1.72	1.75	3	252	252	51	-	104.3	17.84
-	160.00	162.50	215.230	0.73	92	284	1.72	1.70	3	252	252	51	-	100.9	17.84
-	162.50	165.00	217.010	0.72	92	284	1.70	1.70	3	252	252	51	-	101.0	17.71
11	165.00	167.50	218.780	0.66	92	280	1.57	1.55	3	252	253	51	-	102.2	16.91
-	167.50	170.00	220.500	0.66	92	280	1.57	1.55	3	252	253	51	-	102.2	16.91
-	170.00	172.50	222.220	0.70	92	281	1.66	1.65	3	253	253	52	-	101.1	17.43
12	172.50	175.00	223.970	0.70	92	283	1.66	1.65	3	252	252	52	-	101.8	17.45
-	175.00	177.50	225.730	0.67	92	283	1.59	1.55	3	252	252	51	-	102.3	17.08
-	177.50	180.00	227.460	0.69	93	282	1.64	1.60	3	252	252	52	-	102.3	17.32
Final DGM:			229.220												

RESULTS	Run Time		Vm	AP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{qs}				
	180.0	min	130.550	ft ³	0.75	in. WC	90.1	°F	282.8	°F	4	1.762	in. WC	101.8	0.166

APPENDIX 23

Particle Size Distribution Test Emission Calculations (10 pages)

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter PM10, PM2.5

Run Number		Run 1	Run 2	Run 3	Average
Date		5-13-25	5-13-25	5-13-25	-
Start Time		8:02	10:50	13:35	-
Stop Time		10:06	12:54	15:38	-
INPUT DATA					
Run Time, min	(Θ)	118.6	120.0	121.6	120.0
Barometric Pressure, kPa	(Pb)	100.851	100.851	100.749	100.817
Meter Correction Factor	(Y)	1.000	1.000	1.000	1.000
Orifice Calibration Value	($\Delta H@$)	1.814	1.814	1.814	1.814
Meter Volume, m ³	(Vm)	1.175	1.183	1.216	1.191
Meter Temperature, °C	(Tm)	32.1	33.6	33.8	33.2
Meter Temperature, °K	(Tm)	305.2	306.8	307.0	306.3
Meter Orifice Pressure, kPa	(ΔH)	0.092	0.090	0.090	0.090
Volume H2O Collected, mL	(Vlc)	149.2	152.7	183.3	161.7
Nozzle Diameter, mm	(Dn)	4.509	4.509	4.509	4.509
CALCULATED DATA					
Reference Meter Volume, m ³	(Vmstd)	1.143	1.144	1.174	1.154
Reference Water Volume, m ³	(Vwstd)	0.203	0.208	0.249	0.220
Sampling Rate, m ³	(Qs)	0.016	0.016	0.017	0.016
Moisture Fraction Measured	(BWSmsd)	0.151	0.154	0.175	0.160
Moisture Fraction @ Saturation	(BWSsat)	3.766	3.694	3.684	3.715
Moisture Fraction	(BWS)	0.151	0.154	0.175	0.160
Meter Pressure, kPa	(Pm)	100.94	100.94	100.84	100.907
Isokinetic Sampling Rate, % (+/- 20%)	(I)	97.7	96.9	98.9	97.8

Location Reworld Durham York Renewable Energy L.P - Court
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter PM10, PM2.5

Run Number		Run 1	Run 2	Run 3
Date		5-13-25	5-13-25	5-13-25
Start Time		8:02	10:50	13:35
Stop Time		10:06	12:54	15:38
Run Time, min		118.6	120.0	121.6
CALCULATED DATA				
Square Root of ΔP	(in. WC) ^{1/2}	0.836	0.836	0.847
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	100.851	100.851	100.749
Static Pressure, kPa	(Pg)	-2.365	-2.365	-2.365
Stack Pressure, kPa	(Ps)	98.486	98.486	98.385
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	142.4	141.7	141.6
Temperature, °K	(Ts)	415.6	414.9	414.7
Moisture Fraction Measured	(BWSmsd)	0.151	0.154	0.175
Moisture Fraction @ Saturation	(BWSsat)	3.766	3.694	3.684
Moisture Fraction	(BWS)	0.151	0.154	0.175
O ₂ Concentration, %	(O ₂)	9.10	9.13	9.48
CO ₂ Concentration, %	(CO ₂)	10.14	10.10	9.73
CO Concentration, ppmvd	(CO)	10.0	10.5	8.2
Ar Concentration, %	(Ar)	0.95	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.10	30.10	30.05
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.28	28.24	27.94
Velocity, m/s	(Vs)	17.4	17.4	17.8
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	25.76	25.75	26.24
At Reference Conditions, dry Rm ³ /s	(Qs)	15.25	15.22	15.11
At Reference Conditions, wet Rm ³ /s	(Qsw)	17.96	17.98	18.31

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Source: APC Outlet No. 1		
Project No.: AST-2025-2049	Parameter:	PM10, PM2.5

[illegible]

Actual Run Time		V _m	ΔP	T _m	T _s	Max Vac.	ΔH	% ISO	D ₅₀ 10 μm	D ₅₀ 2.5 μm
118.6 min	41.510 ft ³	0.70 in. WC	89.8 °F	288.3 °F	3	0.370 in. WC	97.7		10.23	2.37

Project No.: AST-2025-2049	Parameter:	PM10, PM2.5

[illegible]

Actual Run Time		Vm	ΔP		Tm		Ts		Max Vac.	ΔH		% ISO		D ₅₀ 10 μm	D ₅₀ 2.5 μm	
120.0	min	41.770	ft ³	0.70	in. WC	92.5	°F	287.1	°F	3	0.360	in. WC	96.9		10.31	2.40

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
 Date: 5-13-25 Run 3 VALID

Start Time: 13:35
 End Time: 15:38

Source: APC Outlet No. 1
 Project No.: AST-2025-2049 Parameter: PM10, PM2.5

STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			+/- 50°F ΔH				VOLUME CORRECTION	
Moisture:	15.5	% est.	METER BOX: Team2			Ts (°F):	287	Tm (°F):	93	Ts-50°	237	Ts+50°	337	Mid 1 (cf):
Barometric:	29.78	in. Hg	Y: 1.000			Est. Qs:	0.557	cfm		Est. Qs:	0.516	Est. Qs:	0.598	Mid 2 (cf):
Static Press:	-9.5	in. WC	AH@ (in. WC): 1.814			Est. μs:	215.54	mpoise		Est. μs:	203.87	Est. μs:	227.00	Mid 3 (cf):
Stack Press:	29.08	in. Hg	Probe ID/Material:		PM10/2.5	SS	Est. ΔH:	0.367	in. WC	Est. ΔH:	0.357	Est. ΔH:	0.366	Total (cf):
CO ₂ :	10.1	%	Pitot ID Cp/Cp':	PM10/2.5	PM10/2.5	LEAK CHECKS				FILTER NO.		STACK DATA (FINAL)		
O ₂ :	9.1	%	Pitot Type Cp/Cp':	s-type	s-type	Leak Rate (cfm):	Pre	Mid 1	Mid 2	Post	--		Pb:	29.75 in. Hg
N ₂ :	80.8	%	Pitot Cp/Cp':	0.840	0.840		0.004	--	--	0.002	--		Pg:	-9.5 in. WC
CO:	10.5	ppm	Nozzle ID/Dn (in.):	4	0.1775	Pump Vac (in Hg):	12	--	--	14	--		O ₂ :	9.48 %
Md:	29.98	lb/lb-mole	No. Pts/Time (min):	12	120	Pitot Tube:	PASS	--	--	PASS	--		CO ₂ :	9.73 %
Ms:	28.12	lb/lb-mole										CO:	8.20 ppm	

Sample Point	Dwell Time	Total Time	Dry Gas Meter Reading (ft³)	Pitot Tube ΔP (in. WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temps (°F)				Qs (acfm)	% ISO	D ₅₀ [10 um]	D ₅₀ [2.5 um]
					DGM Average	Stack				Probe	Filter	Imp. Exit	CPM Filter				
					Amb.	Amb.	Amb.	Amb.		Amb.	Amb.						
					--	--	Ideal	Actual		--	--	--	--				
B1	10:38	0:10:38	48.230	0.79	93	289	0.37	0.36	3	257	249	82	83	0.59	93.3	10.11	2.34
B2	10:38	0:21:16	51.950	0.79	91	287	0.37	0.36	3	256	249	62	77	0.60	95.5	9.93	2.27
B3	10:26	0:31:41	55.750	0.76	91	286	0.37	0.36	3	256	249	59	76	0.59	96.1	10.02	2.30
B4	10:00	0:41:41	59.430	0.70	91	285	0.37	0.36	3	255	249	60	74	0.60	101.7	9.90	2.26
B5	09:34	0:51:15	63.020	0.64	92	284	0.37	0.36	3	255	249	59	74	0.59	104.2	10.05	2.31
B6	09:06	1:00:22	66.390	0.58	93	286	0.37	0.36	3	255	249	59	74	0.59	108.4	10.12	2.34
A1	11:02	1:11:23	69.570	0.85	93	287	0.37	0.36	3	256	248	63	77	0.59	89.6	10.12	2.34
A2	10:38	1:22:01	73.420	0.79	93	288	0.37	0.36	3	255	249	62	78	0.59	94.0	10.05	2.31
A3	10:17	1:32:18	77.170	0.74	94	288	0.37	0.36	3	255	249	63	77	0.59	97.0	10.06	2.32
A4	10:00	1:42:19	80.800	0.70	94	287	0.37	0.36	3	255	249	63	76	0.61	103.3	9.81	2.22
A5	09:38	1:51:57	84.460	0.65	95	287	0.37	0.36	3	255	248	63	75	0.57	100.4	10.27	2.40
A6	09:38	2:01:36	87.770	0.65	95	288	0.37	0.36	3	255	249	63	74	0.59	103.2	10.08	2.33
-	-	2:01:36	91.170				-							--	--	-	-
Final DGM:			91.170														

Actual Run Time		Vm	ΔP		Tm		Ts		Max Vac.	ΔH		% ISO		D ₅₀ 10 μm	D ₅₀ 2.5 μm	
121.6	min	42.940	ft ³	0.72	in. WC	92.9	°F	286.8	°F	3	0.360	in. WC	98.9		10.05	2.31

Location Reworld Durham York Renewable Energy L.P - Co
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter PM10, PM2.5

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-12-25	5-12-25
Start Time		9:40	12:30	15:10
Stop Time		11:41	14:33	17:10
INPUT DATA				
Run Time, min	(Θ)	118.9	119.9	118.3
Barometric Pressure, kPa	(Pb)	101.359	101.156	100.952
Meter Correction Factor	(Y)	1.000	1.000	1.000
Orifice Calibration Value	($\Delta H@$)	1.814	1.814	1.814
Meter Volume, m ³	(Vm)	1.142	1.172	1.157
Meter Temperature, °C	(Tm)	28.1	29.3	31.3
Meter Temperature, °K	(Tm)	301.3	302.4	304.5
Meter Orifice Pressure, kPa	(ΔH)	0.092	0.092	0.092
Volume H2O Collected, mL	(Vlc)	155.7	151.9	155.0
Nozzle Diameter, mm	(Dn)	4.509	4.509	4.509
CALCULATED DATA				
Reference Meter Volume, m ³	(Vmstd)	1.130	1.153	1.128
Reference Water Volume, m ³	(Vwstd)	0.212	0.207	0.211
Sampling Rate, m ³	(Qs)	0.016	0.016	0.016
Moisture Fraction Measured	(BWSmsd)	0.158	0.152	0.157
Moisture Fraction @ Saturation	(BWSsat)	3.328	3.427	3.542
Moisture Fraction	(BWS)	0.158	0.152	0.157
Meter Pressure, kPa	(Pm)	101.45	101.25	101.04
Isokinetic Sampling Rate, % (+/- 20%)	(I)	90.8	91.8	93.2

Location **Reworld Durham York Renewable Energy L.P - Court**
Source **APC Outlet No. 2**
Project No. **AST-2025-2049**
Parameter **PM10, PM2.5**

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-12-25	5-12-25
Start Time		9:40	12:30	15:10
Stop Time		11:41	14:33	17:10
Run Time, min		118.9	119.9	118.3
CALCULATED DATA				
Square Root of ΔP	(in. WC) ^{1/2}	0.885	0.884	0.872
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	101.359	101.156	100.952
Static Pressure, kPa	(Pg)	-2.365	-2.365	-2.365
Stack Pressure, kPa	(Ps)	98.994	98.791	98.588
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	138.1	139.1	140.2
Temperature, °K	(Ts)	411.3	412.3	413.4
Moisture Fraction Measured	(BWSmsd)	0.158	0.152	0.157
Moisture Fraction @ Saturation	(BWSsat)	3.328	3.427	3.542
Moisture Fraction	(BWS)	0.158	0.152	0.157
O ₂ Concentration, %	(O ₂)	8.46	8.55	8.43
CO ₂ Concentration, %	(CO ₂)	10.31	10.42	10.50
CO Concentration, ppmvd	(CO)	14.8	19.9	17.1
Ar Concentration, %	(Ar)	0.96	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.10	30.12	30.13
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.20	28.28	28.22
Velocity, m/s	(Vs)	18.32	18.32	18.13
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	27.07	27.07	26.79
At Reference Conditions, dry Rm ³ /s	(Qs)	16.15	16.19	15.84
At Reference Conditions, wet Rm ³ /s	(Qsw)	19.17	19.09	18.80

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Location: <u>Reworld Durham York Renewable Energy L.P - Courtice, ON</u>				Start Time: <u>9:40</u>		Source: <u>APC Outlet No. 2</u>					
Date: <u>5-12-25</u>		Run 1 <u>VALID</u>		End Time: <u>11:41</u>		Project No.: <u>AST-2025-2049</u>				Parameter: <u>PM10, PM2.5</u>	
STACK DATA (EST)				EQUIPMENT		STACK DATA (EST)				+/- 50°F ΔH	
Moisture: <u>16.0</u> % est.				METER BOX: <u>Team2</u>		Ts (°F): <u>282</u> Tm (°F): <u>80</u>		Ts-50°: <u>232</u> Ts+50°: <u>332</u>		Mid 1 (cf): <u> </u>	
Barometric: <u>29.80</u> in. Hg				Y: <u>1.000</u>		Est. Qs: <u>0.551</u> cfm		Est. Qs: <u>0.510</u> Est. Qs: <u>0.592</u>		Mid 2 (cf): <u> </u>	
Static Press: <u>-9.8</u> in. WC				AH@ (in. WC): <u>1.814</u>		Est. μs: <u>213.92</u> mpoise		Est. μs: <u>202.22</u> Est. μs: <u>225.40</u>		Mid 3 (cf): <u> </u>	
Stack Press: <u>29.08</u> in. Hg				Probe ID/Material: <u>PM10/2.5</u> <u>SS</u>		Est. ΔH: <u>0.353</u> in. WC		Est. ΔH: <u>0.349</u> Est. ΔH: <u>0.358</u>		Total (cf): <u> </u>	
CO ₂ : <u>11.0</u> %				Pitot ID Cp/Cp': <u>PM10/2.5</u> <u>PM10/2.5</u>		LEAK CHECKS				FILTER NO.	
O ₂ : <u>8.0</u> %				Pitot Type Cp/Cp': <u>s-type</u> <u>s-type</u>		Pre Mid 1 Mid 2 Post		-- -- --		Pb: <u>29.93</u> in. Hg	
N ₂ : <u>80.0</u> %				Pitot Cp/Cp': <u>0.840</u> <u>0.840</u>		Leak Rate (cfm): <u>0.002</u> -- -- <u>0.002</u>		-- -- --		Pg: <u>-9.5</u> in. WC	
CO: <u>5.0</u> ppm				Nozzle ID/Dn (in.): <u>4</u> <u>0.1775</u>		Pump Vac (in Hg): <u>14</u> -- -- <u>15</u>		-- -- --		O ₂ : <u>8.46</u> %	
Md: <u>30.19</u> lb/lb-mole				No. Pts/Time (min): <u>12</u> <u>120</u>		Pitot Tube: <u>PASS</u> -- -- <u>PASS</u>		-- -- --		CO ₂ : <u>10.31</u> %	
Ms: <u>28.25</u> lb/lb-mole										CO: <u>14.80</u> ppm	

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON			Start Time: 12:30		Source: APC Outlet No. 2		
Date: 5-12-25	Run 2	VALID	End Time: 14:33		Project No.: AST-2025-2049	Parameter:	PM10, PM2.5
STACK DATA (EST)			EQUIPMENT		STACK DATA (EST)		+/- 50°F ΔH
Moisture: 15.5 % est.	METER BOX: Team2		Ts (°F): 281	Tm (°F): 83	Ts-50°: 231	Ts+50°: 331	VOLUME CORRECTION
Barometric: 29.93 in. Hg	Y: 1.000		Est. Qs: 0.551 cfm		Est. Qs: 0.510	Est. Qs: 0.591	
Static Press: -9.5 in. WC	AH@ (in. WC): 1.814		Est. μs: 214.05 mpoise		Est. μs: 202.36	Est. μs: 225.54	
Stack Press: 29.23 in. Hg	Probe ID/Material: PM10/2.5 SS		Est. ΔH: 0.360 in. WC		Est. ΔH: 0.356	Est. ΔH: 0.365	
CO ₂ : 10.3 %	Pitot ID Cp/Cp': PM10/2.5	PM10/2.5	LEAK CHECKS				STACK DATA (FINAL)
O ₂ : 8.5 %	Pitot Type Cp/Cp': s-type	s-type	Pre	Mid 1	Mid 2	Post	Pb: 29.87 in. Hg
N ₂ : 81.2 %	Pitot Cp/Cp': 0.840	0.840	Leak Rate (cfm): 0.002	--	--	0.002	Pg: -9.5 in. WC
CO: 14.8 ppm	Nozzle ID/Dn (in.): 4	0.1775	Pump Vac (in Hg): 15	--	--	15	O ₂ : 8.55 %
Md: 29.99 lb/lb-mole	No. Pts/Time (min): 12	120	Pitot Tube: PASS	--	--	PASS	CO ₂ : 10.42 %
Ms: 28.13 lb/lb-mole							CO: 19.90 ppm

Sample Point	Dwell Time	Total Time	Dry Gas Meter Reading (ft³)	Pitot Tube ΔP (in. WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temps (°F)				Qs (acfm)	% ISO	D ₅₀ [10 um]	D ₅₀ [2.5 um]
					DGM Average	Stack				Probe	Filter	Imp. Exit	CPM Filter				
					Amb.	Amb.	Amb.	Amb.		Amb.	Amb.						
					--	--	Ideal	Actual		--	--	--	--				
B1	10:29	0:10:29	81.920	0.86	84	284	0.36	0.37	4	258	248	75	71	0.57	87.9	10.23	2.36
B2	10:03	0:20:32	85.550	0.79	83	284	0.36	0.37	4	260	250	58	72	0.57	91.9	10.21	2.36
B3	10:10	0:30:42	89.030	0.81	83	283	0.36	0.37	4	258	250	57	72	0.56	89.1	10.35	2.41
B4	09:47	0:40:30	92.490	0.75	83	283	0.36	0.37	4	259	251	57	71	0.56	92.0	10.39	2.42
B5	09:31	0:50:01	95.800	0.71	84	283	0.36	0.37	4	256	248	57	71	0.58	97.3	10.18	2.34
B6	09:03	0:59:04	99.120	0.64	84	283	0.36	0.37	4	257	250	58	72	0.56	100.2	10.35	2.41
A1	10:40	1:09:43	102.200	0.89	85	282	0.36	0.37	4	256	247	58	71	0.58	87.2	10.15	2.33
A2	10:25	1:20:09	105.940	0.85	85	282	0.36	0.37	4	256	248	57	72	0.57	88.2	10.24	2.36
A3	10:18	1:30:27	109.550	0.83	85	282	0.36	0.37	4	256	248	59	73	0.57	89.3	10.23	2.36
A4	10:07	1:40:33	113.120	0.80	86	281	0.36	0.37	4	255	250	59	73	0.56	90.1	10.30	2.38
A5	10:03	1:50:36	116.600	0.79	87	281	0.36	0.37	4	256	250	62	73	0.57	90.8	10.29	2.38
A6	09:19	1:59:55	120.070	0.68	87	281	0.36	0.37	4	256	251	62	73	0.57	97.9	10.28	2.38
-	-	1:59:55	123.290				-							--	--	-	-
Final DGM:			123.290														

Actual Run Time		Vm	ΔP	Tm	Ts	Max Vac.	ΔH	% ISO			D ₅₀ 10 μm	D ₅₀ 2.5 μm					
119.9	min	41.370	ft ³	0.78	in. WC	84.7	°F	282.4	°F	4	0.370	in. WC	91.8		10.27	2.37	

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
 Date: 5-12-25 Run 3 VALID

Start Time: 15:10
 End Time: 17:10

Source: APC Outlet No. 2
 Project No.: AST-2025-2049 Parameter: PM10, PM2.5

STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			+/- 50°F ΔH				VOLUME CORRECTION	
Moisture:	15.5	% est.	METER BOX: Team2			Ts (°F):	282	Tm (°F):	85	Ts-50°	232	Ts+50°	332	Mid 1 (cf):
Barometric:	29.87	in. Hg	Y: 1.000			Est. Qs:	0.552	cfm		Est. Qs:	0.512	Est. Qs:	0.593	Mid 2 (cf):
Static Press:	-9.5	in. WC	AH@ (in. WC): 1.814			Est. μs:	214.46	mpoise		Est. μs:	202.77	Est. μs:	225.94	Mid 3 (cf):
Stack Press:	29.17	in. Hg	Probe ID/Material: PM10/2.5 SS			Est. ΔH:	0.362	in. WC		Est. ΔH:	0.356	Est. ΔH:	0.365	Total (cf):
CO ₂ :	10.4	%	Pitot ID Cp/Cp': PM10/2.5 PM10/2.5			LEAK CHECKS				FILTER NO.		STACK DATA (FINAL)		
O ₂ :	8.6	%	Pitot Type Cp/Cp': s-type s-type			Pre	Mid 1	Mid 2	Post	--		Pb: 29.81 in. Hg		
N ₂ :	81.0	%	Pitot Cp/Cp': 0.840 0.840			Leak Rate (cfm):	0.002	--	0.002	--		Pg: -9.5 in. WC		
CO:	19.9	ppm	Nozzle ID/Dn (in.): 4 0.1775			Pump Vac (in Hg):	15	--	14	--		O2: 8.43 %		
Md:	30.01	lb/lb-mole	No. Pts/Time (min): 12 120			Pitot Tube:	PASS	--	PASS	--		CO2: 10.50 %		
Ms:	28.15	lb/lb-mole										CO: 17.10 ppm		

Sample Point	Dwell Time	Total Time	Dry Gas Meter Reading (ft³)	Pitot Tube ΔP (in. WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temps (°F)				Qs (acfm)	% ISO	D ₅₀ [10 um]	D ₅₀ [2.5 um]
					DGM Average	Stack				Probe	Filter	Imp. Exit	CPM Filter				
					Amb.	Amb.	Amb.	Amb.		Amb.	Amb.						
					--	--	Ideal	Actual		--	--	--	--				
B1	10:18	0:10:18	23.370	0.83	86	279	0.37	0.37	4	257	247	77	80	0.55	85.8	10.50	2.46
B2	10:11	0:20:29	26.800	0.81	85	283	0.36	0.37	4	257	249	66	79	0.59	93.5	9.99	2.27
B3	10:11	0:30:40	30.430	0.81	85	285	0.36	0.37	4	257	248	62	80	0.58	92.0	10.11	2.32
B4	09:36	0:40:16	34.000	0.72	87	286	0.36	0.37	4	258	249	61	79	0.56	94.3	10.37	2.42
B5	09:07	0:49:23	37.260	0.65	88	284	0.36	0.37	4	257	249	60	76	0.57	100.6	10.26	2.38
B6	08:46	0:58:09	40.410	0.60	88	284	0.36	0.37	4	257	248	61	77	0.56	103.4	10.35	2.41
A1	10:40	1:08:49	43.400	0.89	89	283	0.36	0.37	4	257	247	64	74	0.58	87.2	10.15	2.33
A2	10:26	1:19:15	47.150	0.85	90	285	0.36	0.37	4	257	248	62	73	0.58	88.6	10.21	2.36
A3	10:18	1:29:33	50.790	0.83	92	287	0.36	0.37	4	257	249	63	73	0.56	87.3	10.42	2.44
A4	09:59	1:39:32	54.300	0.78	90	286	0.36	0.37	4	256	248	63	73	0.57	91.6	10.29	2.39
A5	09:28	1:49:00	57.750	0.70	90	286	0.36	0.37	4	257	248	63	72	0.57	96.4	10.31	2.40
A6	09:20	1:58:20	61.010	0.68	91	285	0.36	0.37	4	257	248	64	73	0.56	97.2	10.35	2.41
-	-	1:58:20	64.210				-							--	--	-	-
Final DGM:			64.210														

Actual Run Time		Vm	ΔP		Tm		Ts		Max Vac.	ΔH		% ISO		D ₅₀ 10 μm	D ₅₀ 2.5 μm	
118.3	min	40.840	ft ³	0.76	in. WC	88.4	°F	284.4	°F	4	0.370	in. WC	93.2		10.28	2.38

APPENDIX 24

Acid Gases Test Emission Calculations (10 pages)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter Acid Gases

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-12-25	5-12-25
Start Time		9:34	11:15	13:07
Stop Time		10:34	12:15	14:07
Run Time, min	(θ)	60.0	60.0	60.0
INPUT DATA				
Barometric Pressure, kPa	(Pb)	101.389	101.253	101.118
Meter Correction Factor	(Y)	0.99	0.99	0.99
Orifice Calibration Value	($\Delta H @$)	1.978	1.978	1.978
Meter Volume, m ³	(Vm)	1.150	1.212	1.209
Meter Temperature, °C	(Tm)	23.3	26.2	26.7
Meter Temperature, °K	(Tm)	296.5	299.3	299.9
Meter Orifice Pressure, kPa	(ΔH)	0.389	0.418	0.421
Volume H ₂ O Collected, mL	(Vlc)	143.0	170.5	164.2
Nozzle Diameter, mm	(Dn)	6.253	6.253	6.253
ISOKINETIC DATA				
Reference Meter Volume, Rm ³	(Vmref)	1.149	1.199	1.192
Reference Water Volume, Rm ³	(Vwref)	0.194	0.232	0.223
Moisture Fraction Measured	(BWSmsd)	0.145	0.162	0.158
Moisture Fraction @ Saturation	(BWSsat)	3.664	3.697	3.604
Moisture Fraction	(BWS)	0.145	0.162	0.158
Meter Pressure, kPa	(Pm)	101.778	101.671	101.539
Volume at Nozzle, m ³	(Vn)	1.908	2.036	2.012
Isokinetic Sampling Rate, (%)	(I)	98.0	100.4	99.4

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Cour
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter Acid Gases

Run Number		Run 1	Run 2	Run 3
Date		5-12-25	5-12-25	5-12-25
Start Time		9:34	11:15	13:07
Stop Time		10:34	12:15	14:07
Run Time, min		60.0	60.0	60.0
CALCULATED DATA				
Square Root of ΔP , (in. WC) ^{1/2}	(ΔP)	0.845	0.880	0.879
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	101.389	101.253	101.118
Static Pressure, kPa	(Pg)	-2.091	-2.091	-2.091
Stack Pressure, kPa	(Ps)	99.298	99.162	99.027
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	141.7	142.0	141.0
Temperature, °K	(Ts)	414.9	415.1	414.2
Moisture Fraction Measured	(BWSmsd)	0.145	0.162	0.158
Moisture Fraction @ Saturation	(BWSsat)	3.664	3.697	3.604
Moisture Fraction	(BWS)	0.145	0.162	0.158
O ₂ Concentration, %	(O ₂)	8.79	9.36	9.57
CO ₂ Concentration, %	(CO ₂)	10.39	9.94	9.88
CO Concentration, ppmvd	(CO)	15.2	6.5	14.6
Ar Concentration, %	(Ar)	0.95	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.13	30.08	30.08
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.37	28.12	28.17
Velocity, m/s	(Vs)	17.6	18.4	18.3
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	26.04	27.12	27.07
At Reference Conditions, dry Rm ³ /s	(Qs)	15.68	15.97	16.04
At Reference Conditions (corrected), dry Rm ³ /s	(Qsc)	19.18	18.62	18.36
At Reference Conditions, wet Rm ³ /s	(Qsw)	18.34	19.06	19.04

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 9:34		Source: APC Outlet No. 1								
Date: 5-12-25		Run 1		End Time: 10:34		Project No.: AST-2025-2049		Parameter: Acid Gases						
STACK DATA (EST)			EQUIPMENT		STACK DATA (EST)		FILTER NO.	STACK DATA (FINAL)		MOIST. DATA				
Moisture: 16.0 % est.			Meter Box ID: MB18		Est. Tm: 85 °F			Pb: 29.94 in. Hg		Vlc (ml)				
Barometric: 29.80 in. Hg			Y: 0.99		Est. Ts: 282 °F			Pg: -8.40 in. WC		143.0				
Static Press: -8.40 in. WC			AH @ (in.WC): 1.978		Est. AP: 0.96 in. WC			O ₂ : 8.79 %		K-FACTOR				
Stack Press: 29.18 in. Hg			Probe ID: 6 series		Est. Dn: 0.225 in.			CO ₂ : 10.39 %		2.343				
CO ₂ : 10.4 %			Liner Material: glass		Target Rate: 0.67 scfm			CO: 15.2 ppm						
O ₂ : 8.8 %			Pitot ID: S8											
N ₂ : 79.9 %			Pitot Cp/Type: 0.840		S-type		LEAK CHECK: Pre		Check Pt. Initial		Final		Corr.	
CO: 5.70 ppm			Nozzle ID: N007		glass		Leak Rate (cfm): 0.005		Mid 1 --		Mid 2 --		Mid 3 --	
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2462				Vacuum (in Hg): 15		Mid 1 --		Mid 2 --		Mid 3 --	
Ms: 28.19 lb/lb-mole							Pitot Tube: Pass		Mid-Point Leak Check Val (cf): --					

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)	Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack			Probe	Filter	Imp Exit	NA				
					Amb.	Amb.									Amb.	Amb.
1	0.00	5.00	716.660	0.70	70	282	1.60	1.60	3	250	252	68	-	102.8	17.39	
	5.00	10.00	720.160	0.71	72	287	1.61	1.60	3	251	251	55	-	99.1	17.57	
	10.00	15.00	723.560	0.72	72	287	1.64	1.55	3	251	250	53	-	98.1	17.69	
	15.00	20.00	726.950	0.72	72	287	1.64	1.55	3	251	251	54	-	95.2	17.69	
	20.00	25.00	730.240	0.76	73	287	1.73	1.65	3	251	251	56	-	95.9	18.18	
	25.00	30.00	733.650	0.76	73	287	1.73	1.65	4	251	251	60	-	97.9	18.18	
	30.00	35.00	737.130	0.76	74	288	1.73	1.65	4	251	250	65	-	98.0	18.19	
	35.00	40.00	740.620	0.76	75	288	1.74	1.65	4	251	250	66	-	98.4	18.19	
	40.00	45.00	744.130	0.77	76	288	1.76	1.65	4	251	251	64	-	97.3	18.31	
	45.00	50.00	747.630	0.68	76	289	1.55	1.50	3	251	251	63	-	98.3	17.22	
	50.00	55.00	750.950	0.62	77	288	1.42	1.35	3	251	250	61	-	98.0	16.43	
	55.00	60.00	754.120	0.62	78	287	1.43	1.35	3	251	251	60	-	96.8	16.42	
Final DGM:			757.260													

RESULTS	Run Time		Vm		AP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qa}	
	60.0	min	40.600	ft ³	0.72	in. WC	74.0	°F	287.1	°F	4	1.563	in. WC	98.0	0.145	2.1				

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 11:15		Source: APC Outlet No. 1						
Date: 5-12-25		Run 2		VALID		End Time: 12:15		Project No.: AST-2025-2049		Parameter: Acid Gases		
STACK DATA (EST)			EQUIPMENT		STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)		MOIST. DATA	
Moisture: 16.0 % est.			Meter Box ID: MB18		Est. Tm: 74 °F				Pb: 29.90 in. Hg		Vlc (ml)	
Barometric: 29.80 in. Hg			Y: 0.99		Est. Ts: 287 °F				Pg: -8.40 in. WC		170.5	
Static Press: -8.40 in. WC			ΔH @ (in.WC): 1.978		Est. ΔP: 0.72 in. WC				O ₂ : 9.36 %		K-FACTOR	
Stack Press: 29.18 in. Hg			Probe ID: 6 series		Est. Dn: 0.246 in.				CO ₂ : 9.94 %		2.28	
CO ₂ : 10.4 %			Liner Material: glass		Target Rate: 0.67 scfm				CO: 6.5 ppm			
O ₂ : 8.8 %			Pitot ID: S8									
N ₂ : 79.9 %			Pitot Cp/Type: 0.840 S-type		LEAK CHECK! Pre Mid 1 Mid 2 Mid 3 Post							
CO: 5.70 ppm			Nozzle ID: N007 glass		Leak Rate (cfm): 0.004 -- -- -- 0.006							
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2462		Vacuum (in Hg): 14 -- -- -- 15							
Ms: 28.19 lb/lb-mole					Pitot Tube: Pass -- -- -- Pass							
					Check Pt. Initial Final Corr.							
					Mid 1 (cf) --							
					Mid 2 (cf) --							
					Mid 3 (cf) --							
					Mid-Point Leak Check Vol (cf): --							

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	NA		
					Amb.	Amb.				Amb.	Amb.				
					--	--				--	--	--	--		
1	0.00	5.00	757.640	0.70	78	286	1.61	1.50	3	251	249	73	-	100.4	17.44
-	5.00	10.00	761.030	0.71	78	286	1.64	1.55	3	251	251	57	-	100.0	17.56
-	10.00	15.00	764.430	0.71	78	285	1.64	1.55	3	251	250	53	-	99.6	17.55
-	15.00	20.00	767.820	0.74	78	287	1.70	1.60	3	251	251	52	-	99.4	17.94
-	20.00	25.00	771.270	0.80	78	287	1.84	1.70	3	251	251	53	-	100.1	18.65
-	25.00	30.00	774.880	0.80	79	287	1.84	1.70	3	251	251	53	-	100.5	18.65
-	30.00	35.00	778.510	0.86	79	288	1.98	1.90	4	251	251	53	-	99.7	19.35
-	35.00	40.00	782.240	0.86	79	289	1.97	1.90	4	251	252	53	-	104.3	19.36
-	40.00	45.00	786.140	0.79	80	289	1.82	1.70	3	251	251	54	-	99.9	18.56
-	45.00	50.00	789.730	0.79	80	289	1.82	1.70	3	251	251	55	-	98.5	18.56
-	50.00	55.00	793.270	0.79	81	289	1.82	1.70	3	251	251	55	-	100.6	18.56
-	55.00	60.00	796.890	0.75	81	289	1.73	1.65	3	251	251	56	-	101.5	18.08
Final DGM:			800.450												

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qa}	
	60.0	min	42.810	ft ³	0.78	in. WC	79.1	°F	287.6	°F	4	1.679	in. WC	100.4	0.162			3.2		

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 13:07		Source: APC Outlet No. 1										
Date: 5-12-25		Run 3		VALID		End Time: 14:07		Project No.: AST-2025-2049		Parameter: Acid Gases						
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA			
Moisture: 16.0 % est.			Meter Box ID: MB18			Est. Tm: 79 °F				Pb: 29.86 in. Hg			Vlc (ml)			
Barometric: 29.80 in. Hg			Y: 0.99			Est. Ts: 288 °F				Pg: -8.40 in. WC			164.2			
Static Press: -8.40 in. WC			ΔH @ (in.WC): 1.978			Est. ΔP: 0.78 in. WC				O ₂ : 9.57 %			K-FACTOR			
Stack Press: 29.18 in. Hg			Probe ID: 6 series			Est. Dn: 0.240 in.				CO ₂ : 9.88 %			2.301			
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm				CO: 14.6 ppm						
O ₂ : 8.8 %			Pitot ID: S8										Check Pt.	Initial	Final	Corr.
N ₂ : 79.9 %			Pitot Cp/Type: 0.840		S-type	LEAK CHECK!	Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)		--		
CO: 5.70 ppm			Nozzle ID: N007		glass	Leak Rate (cfm): 0.002		--		--		0.002		Mid 2 (cf)		--
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2462			Vacuum (in Hg): 14.5		--		--		15		Mid 3 (cf)		--
Ms: 28.19 lb/lb-mole						Pitot Tube: Pass		--		--		Pass		Mid-Point Leak Check Vol (cf): --		

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	NA				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
					--	--				--	--	--	--			--	--
1	0.00	5.00	800.930	0.81	80	288	1.87	1.80	4	251	251	71	-	100.6	18.78		
-	5.00	10.00	804.610	0.81	80	288	1.87	1.80	4	253	253	53	-	100.6	18.78		
-	10.00	15.00	808.290	0.79	79	287	1.82	1.70	4	253	254	52	-	98.9	18.53		
-	15.00	20.00	811.860	0.77	79	287	1.77	1.65	4	253	252	52	-	98.2	18.30		
-	20.00	25.00	815.360	0.77	79	286	1.78	1.70	4	253	253	53	-	98.2	18.29		
-	25.00	30.00	818.860	0.77	79	286	1.78	1.70	4	253	252	53	-	102.4	18.29		
-	30.00	35.00	822.510	0.80	80	285	1.85	1.75	4	253	253	54	-	98.0	18.63		
-	35.00	40.00	826.080	0.81	80	286	1.87	1.75	4	253	253	56	-	98.3	18.76		
-	40.00	45.00	829.680	0.78	81	285	1.81	1.70	4	253	252	56	-	99.3	18.39		
-	45.00	50.00	833.260	0.75	81	285	1.74	1.65	4	253	253	58	-	99.3	18.04		
-	50.00	55.00	836.770	0.71	81	284	1.65	1.55	3	253	253	60	-	100.2	17.54		
-	55.00	60.00	840.220	0.71	82	283	1.65	1.55	3	253	253	62	-	99.1	17.52		
Final DGM:			843.640														

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac	ΔH		%ISO	BWS	Y _{qa}
	60.0	min	42.710	ft ³	0.77	in. WC	80.1	°F	285.8	°F	4	1.692	in. WC	99.4	0.158	2.4

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter Acid Gases

Run Number		Run 1	Run 2	Run 3
Date		5-13-25	5-13-25	5-13-25
Start Time		7:57	9:38	10:51
Stop Time		8:57	10:38	11:51
Run Time, min	(θ)	60.0	60.0	60.0
INPUT DATA				
Barometric Pressure, kPa	(Pb)	100.847	100.847	100.847
Meter Correction Factor	(Y)	0.983	0.983	0.983
Orifice Calibration Value	($\Delta H @$)	1.98	1.98	1.98
Meter Volume, m ³	(Vm)	1.147	1.136	1.117
Meter Temperature, °C	(Tm)	26.7	28.7	30.4
Meter Temperature, °K	(Tm)	299.9	301.8	303.6
Meter Orifice Pressure, kPa	(ΔH)	0.387	0.365	0.352
Volume H ₂ O Collected, mL	(Vlc)	154.5	153.7	155.6
Nozzle Diameter, mm	(Dn)	6.203	6.203	6.203
ISOKINETIC DATA				
Reference Meter Volume, Rm ³	(Vmref)	1.119	1.101	1.077
Reference Water Volume, Rm ³	(Vwref)	0.210	0.209	0.212
Moisture Fraction Measured	(BWSmsd)	0.158	0.160	0.164
Moisture Fraction @ Saturation	(BWSsat)	3.328	3.251	3.272
Moisture Fraction	(BWS)	0.158	0.160	0.164
Meter Pressure, kPa	(Pm)	101.234	101.212	101.199
Volume at Nozzle, m ³	(Vn)	1.884	1.853	1.823
Isokinetic Sampling Rate, (%)	(I)	99.8	100.0	100.1

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Cour
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter Acid Gases

Run Number		Run 1	Run 2	Run 3
Date		5-13-25	5-13-25	5-13-25
Start Time		7:57	9:38	10:51
Stop Time		8:57	10:38	11:51
Run Time, min		60.0	60.0	60.0
CALCULATED DATA				
Square Root of ΔP , (in. WC) ^{1/2}	(ΔP)	0.833	0.819	0.805
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	100.847	100.847	100.847
Static Pressure, kPa	(Pg)	-2.265	-2.265	-2.265
Stack Pressure, kPa	(Ps)	98.582	98.582	98.582
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	138.0	137.2	137.4
Temperature, °K	(Ts)	411.2	410.3	410.6
Moisture Fraction Measured	(BWSmsd)	0.158	0.160	0.164
Moisture Fraction @ Saturation	(BWSsat)	3.328	3.251	3.272
Moisture Fraction	(BWS)	0.158	0.160	0.164
O ₂ Concentration, %	(O ₂)	8.39	8.38	8.3
CO ₂ Concentration, %	(CO ₂)	10.56	10.48	10.66
CO Concentration, ppmvd	(CO)	13.2	16.1	20.3
Ar Concentration, %	(Ar)	0.95	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.14	30.13	30.15
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.22	28.19	28.16
Velocity, m/s	(Vs)	17.37	17.06	16.77
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	25.66	25.20	24.77
At Reference Conditions, dry Rm ³ /s	(Qs)	15.24	14.97	14.63
At Reference Conditions (corrected)	(Qsc)	19.26	18.94	18.62
At Reference Conditions, wet Rm ³ /s	(Qsw)	18.10	17.82	17.50

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 7:57		Source: APC Outlet No. 2										
Date: 5-13-25		Run 1		VALID		End Time: 8:57		Project No.: AST-2025-2049		Parameter: Acid Gases						
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA			
Moisture: 16.0 % est.			Meter Box ID: MB 17			Est. Tm: 85 °F				Pb: 29.78 in. Hg			Vlc (ml)			
Barometric: 29.60 in. Hg			Y: 0.983			Est. Ts: 278 °F				Pg: -9.10 in. WC			154.5			
Static Press: -9.10 in. WC			ΔH @ (in.WC): 1.98			Est. ΔP: 0.76 in. WC				O ₂ : 8.39 %			K-FACTOR			
Stack Press: 28.93 in. Hg			Probe ID: 6 Series			Est. Dn: 0.238 in.				CO ₂ : 10.56 %			2.278			
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm				CO: 13.2 ppm						
O ₂ : 8.8 %			Pitot ID: S10										Check Pt.	Initial	Final	Corr.
N ₂ : 79.9 %			Pitot Cp/Type: 0.840		S-type	LEAK CHECK!	Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)		--		
CO: 5.80 ppm			Nozzle ID: N008		glass	Leak Rate (cfm): 0.002		--		--		0.002		Mid 2 (cf)		--
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2442			Vacuum (in Hg): 16		--		--		15		Mid 3 (cf)		--
Ms: 28.19 lb/lb-mole						Pitot Tube: Pass		--		--		Pass		Mid-Point Leak Check Vol (cf): --		

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)
					DGM Average	Stack				Probe	Filter	Imp Exit	NA		
	Amb.	Amb.			Amb.	Amb.	Amb.	Amb.							
1	0.00	5.00	955.360	0.73	78	282	1.63	1.60	3	250	251	75	-	101.1	17.83
	5.00	10.00	958.850	0.74	78	282	1.66	1.60	3	256	251	54	-	97.9	17.96
	10.00	15.00	962.250	0.71	78	281	1.59	1.55	3	255	253	51	-	100.1	17.58
	15.00	20.00	965.660	0.71	79	280	1.60	1.55	3	256	253	51	-	99.3	17.56
	20.00	25.00	969.050	0.71	79	280	1.60	1.55	3	254	252	51	-	97.8	17.56
	25.00	30.00	972.390	0.73	79	280	1.64	1.55	3	254	253	52	-	99.6	17.81
	30.00	35.00	975.840	0.71	80	281	1.60	1.65	3	253	252	52	-	98.0	17.58
	35.00	40.00	979.190	0.67	81	281	1.51	1.60	3	252	253	53	-	100.4	17.07
	40.00	45.00	982.530	0.66	81	280	1.49	1.50	3	249	252	54	-	100.9	16.93
	45.00	50.00	985.865	0.67	82	279	1.52	1.50	3	249	253	54	-	100.2	17.05
	50.00	55.00	989.210	0.66	83	280	1.50	1.50	3	247	252	55	-	99.8	16.93
	55.00	60.00	992.520	0.63	83	279	1.43	1.50	3	246	253	56	-	102.8	16.53
Final DGM:			995.855												

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qa}	
	60.0	min	40.495	ft ³	0.69	in. WC	80.1	°F	280.4	°F	3	1.554	in. WC	99.8	0.158	0.6				

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 9:38		Source: APC Outlet No. 2					
Date: 5-13-25		Run 2		VALID		End Time: 10:38		Project No.: AST-2025-2049		Parameter: Acid Gases	

STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA			
Moisture: 16.0 % est.			Meter Box ID: MB 17			Est. Tm: 80 °F				Pb: 29.78 in. Hg			Vlc (ml)			
Barometric: 29.60 in. Hg			Y: 0.983			Est. Ts: 280 °F				Pg: -9.10 in. WC			153.7			
Static Press: -9.10 in. WC			ΔH @ (in.WC): 1.98			Est. ΔP: 0.69 in. WC				O ₂ : 8.38 %			K-FACTOR			
Stack Press: 28.93 in. Hg			Probe ID: 6 Series			Est. Dn: 0.245 in.				CO ₂ : 10.48 %			2.25			
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm				CO: 16.1 ppm						
O ₂ : 8.8 %			Pitot ID: S10							Check Pt.			Initial	Final	Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840		S-type	LEAK CHECK!			Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)		--
CO: 5.80 ppm			Nozzle ID: N008		glass	Leak Rate (cfm):			0.003	--	--	--	0.004	Mid 2 (cf)		--
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2442			Vacuum (in Hg):			15	--	--	--	15	Mid 3 (cf)		--
Ms: 28.19 lb/lb-mole						Pitot Tube:			Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf):		--

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	NA				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
					--	--				--	--	--	--			--	--
1	0.00	5.00	996.540	0.72	83	282	1.63	1.55	3	251	252	72	-	99.6	17.71		
-	5.00	10.00	999.980	0.72	83	282	1.63	1.55	3	254	253	55	-	99.3	17.71		
-	10.00	15.00	1003.410	0.68	83	281	1.54	1.45	3	255	253	52	-	99.4	17.20		
-	15.00	20.00	1006.750	0.66	83	279	1.50	1.40	3	256	251	51	-	100.5	16.92		
-	20.00	25.00	1010.080	0.65	83	278	1.48	1.40	3	257	253	52	-	102.4	16.78		
-	25.00	30.00	1013.450	0.67	83	278	1.52	1.45	3	256	252	52	-	96.7	17.04		
-	30.00	35.00	1016.680	0.65	83	278	1.48	1.45	3	258	252	52	-	100.3	16.78		
-	35.00	40.00	1019.980	0.65	84	278	1.48	1.45	3	255	253	53	-	101.0	16.78		
-	40.00	45.00	1023.310	0.66	84	278	1.50	1.45	3	255	253	53	-	98.7	16.91		
-	45.00	50.00	1026.590	0.69	84	277	1.57	1.50	3	252	252	54	-	99.4	17.28		
-	50.00	55.00	1029.970	0.64	85	278	1.46	1.50	3	251	252	54	-	103.1	16.65		
-	55.00	60.00	1033.350	0.66	85	278	1.51	1.45	3	249	252	55	-	99.1	16.91		
Final DGM:			1036.650														

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qa}	
	60.0	min	40.110	ft ³	0.67	in. WC	83.6	°F	278.9	°F	3	1.467	in. WC	100.0	0.160			2.2		

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 10:51		Source: APC Outlet No. 2					
Date: 5-13-25		Run 3		VALID		End Time: 11:51		Project No.: AST-2025-2049		Parameter: Acid Gases	

STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA			
Moisture: 16.0 % est.			Meter Box ID: MB 17			Est. Tm: 84 °F				Pb: 29.78 in. Hg			Vlc (ml)			
Barometric: 29.60 in. Hg			Y: 0.983			Est. Ts: 279 °F				Pg: -9.10 in. WC			155.6			
Static Press: -9.10 in. WC			ΔH @ (in.WC): 1.98			Est. ΔP: 0.67 in. WC				O ₂ : 8.3 %			K-FACTOR			
Stack Press: 28.93 in. Hg			Probe ID: 6 Series			Est. Dn: 0.246 in.				CO ₂ : 10.66 %			2.270			
CO ₂ : 10.4 %			Liner Material: glass			Target Rate: 0.67 scfm				CO: 20.3 ppm						
O ₂ : 8.8 %			Pitot ID: S10							Check Pt.			Initial	Final	Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840 S-type			LEAK CHECK!			Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	--	
CO: 5.80 ppm			Nozzle ID: N008 glass			Leak Rate (cfm):			0.004	--	--	--	0.004	Mid 2 (cf)	--	
Md: 30.13 lb/lb-mole			Nozzle Dn (in.): 0.2442			Vacuum (in Hg):			15	--	--	--	21	Mid 3 (cf)	--	
Ms: 28.19 lb/lb-mole						Pitot Tube:			Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf):	--	

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	NA				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
					--	--				--	--	--	--			--	--
1	0.00	5.00	37.120	0.65	86	278	1.49	1.40	3	249	251	72	-	99.7	16.78		
-	5.00	10.00	40.400	0.65	86	279	1.48	1.40	3	250	253	59	-	100.0	16.79		
-	10.00	15.00	43.690	0.65	86	279	1.48	1.40	3	248	252	56	-	100.0	16.79		
-	15.00	20.00	46.980	0.65	86	280	1.48	1.40	3	253	252	56	-	99.8	16.81		
-	20.00	25.00	50.260	0.65	86	280	1.48	1.40	3	246	253	56	-	99.8	16.81		
-	25.00	30.00	53.540	0.66	86	280	1.50	1.40	3	246	253	57	-	99.6	16.93		
-	30.00	35.00	56.840	0.63	87	280	1.44	1.35	3	246	252	58	-	100.2	16.55		
-	35.00	40.00	60.090	0.64	87	279	1.46	1.40	3	247	252	59	-	99.4	16.66		
-	40.00	45.00	63.340	0.64	87	280	1.46	1.40	3	248	252	60	-	99.5	16.68		
-	45.00	50.00	66.590	0.64	88	279	1.47	1.45	3	249	252	62	-	100.8	16.66		
-	50.00	55.00	69.890	0.63	88	279	1.44	1.45	3	252	252	65	-	102.5	16.53		
-	55.00	60.00	73.220	0.68	88	279	1.56	1.50	3	251	252	66	-	99.5	17.18		
Final DGM:			76.580														

RESULTS	Run Time		Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{qa}				
	60.0	min	39.460	ft ³	0.65	in. WC	86.8	°F	279.3	°F	3	1.413	in. WC	100.1	0.164

APPENDIX 25

SVOC Test Emission Calculations (10 pages)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter SVOCs

Run Number		Run 1	Run 2	Run 3
Date		5-14-25	5-14-25	5-15-25
Start Time		8:15	13:09	7:51
Stop Time		12:24	17:23	11:59
Run Time, min	(θ)	240.0	240.0	240.0
INPUT DATA				
Barometric Pressure, kPa	(Pb)	100.644	100.440	100.136
Meter Correction Factor	(Y)	0.99	0.99	0.99
Orifice Calibration Value	($\Delta H @$)	1.978	1.978	1.978
Meter Volume, m ³	(Vm)	4.924	4.995	4.822
Meter Temperature, °C	(Tm)	31.3	31.8	29.6
Meter Temperature, °K	(Tm)	304.5	304.9	302.8
Meter Orifice Pressure, kPa	(ΔH)	0.434	0.441	0.418
Volume H ₂ O Collected, mL	(Vlc)	680.6	709.3	682.3
Nozzle Diameter, mm	(Dn)	6.253	6.253	6.253
ISOKINETIC DATA				
Reference Meter Volume, Rm ³	(Vmref)	4.758	4.810	4.662
Reference Water Volume, Rm ³	(Vwref)	0.926	0.965	0.928
Moisture Fraction Measured	(BWSmsd)	0.163	0.167	0.166
Moisture Fraction @ Saturation	(BWSsat)	3.545	3.531	3.482
Moisture Fraction	(BWS)	0.163	0.167	0.166
Meter Pressure, kPa	(Pm)	101.078	100.881	100.554
Volume at Nozzle, m ³	(Vn)	8.109	8.252	8.008
Isokinetic Sampling Rate, (%)	(I)	100.4	101.0	100.4

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Cour
Source APC Outlet No. 1
Project No. AST-2025-2049
Parameter SVOCs

Run Number		Run 1	Run 2	Run 3
Date		5-14-25	5-14-25	5-15-25
Start Time		8:15	13:09	7:51
Stop Time		12:24	17:23	11:59
Run Time, min		240.0	240.0	240.0
CALCULATED DATA				
Square Root of ΔP , (in. WC) ^{1/2}	(ΔP)	0.874	0.885	0.864
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	100.644	100.440	100.136
Static Pressure, kPa	(Pg)	-2.166	-2.166	-2.265
Stack Pressure, kPa	(Ps)	98.478	98.275	97.871
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	140.2	140.0	139.4
Temperature, °K	(Ts)	413.4	413.2	412.5
Moisture Fraction Measured	(BWSmsd)	0.163	0.167	0.166
Moisture Fraction @ Saturation	(BWSsat)	3.545	3.531	3.482
Moisture Fraction	(BWS)	0.163	0.167	0.166
O ₂ Concentration, %	(O ₂)	9.03	9.12	8.98
CO ₂ Concentration, %	(CO ₂)	10.16	10.04	9.96
CO Concentration, ppmvd	(CO)	9.6	7.6	5.9
Ar Concentration, %	(Ar)	0.95	0.95	0.95
Molecular Weight, lb/lb-mole (dry)	(Md)	30.10	30.09	30.07
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.13	28.07	28.07
Velocity, m/s	(Vs)	18.3	18.5	18.0
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	27.00	27.31	26.66
At Reference Conditions, dry Rm ³ /s	(Qs)	15.84	15.92	15.52
At Reference Conditions (corrected), dry Rm	(Qsc)	19.00	18.94	18.69
At Reference Conditions, wet Rm ³ /s	(Qsw)	18.93	19.11	18.61

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 8:15		Source: APC Outlet No. 1										
Date: 5-14-25		Run 1		VALID		End Time: 12:24		Project No.: AST-2025-2049		Parameter: SVOCs						
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA			
Moisture: 16.0 % est.			Meter Box ID: MB18			Est. Tm: 85 °F				Pb: 29.72 in. Hg			Vlc (ml)			
Barometric: 29.57 in. Hg			Y: 0.99			Est. Ts: 280 °F				Pg: -8.70 in. WC			680.6			
Static Press: -9.10 in. WC			ΔH @ (in.WC): 1.978			Est. ΔP: 0.74 in. WC				O ₂ : 9.03 %			K-FACTOR			
Stack Press: 28.90 in. Hg			Probe ID: 6 series			Est. Dn: 0.208 in.				CO ₂ : 10.16 %			2.346			
CO ₂ : 11.0 %			Liner Material: glass			Target Rate: 0.50 scfm				CO: 9.6 ppm						
O ₂ : 8.1 %			Pitot ID: S8							Check Pt.			Initial	Final	Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type	LEAK CHECK!	Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	#####	#####	0.330
CO: 9.20 ppm			Nozzle ID: N007			glass	Leak Rate (cfm):	0.004	0.002	0.002	--	0.002	Mid 2 (cf)			--
Md: 30.20 lb/lb-mole			Nozzle Dn (in.): 0.2462				Vacuum (in Hg):	15	14.5	14.5	--	15	Mid 3 (cf)			--
Ms: 28.25 lb/lb-mole							Pitot Tube:	Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf):			0.330

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)		
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	Trap				
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.			Amb.	Amb.
1	0.00	5.00	229.670	0.80	83	280	1.87	1.80	4.5	252	266	76	79	100.4	18.64		
	5.00	10.00	233.350	0.80	84	281	1.87	1.80	4.5	252	252	46	41	97.6	18.65		
2	10.00	15.00	236.930	0.82	84	281	1.92	1.85	5.0	252	257	44	40	99.9	18.88		
	15.00	20.00	240.640	0.85	84	281	1.99	1.95	5.5	252	251	43	41	100.3	19.22		
3	20.00	25.00	244.430	0.79	84	281	1.85	1.80	5.5	252	249	43	43	101.0	18.53		
	25.00	30.00	248.110	0.84	84	282	1.96	1.90	5.5	252	254	43	45	100.4	19.12		
4	30.00	35.00	251.880	0.77	85	282	1.80	1.75	5.5	252	255	43	45	100.7	18.31		
	35.00	40.00	255.510	0.73	85	283	1.71	1.65	5.0	252	250	43	45	100.1	17.84		
5	40.00	45.00	259.020	0.69	86	283	1.62	1.55	5.0	252	249	44	45	99.2	17.34		
	45.00	50.00	262.410	0.66	86	283	1.55	1.50	5.0	252	256	43	42	100.8	16.96		
6	50.00	55.00	265.780	0.62	87	284	1.45	1.40	4.5	252	254	40	42	99.9	16.45		
	55.00	60.00	269.020	0.66	87	284	1.55	1.50	4.5	252	248	39	41	101.0	16.97		
7	60.00	65.00	272.400	0.69	88	285	1.62	1.55	5.0	252	251	40	42	100.2	17.37		
	65.00	70.00	275.830	0.74	88	285	1.73	1.70	5.0	252	256	39	42	100.1	17.98		
8	70.00	75.00	279.380	0.73	89	285	1.71	1.65	5.0	252	251	40	41	99.8	17.86		
	75.00	80.00	282.900	0.71	89	285	1.67	1.65	5.0	252	250	40	41	100.6	17.61		
9	80.00	85.00	286.400	0.73	90	284	1.72	1.65	5.0	253	254	41	41	100.9	17.85		
	85.00	90.00	289.970	0.73	90	285	1.72	1.65	5.0	253	256	41	42	99.9	17.86		
10	90.00	95.00	293.500	0.74	89	285	1.74	1.70	5.0	252	249	41	41	101.1	17.98		
	95.00	100.00	297.090	0.71	90	285	1.67	1.60	5.0	252	248	41	42	101.0	17.61		
11	100.00	105.00	300.610	0.64	90	285	1.51	1.45	4.5	252	255	42	41	100.6	16.72		
	105.00	110.00	303.940	0.70	90	282	1.65	1.60	5.0	252	254	42	41	100.0	17.46		
12	110.00	115.00	307.410	0.70	90	282	1.65	1.60	5.0	252	248	42	43	100.3	17.46		
	115.00	120.00	310.890	0.70	90	282	1.65	1.60	5.0	252	251	42	44	100.9	17.46		
1	120.00	125.00	314.390	0.85	89	285	2.00	1.95	6.0	252	248	47	52	96.2	19.27		
	125.00	130.00	318.380	0.91	89	285	2.14	2.10	6.5	252	244	40	48	101.9	19.94		
2	130.00	135.00	322.390	0.90	89	285	2.11	2.00	6.5	252	259	38	43	98.9	19.83		
	135.00	140.00	326.260	0.90	89	284	2.11	2.05	6.0	252	259	38	40	98.6	19.82		
3	140.00	145.00	330.120	0.90	89	285	2.11	2.05	6.0	252	251	38	40	98.9	19.83		
	145.00	150.00	333.990	0.85	89	285	2.00	1.95	6.0	252	250	39	40	104.6	19.27		
4	150.00	155.00	337.970	0.79	89	285	1.86	1.80	5.5	252	254	39	41	100.6	18.58		
	155.00	160.00	341.660	0.81	89	285	1.90	1.85	5.5	252	254	40	41	101.0	18.81		
5	160.00	165.00	345.410	0.90	89	285	2.11	2.05	6.0	252	249	40	41	100.4	19.83		
	165.00	170.00	349.340	0.86	89	286	2.02	1.95	6.0	252	250	40	42	101.7	19.40		
6	170.00	175.00	353.230	0.78	90	286	1.83	1.80	6.0	252	256	41	39	106.3	18.48		
	175.00	180.00	357.110	0.76	90	286	1.79	1.75	6.0	252	252	41	39	102.4	18.24		
7	180.00	185.00	360.800	0.80	90	288	1.87	1.80	6.0	252	248	42	40	100.5	18.74		
	185.00	190.00	364.510	0.80	90	288	1.87	1.80	6.0	252	253	42	41	98.6	18.74		
8	190.00	195.00	368.150	0.80	90	288	1.87	1.80	6.0	252	253	42	41	101.3	18.74		
	195.00	200.00	371.890	0.77	90	287	1.81	1.75	5.5	252	250	42	43	100.4	18.37		
9	200.00	205.00	375.530	0.74	90	287	1.74	1.70	5.5	252	249	43	43	101.6	18.01		
	205.00	210.00	379.140	0.74	90	286	1.74	1.70	5.5	252	256	43	42	101.0	18.00		
10	210.00	215.00	382.730	0.77	90	286	1.81	1.75	5.5	252	251	43	39	101.7	18.36		
	215.00	220.00	386.420	0.72	90	286	1.69	1.65	5.5	252	251	43	39	98.6	17.75		
11	220.00	225.00	389.880	0.72	90	286	1.69	1.65	5.5	252	251	43	39	102.1	17.75		
	225.00	230.00	393.460	0.71	90	284	1.67	1.60	5.5	252	255	43	41	99.5	17.60		
12	230.00	235.00	396.930	0.74	90	284	1.74	1.70	5.5	252	248	44	43	97.2	17.97		
	235.00	240.00	400.390	0.71	90	284	1.67	1.60	5.5	252	251	44	47	100.0	17.60		
Final DGM:			403.880														

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qa}	
	240.0	min	173.880	ft ³	0.77	in. WC	88.4	°F	284.4	°F	7		1.743	in. WC	100.4		0.163		1.8	

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 13:09		Source: APC Outlet No. 1											
Date: 5-14-25		Run 2		VALID		End Time: 17:23		Project No.: AST-2025-2049		Parameter: SVOCs							
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)		MOIST. DATA					
Moisture: 16.0 % est.			Meter Box ID: MB18			Est. Tm: 88 °F				Pb: 29.66 in. Hg		Vlc (ml)					
Barometric: 29.57 in. Hg			Y: 0.99			Est. Ts: 284 °F				Pg: -8.70 in. WC		709.3					
Static Press: -9.10 in. WC			ΔH @ (in.WC): 1.978			Est. ΔP: 0.77 in. WC				O ₂ : 9.12 %		K-FACTOR					
Stack Press: 28.90 in. Hg			Probe ID: 6 series			Est. Dn: 0.206 in.				CO ₂ : 10.04 %		235					
CO ₂ : 11.0 %			Liner Material: glass			Target Rate: 0.50 scfm				CO: 7.6 ppm							
O ₂ : 8.1 %			Pitot ID: S8							Check Pt.		Initial	Final	Corr.			
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type	LEAK CHECK!	Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	#####	#####	0.310	
CO: 9.20 ppm			Nozzle ID: N007			glass	Leak Rate (cfm):	0.002	0.002	0.002	--	0.002	Mid 2 (cf)			--	
Md: 30.20 lb/lb-mole			Nozzle Dn (in.): 0.2462			Vacuum (in Hg):			15	14	14	--	15	Mid 3 (cf)			--
Ms: 28.25 lb/lb-mole						Pitot Tube:			Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf):			0.310

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	Trap		
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.		
					--	--				--	--	--	--		
1	0.00	5.00	404.330	0.89	88	282	2.09	2.00	5.0	258	249	80	48	100.4	19.68
--	5.00	10.00	408.220	0.90	88	284	2.11	2.00	6.0	252	251	62	49	99.7	19.82
2	10.00	15.00	412.100	0.93	88	285	2.18	2.10	6.0	252	255	59	47	100.0	20.16
--	15.00	20.00	416.050	0.92	87	285	2.15	2.10	6.0	252	252	57	48	101.2	20.05
3	20.00	25.00	420.020	0.92	87	286	2.15	2.10	6.0	252	249	56	50	102.1	20.06
--	25.00	30.00	424.020	0.89	87	286	2.08	2.00	6.0	252	250	56	50	99.8	19.74
4	30.00	35.00	427.870	0.89	88	286	2.08	2.00	6.0	252	254	57	51	101.7	19.74
--	35.00	40.00	431.800	0.76	88	286	1.78	1.70	5.5	252	251	56	52	101.1	18.24
5	40.00	45.00	435.410	0.70	88	286	1.64	1.60	5.5	252	251	58	54	101.5	17.50
--	45.00	50.00	438.890	0.67	88	286	1.57	1.50	5.5	252	254	57	51	101.9	17.12
6	50.00	55.00	442.310	0.70	89	286	1.64	1.60	5.5	252	252	59	55	101.0	17.50
--	55.00	60.00	445.780	0.68	89	286	1.60	1.55	5.5	252	250	58	44	102.2	17.25
7	60.00	65.00	449.240	0.79	89	286	1.85	1.85	6.0	252	251	57	44	101.4	18.59
--	65.00	70.00	452.940	0.80	90	287	1.88	1.85	6.0	252	254	56	45	101.5	18.72
8	70.00	75.00	456.670	0.79	90	286	1.86	1.85	6.0	252	252	54	45	102.6	18.59
--	75.00	80.00	460.420	0.80	90	286	1.88	1.80	5.5	254	251	53	45	100.9	18.71
9	80.00	85.00	464.130	0.76	90	285	1.79	1.75	5.5	252	252	52	44	102.3	18.22
--	85.00	90.00	467.800	0.73	90	285	1.72	1.65	5.5	252	253	52	45	102.1	17.86
10	90.00	95.00	471.390	0.71	90	284	1.67	1.60	5.5	252	251	52	45	103.1	17.60
--	95.00	100.00	474.970	0.73	90	283	1.72	1.65	5.5	252	251	53	45	101.1	17.84
11	100.00	105.00	478.530	0.71	90	283	1.68	1.60	5.5	252	253	53	45	99.6	17.59
--	105.00	110.00	481.990	0.75	90	283	1.77	1.70	5.5	252	252	54	46	102.0	18.08
12	110.00	115.00	485.630	0.71	90	283	1.68	1.60	5.5	252	252	54	46	103.6	17.59
--	115.00	120.00	489.230	0.71	91	283	1.68	1.60	5.5	252	252	54	47	102.9	17.59
1	120.00	125.00	492.810	0.95	90	283	2.24	2.10	6.5	252	250	73	50	98.7	20.35
--	125.00	130.00	497.080	0.95	90	285	2.23	2.20	7.0	252	251	51	44	101.3	20.38
2	130.00	135.00	501.140	0.95	90	286	2.23	2.20	7.0	252	254	50	43	101.9	20.39
--	135.00	140.00	505.220	0.90	90	285	2.12	2.05	6.5	252	252	50	43	101.3	19.83
3	140.00	145.00	509.170	0.91	89	285	2.14	2.00	6.5	252	251	50	43	100.4	19.94
--	145.00	150.00	513.100	0.88	89	285	2.07	2.00	6.5	252	252	50	43	101.8	19.61
4	150.00	155.00	517.020	0.80	89	284	1.88	1.85	6.0	252	253	50	43	99.0	18.69
--	155.00	160.00	520.660	0.81	89	283	1.91	1.85	6.0	252	251	50	43	106.2	18.79
5	160.00	165.00	524.590	0.77	89	284	1.81	1.75	6.0	252	251	50	43	100.9	18.33
--	165.00	170.00	528.230	0.77	89	283	1.81	1.70	6.0	252	253	50	44	100.3	18.32
6	170.00	175.00	531.850	0.66	89	283	1.56	1.50	5.5	252	252	50	45	102.6	16.96
--	175.00	180.00	535.280	0.66	89	283	1.56	1.45	5.5	252	252	50	45	101.4	16.96
7	180.00	185.00	538.670	0.66	90	283	1.56	1.45	5.5	252	252	51	45	100.0	16.96
--	185.00	190.00	542.020	0.68	90	282	1.61	1.50	5.5	252	253	50	46	99.1	17.20
8	190.00	195.00	545.390	0.69	90	281	1.63	1.55	5.5	252	251	49	44	100.3	17.32
--	195.00	200.00	548.830	0.70	90	281	1.66	1.55	5.5	252	251	48	44	100.5	17.44
9	200.00	205.00	552.300	0.70	90	281	1.66	1.55	5.5	252	251	48	44	99.3	17.44
--	205.00	210.00	555.730	0.73	89	281	1.72	1.60	5.5	252	252	48	42	98.6	17.81
10	210.00	215.00	559.200	0.83	89	282	1.96	1.85	6.5	252	251	48	42	99.2	19.01
--	215.00	220.00	562.920	0.80	89	282	1.89	1.80	6.5	252	251	48	42	101.1	18.66
11	220.00	225.00	566.640	0.75	89	284	1.76	1.65	6.0	252	253	48	42	101.4	18.09
--	225.00	230.00	570.250	0.77	89	283	1.81	1.70	6.0	252	251	49	43	100.0	18.32
12	230.00	235.00	573.860	0.77	89	283	1.81	1.70	6.0	252	251	49	43	99.5	18.32
--	235.00	240.00	577.450	0.76	89	283	1.79	1.70	6.0	252	253	50	44	99.8	18.20

Final DGM:		581.030	

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{ga}	
	240.0 min		176.390 ft ³		0.79 in. WC		89.2 °F		284.0 °F		7		1.771 in. WC		101.0		0.167		2.3	

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 7:51		Source: APC Outlet No. 1													
Date: 5-15-25		Run 3		VALID		End Time: 11:59		Project No.: AST-2025-2049		Parameter: SVOCs									
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA						
Moisture: 16.0 % est.			Meter Box ID: MB18			Est. Tm: 89 °F					Pb: 29.57 in. Hg		Vlc (ml)						
Barometric: 29.57 in. Hg			Y: 0.99			Est. Ts: 284 °F					Pg: -9.10 in. WC		682.3						
Static Press: -9.10 in. WC			ΔH @ (in.WC): 1.978			Est. ΔP: 0.79 in. WC					O ₂ : 8.98 %		K-FACTOR						
Stack Press: 28.90 in. Hg			Probe ID: 6 series			Est. Dn: 0.204 in.					CO ₂ : 9.96 %		2.351						
CO ₂ : 11.0 %			Liner Material: glass			Target Rate: 0.50 scfm					CO: 5.9 ppm								
O ₂ : 8.1 %			Pitot ID: S8								Check Pt.		Initial	Final	Corr.				
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type			LEAK CHECK!		Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	#####	#####	0.300
CO: 9.20 ppm			Nozzle ID: N007			glass			Leak Rate (cfm):		0.003	0.004	0.004	--	0.001	Mid 2 (cf)	--		
Md: 30.20 lb/lb-mole			Nozzle Dn (in.): 0.2462						Vacuum (in Hg):		15	15	15	--	15	Mid 3 (cf)	--		
Ms: 28.25 lb/lb-mole									Pitot Tube:		Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf): 0.300			

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)	Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)	
	Begin	End			DGM Average	Stack			Probe	Filter	Imp Exit	Trap			
					Amb.	Amb.									
					--	--									Ideal
1	0.00	5.00	581.360	0.84	80	282	1.95	1.90	6.0	252	252	74	56	98.9	19.12
-	5.00	10.00	585.030	0.85	80	280	1.98	1.90	6.0	252	254	60	49	100.4	19.21
2	10.00	15.00	588.780	0.87	80	280	2.02	1.95	6.5	252	252	56	48	100.5	19.43
-	15.00	20.00	592.580	0.87	81	280	2.03	1.95	6.5	252	251	54	49	100.6	19.43
3	20.00	25.00	596.390	0.81	81	280	1.89	1.80	6.0	252	253	53	48	101.0	18.75
-	25.00	30.00	600.080	0.81	81	281	1.88	1.80	6.5	252	253	53	50	100.7	18.76
4	30.00	35.00	603.760	0.73	82	282	1.70	1.65	6.0	252	252	52	48	101.1	17.83
-	35.00	40.00	607.270	0.73	82	282	1.70	1.65	6.0	252	252	53	49	101.1	17.83
5	40.00	45.00	610.780	0.67	82	281	1.56	1.55	6.0	252	253	52	46	101.8	17.07
-	45.00	50.00	614.170	0.68	83	281	1.59	1.55	6.0	252	252	52	48	102.3	17.19
6	50.00	55.00	617.610	0.65	84	281	1.52	1.40	5.5	252	252	52	45	99.6	16.81
-	55.00	60.00	620.890	0.65	83	282	1.52	1.40	5.5	252	253	52	47	100.4	16.82
7	60.00	65.00	624.190	0.71	84	282	1.66	1.60	5.5	252	252	52	44	96.6	17.58
-	65.00	70.00	627.510	0.73	84	282	1.71	1.70	5.5	252	252	52	44	94.4	17.83
8	70.00	75.00	630.800	0.74	84	282	1.73	1.75	5.5	252	252	52	44	94.9	17.95
-	75.00	80.00	634.130	0.75	85	281	1.76	1.80	6.5	252	252	52	44	102.5	18.06
9	80.00	85.00	637.760	0.76	85	282	1.78	1.75	6.5	252	252	51	46	99.1	18.19
-	85.00	90.00	641.290	0.76	85	282	1.78	1.75	6.5	252	252	52	47	105.3	18.19
10	90.00	95.00	645.040	0.77	85	280	1.81	1.75	6.5	252	251	52	49	101.9	18.28
-	95.00	100.00	648.700	0.72	86	282	1.69	1.60	6.5	252	253	53	47	102.2	17.70
11	100.00	105.00	652.250	0.63	86	282	1.48	1.40	5.5	252	252	53	44	102.7	16.56
-	105.00	110.00	655.590	0.60	86	282	1.41	1.30	5.0	252	252	53	43	98.9	16.16
12	110.00	115.00	658.730	0.58	86	282	1.36	1.30	5.0	252	252	54	42	100.3	15.89
-	115.00	120.00	661.860	0.60	86	282	1.41	1.30	5.0	252	252	54	42	101.4	16.16
1	120.00	125.00	665.080	0.87	86	282	2.04	1.95	6.5	252	252	63	44	98.5	19.46
-	125.00	130.00	669.140	0.91	86	283	2.13	2.00	6.5	252	250	54	45	99.5	19.92
2	130.00	135.00	673.020	0.88	86	284	2.06	1.95	7.0	252	251	51	46	100.7	19.60
-	135.00	140.00	676.880	0.88	86	284	2.06	2.00	7.0	252	254	50	45	101.2	19.60
3	140.00	145.00	680.760	0.91	87	284	2.13	2.05	7.0	252	252	50	46	100.4	19.93
-	145.00	150.00	684.680	0.87	87	285	2.03	1.95	7.0	252	249	50	46	101.2	19.50
4	150.00	155.00	688.540	0.85	87	285	1.99	1.90	7.0	252	253	50	45	101.8	19.27
-	155.00	160.00	692.380	0.81	87	285	1.90	1.80	6.5	252	252	50	45	100.7	18.81
5	160.00	165.00	696.090	0.76	87	285	1.78	1.70	6.5	252	251	50	45	102.3	18.22
-	165.00	170.00	699.740	0.74	87	285	1.73	1.65	6.5	252	252	51	46	100.8	17.98
6	170.00	175.00	703.290	0.69	87	285	1.62	1.50	6.0	252	253	51	46	99.9	17.37
-	175.00	180.00	706.690	0.64	87	285	1.50	1.40	5.5	252	251	51	45	99.8	16.72
7	180.00	185.00	709.960	0.71	87	285	1.66	1.60	6.0	252	253	50	45	100.6	17.61
-	185.00	190.00	713.430	0.70	87	284	1.64	1.55	6.0	252	252	49	43	100.9	17.48
8	190.00	195.00	716.890	0.70	87	284	1.64	1.55	6.0	252	251	49	42	100.0	17.48
-	195.00	200.00	720.320	0.71	88	285	1.67	1.55	6.0	252	251	49	43	99.5	17.61
9	200.00	205.00	723.760	0.75	88	285	1.76	1.65	6.0	252	252	49	43	101.6	18.10
-	205.00	210.00	727.370	0.75	88	285	1.76	1.65	6.0	252	252	49	44	99.9	18.10
10	210.00	215.00	730.920	0.74	88	285	1.74	1.60	6.0	252	251	49	43	98.3	17.98
-	215.00	220.00	734.390	0.71	88	284	1.67	1.60	6.0	252	252	49	43	100.6	17.60
11	220.00	225.00	737.870	0.73	88	284	1.71	1.65	6.5	252	251	49	43	99.8	17.85
-	225.00	230.00	741.370	0.70	88	283	1.65	1.60	6.0	252	252	49	43	99.2	17.47
12	230.00	235.00	744.780	0.71	88	284	1.67	1.60	6.5	252	251	49	44	104.7	17.60
-	235.00	240.00	748.400	0.74	88	284	1.74	1.70	6.5	252	252	50	43	100.6	17.97

Final DGM:		751.950	

RESULTS	Run Time	Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{ga}
	240.0 min	170.290 ft ³	0.75 in. WC	85.3 °F	282.9 °F	7	1.680 in. WC	100.4	0.166	1.6

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Courtice, ON
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter SVOCs

Run Number		Run 1	Run 2	Run 3
Date		5-14-25	7-14-25	5-15-25
Start Time		8:10	13:04	7:46
Stop Time		12:20	17:17	11:55
Run Time, min	(θ)	240.0	240.0	240.0
INPUT DATA				
Barometric Pressure, kPa	(Pb)	100.644	100.440	100.136
Meter Correction Factor	(Y)	0.983	0.983	0.983
Orifice Calibration Value	($\Delta H @$)	1.98	1.98	1.98
Meter Volume, m ³	(Vm)	5.016	5.100	4.849
Meter Temperature, °C	(Tm)	31.5	32.5	30.3
Meter Temperature, °K	(Tm)	304.7	305.6	303.5
Meter Orifice Pressure, kPa	(ΔH)	0.461	0.469	0.427
Volume H ₂ O Collected, mL	(Vlc)	716.3	695.3	680.7
Nozzle Diameter, mm	(Dn)	6.203	6.203	6.203
ISOKINETIC DATA				
Reference Meter Volume, Rm ³	(Vmref)	4.811	4.866	4.643
Reference Water Volume, Rm ³	(Vwref)	0.974	0.946	0.926
Moisture Fraction Measured	(BWSmsd)	0.168	0.163	0.166
Moisture Fraction @ Saturation	(BWSsat)	3.158	3.081	3.154
Moisture Fraction	(BWS)	0.168	0.163	0.166
Meter Pressure, kPa	(Pm)	101.105	100.909	100.563
Volume at Nozzle, m ³	(Vn)	8.168	8.204	7.912
Isokinetic Sampling Rate, (%)	(I)	100.7	100.3	100.2

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Emission Calculations

Location Reworld Durham York Renewable Energy L.P - Cour
Source APC Outlet No. 2
Project No. AST-2025-2049
Parameter SVOCs

Run Number		Run 1	Run 2	Run 3
Date		5-14-25	7-14-25	5-15-25
Start Time		8:10	13:04	7:46
Stop Time		12:20	17:17	11:55
Run Time, min		240.0	240.0	240.0
CALCULATED DATA				
Square Root of ΔP , (in. WC) ^{1/2}	(ΔP)	0.890	0.898	0.866
Pitot Tube Coefficient	(Cp)	0.840	0.840	0.840
Barometric Pressure, kPa	(Pb)	100.644	100.440	100.136
Static Pressure, kPa	(Pg)	-2.116	-2.116	-2.290
Stack Pressure, kPa	(Ps)	98.528	98.325	97.846
Stack Cross-sectional Area, m ²	(As)	1.48	1.48	1.48
Temperature, °C	(Ts)	136.1	135.2	135.8
Temperature, °K	(Ts)	409.3	408.3	409.0
Moisture Fraction Measured	(BWSmsd)	0.168	0.163	0.166
Moisture Fraction @ Saturation	(BWSsat)	3.158	3.081	3.154
Moisture Fraction	(BWS)	0.168	0.163	0.166
O ₂ Concentration, %	(O ₂)	8.59	9	8.25
CO ₂ Concentration, %	(CO ₂)	10.38	10	10.41
CO Concentration, ppmvd	(CO)	9.7	9.8	15.2
Ar Concentration, %	(Ar)	0.95	0.95	0.96
Molecular Weight, lb/lb-mole (dry)	(Md)	30.12	30.07	30.11
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.08	28.11	28.10
Velocity, m/s	(Vs)	18.67	18.81	18.17
VOLUMETRIC FLOW RATE				
At Stack Conditions, m ³ /s	(Qa)	27.58	27.79	26.85
At Reference Conditions, dry Rm ³ /s	(Qs)	16.25	16.48	15.76
At Reference Conditions (corrected), dry l	(Qsc)	20.20	19.81	20.14
At Reference Conditions, wet Rm ³ /s	(Qsw)	19.54	19.69	18.90

Reference conditions: 25°C, 1 atm (77°F, 29.92 in. Hg)

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 8:10		Source: APC Outlet No. 2													
Date: 5-14-25		Run 1		VALID		End Time: 12:20		Project No.: AST-2025-2049		Parameter: SVOCs									
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA						
Moisture: 16.0 % est.			Meter Box ID: MB17			Est. Tm: 280 °F					Pb: 29.72 in. Hg		Vlc (ml)						
Barometric: 29.29 in. Hg			Y: 0.983			Est. Ts: 280 °F					Pg: -8.50 in. WC		716.3						
Static Press: -11.90 in. WC			ΔH @ (in.WC): 1.98			Est. ΔP: 0.74 in. WC					O ₂ : 8.59 %		K-FACTOR						
Stack Press: 28.42 in. Hg			Probe ID: 6A			Est. Dn: 0.178 in.					CO ₂ : 10.38 %		3.063						
CO ₂ : 11.0 %			Liner Material: glass			Target Rate: 0.50 scfm					CO: 9.7 ppm								
O ₂ : 8.1 %			Pitot ID: S10								Check Pt.		Initial	Final	Corr.				
N ₂ : 79.9 %			Pitot Cp/Type: 0.840			S-type			LEAK CHECK!		Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	#####	#####	0.540
CO: 9.20 ppm			Nozzle ID: B			glass			Leak Rate (cfm):		0.005	0.003	0.003	--	0.002	Mid 2 (cf)		--	
Md: 30.20 lb/lb-mole			Nozzle Dn (in.): 0.2442						Vacuum (in Hg):		17	19	17	--	18	Mid 3 (cf)		--	
Ms: 28.25 lb/lb-mole									Pitot Tube:		Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf): 0.540			

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)	Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)	
	Begin	End			DGM Average	Stack			Probe	Filter	Imp Exit	Trap			
					Amb.	Amb.			Amb.	Amb.	Amb.	Amb.			Amb.
					81	81			Ideal	Actual	257	254			69
1	0.00	5.00	208.645	0.90	82	276	2.03	2.20	7	257	254	60	52	107.1	19.88
	5.00	10.00	212.780	0.98	82	280	2.20	2.20	7	254	257	44	70	96.4	20.80
2	10.00	15.00	216.650	0.94	83	280	2.11	2.20	7	248	250	42	65	100.5	20.37
	15.00	20.00	220.610	1.10	83	280	2.47	2.10	7	247	251	41	52	99.2	22.04
3	20.00	25.00	224.840	1.10	83	281	2.47	2.45	7	247	257	40	51	100.1	22.05
	25.00	30.00	229.100	1.10	84	283	2.46	2.45	8	246	252	40	53	99.9	22.08
4	30.00	35.00	233.355	0.92	84	283	2.06	2.45	8	248	249	40	51	101.8	20.19
	35.00	40.00	237.320	0.88	85	283	1.98	2.05	7	247	256	41	48	99.5	19.75
5	40.00	45.00	241.120	0.73	85	283	1.64	2.00	6	248	254	42	46	101.1	17.99
	45.00	50.00	244.640	0.72	86	283	1.62	1.65	5	248	249	42	45	100.1	17.87
6	50.00	55.00	248.110	0.67	86	282	1.51	1.60	5	249	253	43	45	100.6	17.22
	55.00	60.00	251.475	0.66	87	281	1.49	1.50	5	241	256	43	45	100.8	17.08
7	60.00	65.00	254.830	0.75	87	280	1.70	1.50	5	248	249	44	46	99.1	18.20
	65.00	70.00	258.350	0.74	88	280	1.68	1.70	6	252	252	44	45	101.3	18.08
8	70.00	75.00	261.930	0.78	88	280	1.77	1.70	6	255	256	45	44	100.4	18.56
	75.00	80.00	265.570	0.71	88	279	1.61	1.80	6	255	252	45	47	104.3	17.69
9	80.00	85.00	269.180	0.68	89	278	1.55	1.60	5	254	250	46	47	97.1	17.30
	85.00	90.00	272.480	0.67	89	277	1.53	1.55	5	258	256	47	46	100.7	17.16
10	90.00	95.00	275.880	0.69	89	277	1.58	1.55	5	258	254	47	48	100.7	17.42
	95.00	100.00	279.330	0.70	90	276	1.60	1.60	5	256	248	46	45	100.9	17.53
11	100.00	105.00	282.820	0.66	90	276	1.51	1.60	5	255	254	44	45	101.1	17.02
	105.00	110.00	286.215	0.68	90	251	1.61	1.50	5	256	256	44	44	99.9	16.98
12	110.00	115.00	289.680	0.71	90	251	1.68	1.60	5	256	249	45	46	99.9	17.35
	115.00	120.00	293.220	0.73	90	251	1.73	1.70	6	254	251	46	47	99.8	17.60
1	120.00	125.00	297.345	0.92	90	279	2.10	2.10	7	247	248	59	48	98.9	20.14
	125.00	130.00	301.255	0.91	90	281	2.07	2.10	7	250	259	46	58	100.5	20.06
2	130.00	135.00	305.200	0.86	90	279	1.96	2.10	7	249	252	44	55	100.7	19.47
	135.00	140.00	309.050	0.81	90	279	1.85	2.00	6	248	248	44	50	100.6	18.90
3	140.00	145.00	312.780	0.78	90	277	1.78	1.90	6	247	256	44	43	102.0	18.52
	145.00	150.00	316.500	0.81	90	277	1.85	1.80	6	248	254	45	42	100.8	18.87
4	150.00	155.00	320.245	0.77	90	276	1.76	1.90	6	250	248	45	42	101.5	18.39
	155.00	160.00	323.925	0.78	90	276	1.79	1.80	6	252	253	45	42	100.7	18.51
5	160.00	165.00	327.600	0.74	90	277	1.69	1.85	6	254	256	46	45	102.5	18.04
	165.00	170.00	331.240	0.74	90	278	1.69	1.80	6	254	250	47	45	101.7	18.05
6	170.00	175.00	334.850	0.68	91	278	1.56	1.70	6	256	251	48	45	101.5	17.30
	175.00	180.00	338.310	0.73	91	278	1.67	1.60	6	256	257	48	45	100.2	17.93
7	180.00	185.00	341.850	0.77	91	279	1.76	1.70	6	257	251	48	48	100.1	18.43
	185.00	190.00	345.480	0.71	91	280	1.62	1.80	6	256	250	49	46	103.5	17.71
8	190.00	195.00	349.080	0.75	91	279	1.71	1.60	6	257	256	49	44	97.2	18.18
	195.00	200.00	352.560	0.72	91	279	1.65	1.70	6	255	252	49	46	100.8	17.82
9	200.00	205.00	356.095	0.75	91	278	1.72	1.70	6	255	248	49	44	100.9	18.17
	205.00	210.00	359.710	0.81	91	278	1.85	1.75	6	255	255	50	45	99.8	18.89
10	210.00	215.00	363.425	0.82	92	280	1.87	1.90	7	253	254	49	48	101.1	19.03
	215.00	220.00	367.210	0.84	92	278	1.92	1.90	7	253	249	49	50	100.4	19.23
11	220.00	225.00	371.020	0.84	92	279	1.92	2.00	7	252	253	49	49	101.5	19.24
	225.00	230.00	374.870	0.82	92	273	1.89	2.00	7	252	255	49	47	102.4	18.94
12	230.00	235.00	378.720	0.83	92	274	1.91	2.00	7	251	250	50	48	100.5	19.07
	235.00	240.00	382.520	0.82	92	275	1.89	2.00	7	250	251	51	49	100.9	18.96
Final DGM:			386.310												

RESULTS	Run Time		Vm		ΔP		Tm		Ts		Max Vac		ΔH		%ISO		BWS		Y _{qa}	
	240.0	min	177.125	ft ³	0.80	in. WC	88.7	°F	277.0	°F	8		1.853	in. WC	100.7		0.168		0.1	

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P. - Cou				Start Time: 13:04		Source: APC Outlet No. 2										
Date: 7-14-25		Run 2		VALID		End Time: 17:17		Project No.: AST-2025-2049		Parameter: SVOCs						
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.		STACK DATA (FINAL)		MOIST. DATA			
Moisture: 16.0 % est.			Meter Box ID: MB17			Est. Tm: 89 °F					Pb: 29.66 in. Hg		Vlc (ml)			
Barometric: 29.29 in. Hg			Y: 0.983			Est. Ts: 277 °F					Pg: -8.50 in. WC		695.3			
Static Press: -11.90 in. WC			ΔH @ (in.WC): 1.98			Est. ΔP: 0.80 in. WC					O ₂ : 9 %		K-FACTOR			
Stack Press: 28.42 in. Hg			Probe ID: 6A			Est. Dn: 0.203 in.					CO ₂ : 10 %		2.28			
CO ₂ : 11.0 %			Liner Material: glass			Target Rate: 0.50 scfm					CO: 9.8 ppm					
O ₂ : 8.1 %			Pitot ID: S10								Check Pt.		Initial	Final	Corr.	
N ₂ : 79.9 %			Pitot Cp/Type: 0.840		S-type	LEAK CHECK!		Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	#####	#####	0.465
CO: 9.20 ppm			Nozzle ID: B		glass	Leak Rate (cfm):		0.002	0.005	0.004	--	0.002	Mid 2 (cf)	--		
Md: 30.20 lb/lb-mole			Nozzle Dn (in.): 0.2442			Vacuum (in Hg):		15	15	15	--	15	Mid 3 (cf)	--		
Ms: 28.25 lb/lb-mole						Pitot Tube:		Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf): 0.465			

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)		Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)
	Begin	End			DGM Average	Stack	Ideal	Actual		Probe	Filter	Imp Exit	Trap		
					Amb.	Amb.				Amb.	Amb.	Amb.	Amb.		
					--	--				--	--	--	--		
1	0.00	5.00	386.830	0.98	88	275	2.24	2.25	4	262	266	63	52	98.7	20.73
--	5.00	10.00	390.880	1.00	87	280	2.26	2.25	4	250	254	56	46	102.1	21.01
2	10.00	15.00	395.090	0.95	88	280	2.15	2.30	5	250	253	50	46	98.7	20.48
--	15.00	20.00	399.060	0.92	88	279	2.09	2.20	5	250	252	46	43	100.7	20.14
3	20.00	25.00	403.050	0.86	88	278	1.96	2.10	5	251	253	45	44	101.1	19.46
--	25.00	30.00	406.930	0.85	88	278	1.93	2.00	4	253	254	44	44	99.6	19.35
4	30.00	35.00	410.730	0.83	88	278	1.89	1.95	4	255	251	44	45	99.5	19.12
--	35.00	40.00	414.480	0.83	88	278	1.89	1.90	4	255	253	44	44	99.2	19.12
5	40.00	45.00	418.220	0.72	89	278	1.64	1.65	4	256	254	44	46	99.7	17.81
--	45.00	50.00	421.730	0.72	89	278	1.64	1.65	4	257	251	45	47	100.8	17.81
6	50.00	55.00	425.280	0.63	90	278	1.44	1.45	4	257	252	45	47	97.0	16.66
--	55.00	60.00	428.480	0.62	90	278	1.42	1.40	4	256	254	45	47	98.9	16.52
7	60.00	65.00	431.720	0.72	90	278	1.64	1.65	4	257	252	46	45	99.0	17.81
--	65.00	70.00	435.210	0.70	90	277	1.60	1.65	4	256	252	46	46	100.9	17.54
8	70.00	75.00	438.720	0.70	91	277	1.60	1.60	4	255	253	47	47	100.7	17.54
--	75.00	80.00	442.230	0.73	91	276	1.68	1.60	4	253	252	48	48	100.5	17.90
9	80.00	85.00	445.810	0.76	91	276	1.74	1.70	4	252	251	49	49	100.2	18.27
--	85.00	90.00	449.450	0.73	91	276	1.67	1.75	4	251	254	47	48	99.4	17.90
10	90.00	95.00	452.990	0.71	92	273	1.64	1.70	4	251	254	46	49	100.1	17.62
--	95.00	100.00	456.520	0.73	92	274	1.68	1.65	4	249	252	44	49	100.5	17.88
11	100.00	105.00	460.110	0.69	92	274	1.59	1.70	4	249	253	44	49	100.5	17.38
--	105.00	110.00	463.600	0.72	92	264	1.68	1.60	4	248	253	43	49	101.0	17.64
12	110.00	115.00	467.210	0.74	92	266	1.72	1.70	4	247	252	44	49	100.1	17.90
--	115.00	120.00	470.830	0.73	92	265	1.70	1.75	4	246	253	44	49	100.3	17.77
1	120.00	125.00	474.900	0.92	91	277	2.11	2.15	5	250	254	57	44	101.7	20.11
--	125.00	130.00	478.960	0.96	91	280	2.19	2.15	5	250	254	41	44	100.5	20.59
2	130.00	135.00	483.050	0.97	91	281	2.21	2.20	5	249	250	40	44	100.3	20.71
--	135.00	140.00	487.150	0.97	91	281	2.21	2.20	5	249	252	41	46	100.6	20.71
3	140.00	145.00	491.260	0.96	91	281	2.19	2.20	5	248	256	41	47	101.1	20.60
--	145.00	150.00	495.370	0.95	91	281	2.16	2.20	5	247	253	42	45	100.4	20.49
4	150.00	155.00	499.430	0.87	92	281	1.98	2.15	5	247	252	43	45	100.1	19.61
--	155.00	160.00	503.310	0.88	91	281	2.00	2.00	5	247	255	43	45	100.4	19.72
5	160.00	165.00	507.220	0.83	91	281	1.89	2.00	5	247	253	43	46	101.8	19.16
--	165.00	170.00	511.070	0.82	91	282	1.87	1.90	5	248	253	44	43	100.9	19.05
6	170.00	175.00	514.860	0.77	92	282	1.75	1.90	5	247	254	44	43	102.0	18.46
--	175.00	180.00	518.580	0.72	91	282	1.64	1.80	5	248	253	44	43	99.9	17.85
7	180.00	185.00	522.100	0.71	91	281	1.62	1.65	4	248	252	45	43	100.8	17.72
--	185.00	190.00	525.630	0.72	91	280	1.64	1.65	4	249	253	44	43	99.8	17.83
8	190.00	195.00	529.150	0.75	91	280	1.71	1.65	4	250	253	45	44	100.3	18.20
--	195.00	200.00	532.760	0.81	91	280	1.85	1.75	4	250	253	44	42	100.5	18.91
9	200.00	205.00	536.520	0.84	91	281	1.91	1.90	5	256	252	44	42	100.8	19.27
--	205.00	210.00	540.355	0.84	91	281	1.91	2.00	5	252	253	45	42	101.3	19.27
10	210.00	215.00	544.210	0.85	91	282	1.93	2.00	5	252	254	45	43	100.7	19.40
--	215.00	220.00	548.060	0.82	91	278	1.88	2.00	5	254	252	45	42	100.7	19.00
11	220.00	225.00	551.855	0.82	91	240	1.98	1.90	5	254	253	45	42	98.6	18.51
--	225.00	230.00	555.670	0.85	91	251	2.02	1.90	5	255	252	46	43	100.3	18.99
12	230.00	235.00	559.590	0.82	91	250	1.95	2.00	5	256	253	46	43	101.0	18.64
--	235.00	240.00	563.470	0.81	91	249	1.93	2.00	5	256	253	47	44	102.8	18.51
Final DGM:			567.395												

RESULTS	Run Time	Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{ga}
	240.0 min	180.100 ft ³	0.81 in. WC	90.5 °F	275.4 °F	5	1.883 in. WC	100.3	0.163	0.6

Isokinetic Field Data

Location: Reworld Durham York Renewable Energy L.P - Cou				Start Time: 7:46		Source: APC Outlet No. 2											
Date: 5-15-25		Run 3		VALID		End Time: 11:55		Project No.: AST-2025-2049		Parameter: SVOCs							
STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA				
Moisture: 16.5 % est.			Meter Box ID: MB17			Est. Tm: 90 °F				Pb: 29.57 in. Hg			Vlc (ml)				
Barometric: 29.29 in. Hg			Y: 0.983			Est. Ts: 275 °F				Pg: -9.20 in. WC			680.7				
Static Press: -11.90 in. WC			ΔH @ (in.WC): 1.98			Est. ΔP: 0.81 in. WC				O ₂ : 8.25 %			K-FACTOR				
Stack Press: 28.42 in. Hg			Probe ID: 6A			Est. Dn: 0.202 in.				CO ₂ : 10.41 %			2.271				
CO ₂ : 11.0 %			Liner Material: glass			Target Rate: 0.50 scfm				CO: 15.2 ppm							
O ₂ : 8.1 %			Pitot ID: S10							Check Pt.			Initial	Final	Corr.		
N ₂ : 79.9 %			Pitot Cp/Type: 0.840		S-type	LEAK CHECK!			Pre	Mid 1	Mid 2	Mid 3	Post	Mid 1 (cf)	#####	#####	0.417
CO: 9.20 ppm			Nozzle ID: B		glass	Leak Rate (cfm):			0.003	0.003	0.003	--	0.003	Mid 2 (cf)		--	
Md: 30.20 lb/lb-mole			Nozzle Dn (in.): 0.2442			Vacuum (in Hg):			15	16	15	--	15	Mid 3 (cf)		--	
Ms: 28.19 lb/lb-mole						Pitot Tube:			Pass	--	--	--	Pass	Mid-Point Leak Check Vol (cf):			0.417

Sample Pt.	Sample Time (minutes)		Dry Gas Meter Reading (ft ³)	Pitot Tube ΔP (in WC)	Gas Temperatures (°F)		Orifice Press. ΔH (in. WC)	Pump Vac (in. Hg)	Gas Temperatures (°F)				% ISO	Vs (m/s)	
	Begin	End			DGM Average	Stack			Probe	Filter	Imp Exit	Trap			
					Amb.	Amb.			Amb.	Amb.	Amb.	Amb.			
					--	--			Ideal	Actual	--	--			--
1	0.00	5.00	567.740	0.94	79	275	2.09	2.10	5	250	252	70	59	101.2	20.33
-	5.00	10.00	571.720	0.92	79	277	2.04	2.10	5	254	254	57	42	98.6	20.13
2	10.00	15.00	575.550	0.96	79	277	2.13	2.05	5	254	249	52	42	99.8	20.57
-	15.00	20.00	579.510	0.97	80	278	2.15	2.15	5	253	255	49	41	99.7	20.69
3	20.00	25.00	583.490	0.89	80	279	1.97	2.15	5	252	252	49	42	101.1	19.83
-	25.00	30.00	587.355	0.85	81	279	1.89	2.00	5	251	251	49	43	102.2	19.38
4	30.00	35.00	591.180	0.77	81	279	1.71	1.95	5	250	255	49	45	101.8	18.45
-	35.00	40.00	594.810	0.80	82	278	1.78	1.70	4	250	251	49	44	100.2	18.79
5	40.00	45.00	598.460	0.70	82	279	1.56	1.80	5	248	252	49	44	100.4	17.59
-	45.00	50.00	601.880	0.69	83	279	1.54	1.55	4	247	254	48	44	100.7	17.46
6	50.00	55.00	605.295	0.69	84	279	1.54	1.55	4	246	251	48	44	99.7	17.46
-	55.00	60.00	608.680	0.62	84	279	1.39	1.55	4	246	253	48	45	102.5	16.55
7	60.00	65.00	611.980	0.69	85	279	1.55	1.40	4	246	254	48	45	99.6	17.46
-	65.00	70.00	615.370	0.72	85	278	1.61	1.55	4	247	251	47	42	100.5	17.82
8	70.00	75.00	618.865	0.71	86	279	1.59	1.60	4	247	253	47	44	101.7	17.71
-	75.00	80.00	622.380	0.69	86	279	1.55	1.60	4	249	253	47	41	101.2	17.46
9	80.00	85.00	625.830	0.75	86	276	1.69	1.55	4	251	251	47	40	100.0	18.17
-	85.00	90.00	629.390	0.78	87	278	1.75	1.70	5	249	253	47	40	99.7	18.55
10	90.00	95.00	633.010	0.80	87	278	1.80	1.75	5	254	253	47	41	100.7	18.79
-	95.00	100.00	636.715	0.75	88	279	1.69	1.80	5	254	251	47	43	100.9	18.20
11	100.00	105.00	640.310	0.63	88	278	1.42	1.70	5	257	253	48	43	100.8	16.67
-	105.00	110.00	643.605	0.61	88	264	1.40	1.40	4	258	253	49	43	100.1	16.25
12	110.00	115.00	646.860	0.63	88	263	1.45	1.40	4	259	251	49	44	99.2	16.50
-	115.00	120.00	650.140	0.62	88	263	1.43	1.45	4	257	253	49	46	100.6	16.37
1	120.00	125.00	653.857	0.85	88	275	1.92	1.95	5	245	253	60	40	102.3	19.33
-	125.00	130.00	657.750	0.82	88	278	1.85	1.95	5	250	256	46	38	100.3	19.02
2	130.00	135.00	661.490	0.81	88	278	1.82	1.85	5	252	249	46	38	100.0	18.91
-	135.00	140.00	665.195	0.79	88	278	1.78	1.80	5	254	252	45	39	100.0	18.67
3	140.00	145.00	668.855	0.82	88	278	1.85	1.80	5	257	257	45	39	99.3	19.02
-	145.00	150.00	672.560	0.82	89	278	1.85	1.85	5	257	250	45	40	99.3	19.02
4	150.00	155.00	676.270	0.76	89	278	1.72	1.85	5	257	253	46	40	100.9	18.31
-	155.00	160.00	679.900	0.77	89	278	1.74	1.70	5	257	256	46	40	99.4	18.43
5	160.00	165.00	683.500	0.75	89	279	1.69	1.70	5	256	249	46	42	100.6	18.20
-	165.00	170.00	687.095	0.72	89	279	1.62	1.70	5	255	253	46	40	100.1	17.84
6	170.00	175.00	690.600	0.67	89	279	1.51	1.60	4	254	256	47	39	102.9	17.21
-	175.00	180.00	694.075	0.65	89	279	1.47	1.50	4	253	250	47	39	99.3	16.95
7	180.00	185.00	697.380	0.69	89	279	1.56	1.45	4	251	253	48	40	98.9	17.46
-	185.00	190.00	700.770	0.69	89	280	1.55	1.55	4	252	255	45	39	99.3	17.47
8	190.00	195.00	704.170	0.75	90	280	1.69	1.55	4	248	250	44	38	99.4	18.22
-	195.00	200.00	707.725	0.73	90	280	1.65	1.70	5	246	252	43	38	99.9	17.97
9	200.00	205.00	711.250	0.75	90	280	1.69	1.65	4	246	255	43	38	98.7	18.22
-	205.00	210.00	714.780	0.78	90	281	1.76	1.70	5	246	249	43	38	98.5	18.59
10	210.00	215.00	718.370	0.77	90	281	1.73	1.75	5	247	254	43	38	99.4	18.47
-	215.00	220.00	721.970	0.74	90	278	1.67	1.75	5	247	253	44	38	99.0	18.07
11	220.00	225.00	725.490	0.69	90	270	1.58	1.65	5	247	251	45	38	97.3	17.35
-	225.00	230.00	728.850	0.69	90	265	1.59	1.60	5	250	255	45	38	103.0	17.29
12	230.00	235.00	732.420	0.71	90	265	1.64	1.60	5	252	252	46	38	98.3	17.54
-	235.00	240.00	735.875	0.71	90	265	1.64	1.60	5	255	250	46	38	99.7	17.54
Final DGM:			739.380												

RESULTS	Run Time		Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y _{qa}
	240.0 min		171.223 ft ³	0.75 in. WC	86.6 °F	276.5 °F	5	1.716 in. WC	100.2	0.166	0.4

APPENDIX 26

Volumetric Flowrate Measurements for Repeat Aldehyde Testing (14 pages)

Alliance TG North

Velocity and Volume Flowrate Determination

Reworld

Project No.	AST-2025-2049	Pbar	29.56 in. Hg	100.1 kPa
Client	Reworld	Pstatic	-9.44 in. H ₂ O	-2.35 kPa
Location	Courtice, Ontario	Stack Diameter	4.500 ft	1.37 m
Test Location	APC outlet Unit 1	Stack Width	0.00 ft	0.00 m
Date	July 10, 2025	Stack Length	0.00 ft	0.00 m
Test Number	1	Stack Area	15.90 ft ²	1.478 m ²
Test Time	10.12-10.19	Pitot Coefficient	0.844	
Operator	DT	Number of Points	24	

O₂ (%)	8.95				
CO₂ (%)	10.27				
CO (ppm)	6.2	N₂ (%)	79.8	MW (dry)	30.12 lb/lb mole
H₂O (%)	18.12	Ar (%)	0.9	MW (wet)	27.92 lb/lb mole

	Imperial	Metric
Average Velocity	54.53 ft/s	16.62 m/s
Average Temperature	270 °F	132.2 °C
Duct Cross-sectional Area	15.90 ft ²	1.48 m ²
Actual Volumetric Flow Rate	52040 cfm	24.6 m ³ /s
Dry Reference Volumetric Flow Rate	30258 cfm	14.3 Rm ³ /s
Wet Reference Volumetric Flow Rate	36952 cfm	17.4 Rm ³ /s

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Point	Velocity Pressure		Stack Temp.			Velocity	
	in. H ₂ O	Pa	°F	°C	K	ft/s	m/s
1	0.690	172	260	127	400	56.5	17.2
2	0.720	179	262	128	401	57.8	17.6
3	0.680	169	264	129	402	56.3	17.2
4	0.600	149	264	129	402	52.9	16.1
5	0.560	139	268	131	404	51.2	15.6
6	0.550	137	270	132	405	50.8	15.5
7	0.580	144	271	133	406	52.2	15.9
8	0.630	157	272	133	406	54.5	16.6
9	0.620	154	274	134	408	54.1	16.5
10	0.680	169	275	135	408	56.7	17.3
11	0.620	154	274	134	408	54.1	16.5
12	0.600	149	273	134	407	53.2	16.2
13	0.570	142	264	129	402	51.5	15.7
14	0.660	164	265	129	403	55.5	16.9
15	0.700	174	265	129	403	57.2	17.4
16	0.750	187	269	132	405	59.3	18.1
17	0.640	159	272	133	406	54.9	16.7
18	0.580	144	272	133	406	52.3	15.9
19	0.600	149	273	134	407	53.2	16.2
20	0.650	162	275	135	408	55.5	16.9
21	0.630	157	277	136	409	54.7	16.7
22	0.690	172	277	136	409	57.2	17.4
23	0.62	154	272	133	406	54.0	16.5
24	0.60	149	270	132	405	53.1	16.2

Alliance TG North

Velocity and Volume Flowrate Determination

Reworld

Project No.	AST-2025-2049	Pbar	29.56 in. Hg	100.1 kPa
Client	Reworld	Pstatic	-9.44 in. H ₂ O	-2.35 kPa
Location	Courtice, Ontario	Stack Diameter	4.500 ft	1.37 m
Test Location	APC outlet Unit 1	Stack Width	0.00 ft	0.00 m
Date	July 10, 2025	Stack Length	0.00 ft	0.00 m
Test Number	2	Stack Area	15.90 ft ²	1.478 m ²
Test Time	12.07-12.13	Pitot Coefficient	0.844	
Operator	DT	Number of Points	24	

O₂ (%)	8.41				
CO₂ (%)	10.61				
CO (ppm)	5.9	N₂ (%)	80.0	MW (dry)	30.15 lb/lb mole
H₂O (%)	18.12	Ar (%)	1.0	MW (wet)	27.95 lb/lb mole

	Imperial	Metric
Average Velocity	53.37 ft/s	16.27 m/s
Average Temperature	273 °F	133.7 °C
Duct Cross-sectional Area	15.90 ft ²	1.48 m ²
Actual Volumetric Flow Rate	50931 cfm	24.0 m ³ /s
Dry Reference Volumetric Flow Rate	29502 cfm	13.9 Rm ³ /s
Wet Reference Volumetric Flow Rate	36029 cfm	17.0 Rm ³ /s

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Point	Velocity Pressure		Stack Temp.			Velocity	
	in. H ₂ O	Pa	°F	°C	K	ft/s	m/s
1	0.660	164	265	129	403	55.5	16.9
2	0.750	187	268	131	404	59.3	18.1
3	0.730	182	270	132	405	58.5	17.8
4	0.590	147	270	132	405	52.6	16.0
5	0.520	130	270	132	405	49.4	15.1
6	0.510	127	270	132	405	48.9	14.9
7	0.540	135	273	134	407	50.4	15.4
8	0.570	142	273	134	407	51.8	15.8
9	0.650	162	275	135	408	55.4	16.9
10	0.610	152	276	136	409	53.7	16.4
11	0.560	139	276	136	409	51.5	15.7
12	0.540	135	270	132	405	50.3	15.3
13	0.640	159	264	129	402	54.6	16.6
14	0.660	164	266	130	403	55.5	16.9
15	0.670	167	268	131	404	56.0	17.1
16	0.730	182	269	132	405	58.5	17.8
17	0.640	159	273	134	407	54.9	16.7
18	0.520	130	276	136	409	49.6	15.1
19	0.540	135	278	137	410	50.6	15.4
20	0.620	154	279	137	410	54.3	16.5
21	0.600	149	280	138	411	53.4	16.3
22	0.580	144	280	138	411	52.5	16.0
23	0.59	147	280	138	411	53.0	16.1
24	0.54	135	275	135	408	50.5	15.4

Alliance TG North

Velocity and Volume Flowrate Determination

Reworld

Project No.	AST-2025-2049	Pbar	29.56 in. Hg	100.1 kPa
Client	Reworld	Pstatic	-9.44 in. H ₂ O	-2.35 kPa
Location	Courtice, Ontario	Stack Diameter	4.500 ft	1.37 m
Test Location	APC outlet Unit 1	Stack Width	0.00 ft	0.00 m
Date	July 10, 2025	Stack Length	0.00 ft	0.00 m
Test Number	3	Stack Area	15.90 ft ²	1.478 m ²
Test Time	13.34-13.40	Pitot Coefficient	0.844	
Operator	DT	Number of Points	24	

O₂ (%)	9.06				
CO₂ (%)	10.01				
CO (ppm)	10.7	N₂ (%)	80.0	MW (dry)	30.08 lb/lb mole
H₂O (%)	18.12	Ar (%)	1.0	MW (wet)	27.89 lb/lb mole

	Imperial	Metric
Average Velocity	54.84 ft/s	16.71 m/s
Average Temperature	271 °F	132.9 °C
Duct Cross-sectional Area	15.90 ft ²	1.48 m ²
Actual Volumetric Flow Rate	52327 cfm	24.7 m ³ /s
Dry Reference Volumetric Flow Rate	30373 cfm	14.3 Rm ³ /s
Wet Reference Volumetric Flow Rate	37093 cfm	17.5 Rm ³ /s

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Point	Velocity Pressure		Stack Temp.			Velocity	
	in. H ₂ O	Pa	°F	°C	K	ft/s	m/s
1	0.640	159	264	129	402	54.6	16.7
2	0.670	167	264	129	402	55.9	17.0
3	0.620	154	266	130	403	53.9	16.4
4	0.540	135	267	131	404	50.3	15.3
5	0.470	117	269	132	405	47.0	14.3
6	0.520	130	271	133	406	49.5	15.1
7	0.570	142	272	133	406	51.8	15.8
8	0.650	162	273	134	407	55.4	16.9
9	0.650	162	274	134	408	55.4	16.9
10	0.670	167	274	134	408	56.3	17.2
11	0.570	142	274	134	408	51.9	15.8
12	0.520	130	262	128	401	49.2	15.0
13	0.730	182	268	131	404	58.5	17.8
14	0.800	199	269	132	405	61.3	18.7
15	0.750	187	270	132	405	59.4	18.1
16	0.790	197	272	133	406	61.0	18.6
17	0.740	184	271	133	406	59.0	18.0
18	0.610	152	273	134	407	53.7	16.4
19	0.600	149	275	135	408	53.3	16.2
20	0.730	182	277	136	409	58.9	17.9
21	0.650	162	278	137	410	55.6	16.9
22	0.700	174	279	137	410	57.7	17.6
23	0.66	164	279	137	410	56.1	17.1
24	0.54	135	267	131	404	50.3	15.3

Alliance TG North

Velocity and Volume Flowrate Determination

Reworld

Project No.	AST-2025-2049	Pbar	29.56 in. Hg	100.1 kPa
Client	Reworld	Pstatic	-8.73 in. H ₂ O	-2.17 kPa
Location	Courtice, Ontario	Stack Diameter	4.500 ft	1.37 m
Test Location	APC outlet Unit 2	Stack Width	0.00 ft	0.00 m
Date	July 10, 2025	Stack Length	0.00 ft	0.00 m
Test Number	1	Stack Area	15.90 ft ²	1.478 m ²
Test Time	10.02-10.11	Pitot Coefficient	0.844	
Operator	DT	Number of Points	24	

O₂ (%)	9.49				
CO₂ (%)	9.89				
CO (ppm)	19.1	N₂ (%)	79.7	MW (dry)	30.08 lb/lb mole
H₂O (%)	15.12	Ar (%)	0.9	MW (wet)	28.25 lb/lb mole

	Imperial	Metric
Average Velocity	58.82 ft/s	17.93 m/s
Average Temperature	266 °F	129.8 °C
Duct Cross-sectional Area	15.90 ft ²	1.48 m ²
Actual Volumetric Flow Rate	56127 cfm	26.5 m ³ /s
Dry Reference Volumetric Flow Rate	34093 cfm	16.1 Rm ³ /s
Wet Reference Volumetric Flow Rate	40165 cfm	19.0 Rm ³ /s

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Point	Velocity Pressure		Stack Temp.			Velocity	
	in. H ₂ O	Pa	°F	°C	K	ft/s	m/s
1	0.770	192	265	129	403	59.5	18.1
2	0.900	224	265	129	403	64.4	19.6
3	0.900	224	265	129	403	64.4	19.6
4	0.750	187	265	129	403	58.8	17.9
5	0.770	192	265	129	403	59.5	18.1
6	0.670	167	265	129	403	55.5	16.9
7	0.730	182	265	129	403	58.0	17.7
8	0.770	192	265	129	403	59.5	18.1
9	0.800	199	265	129	403	60.7	18.5
10	0.830	207	265	129	403	61.8	18.8
11	0.730	182	265	129	403	58.0	17.7
12	0.700	174	265	129	403	56.8	17.3
13	0.800	199	263	128	401	60.6	18.5
14	0.830	207	263	128	401	61.7	18.8
15	0.860	214	265	129	403	62.9	19.2
16	0.800	199	265	129	403	60.7	18.5
17	0.680	169	265	129	403	55.9	17.1
18	0.600	149	265	129	403	52.6	16.0
19	0.650	162	266	130	403	54.7	16.7
20	0.690	172	268	131	404	56.5	17.2
21	0.730	182	269	132	405	58.1	17.7
22	0.760	189	270	132	405	59.4	18.1
23	0.70	174	270	132	405	57.0	17.4
24	0.65	162	265	129	403	54.7	16.7

Alliance TG North

Velocity and Volume Flowrate Determination

Reworld

Project No.	AST-2025-2049	Pbar	29.56 in. Hg	100.1 kPa
Client	Reworld	Pstatic	-8.73 in. H ₂ O	-2.17 kPa
Location	Courtice, Ontario	Stack Diameter	4.500 ft	1.37 m
Test Location	APC outlet Unit 2	Stack Width	0.00 ft	0.00 m
Date	July 10, 2025	Stack Length	0.00 ft	0.00 m
Test Number	2	Stack Area	15.90 ft ²	1.478 m ²
Test Time	11.58-12.05	Pitot Coefficient	0.844	
Operator	DT	Number of Points	24	

O₂ (%)	8.44				
CO₂ (%)	10.75				
CO (ppm)	14.8	N₂ (%)	79.9	MW (dry)	30.17 lb/lb mole
H₂O (%)	15.12	Ar (%)	1.0	MW (wet)	28.33 lb/lb mole

	Imperial	Metric
Average Velocity	58.03 ft/s	17.69 m/s
Average Temperature	269 °F	131.9 °C
Duct Cross-sectional Area	15.90 ft ²	1.48 m ²
Actual Volumetric Flow Rate	55372 cfm	26.1 m ³ /s
Dry Reference Volumetric Flow Rate	33460 cfm	15.8 Rm ³ /s
Wet Reference Volumetric Flow Rate	39419 cfm	18.6 Rm ³ /s

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Point	Velocity Pressure		Stack Temp.			Velocity	
	in. H ₂ O	Pa	°F	°C	K	ft/s	m/s
1	0.740	184	270	132	405	58.5	17.8
2	0.820	204	270	132	405	61.6	18.8
3	0.850	212	270	132	405	62.7	19.1
4	0.800	199	270	132	405	60.8	18.5
5	0.670	167	270	132	405	55.6	17.0
6	0.660	164	270	132	405	55.2	16.8
7	0.690	172	270	132	405	56.5	17.2
8	0.760	189	270	132	405	59.3	18.1
9	0.760	189	270	132	405	59.3	18.1
10	0.750	187	270	132	405	58.9	17.9
11	0.730	182	268	131	404	58.0	17.7
12	0.700	174	265	129	403	56.7	17.3
13	0.770	192	265	129	403	59.4	18.1
14	0.860	214	267	131	404	62.9	19.2
15	0.810	202	269	132	405	61.1	18.6
16	0.780	194	270	132	405	60.0	18.3
17	0.720	179	271	133	406	57.7	17.6
18	0.600	149	270	132	405	52.7	16.1
19	0.670	167	270	132	405	55.6	17.0
20	0.680	169	271	133	406	56.1	17.1
21	0.730	182	272	133	406	58.2	17.7
22	0.750	187	273	134	407	59.0	18.0
23	0.64	159	270	132	405	54.4	16.6
24	0.60	149	264	129	402	52.4	16.0

Alliance TG North

Velocity and Volume Flowrate Determination

Reworld

Project No.	AST-2025-2049	Pbar	29.56 in. Hg	100.1 kPa
Client	Reworld	Pstatic	-8.73 in. H ₂ O	-2.17 kPa
Location	Courtice, Ontario	Stack Diameter	4.500 ft	1.37 m
Test Location	APC outlet Unit 2	Stack Width	0.00 ft	0.00 m
Date	July 10, 2025	Stack Length	0.00 ft	0.00 m
Test Number	3	Stack Area	15.90 ft ²	1.478 m ²
Test Time	13.43-13.50	Pitot Coefficient	0.844	
Operator	DT	Number of Points	24	

O₂ (%)	8.74				
CO₂ (%)	10.36				
CO (ppm)	13.5	N₂ (%)	79.9	MW (dry)	30.12 lb/lb mole
H₂O (%)	15.12	Ar (%)	1.0	MW (wet)	28.29 lb/lb mole

	Imperial	Metric
Average Velocity	54.86 ft/s	16.72 m/s
Average Temperature	276 °F	135.3 °C
Duct Cross-sectional Area	15.90 ft ²	1.48 m ²
Actual Volumetric Flow Rate	52351 cfm	24.7 m ³ /s
Dry Reference Volumetric Flow Rate	31367 cfm	14.8 Rm ³ /s
Wet Reference Volumetric Flow Rate	36953 cfm	17.4 Rm ³ /s

Reference conditions: 25°C, 101.3 kPa (77°F, 29.92 in. Hg)

Point	Velocity Pressure		Stack Temp.			Velocity	
	in. H ₂ O	Pa	°F	°C	K	ft/s	m/s
1	0.690	172	277	136	409	56.8	17.3
2	0.710	177	278	137	410	57.6	17.6
3	0.730	182	278	137	410	58.4	17.8
4	0.770	192	279	137	410	60.1	18.3
5	0.620	154	279	137	410	53.9	16.4
6	0.590	147	280	138	411	52.6	16.0
7	0.650	162	280	138	411	55.2	16.8
8	0.630	157	280	138	411	54.4	16.6
9	0.720	179	280	138	411	58.1	17.7
10	0.680	169	280	138	411	56.5	17.2
11	0.660	164	280	138	411	55.6	17.0
12	0.620	154	270	132	405	53.6	16.3
13	0.660	164	268	131	404	55.2	16.8
14	0.720	179	269	132	405	57.7	17.6
15	0.710	177	269	132	405	57.3	17.5
16	0.740	184	269	132	405	58.5	17.8
17	0.580	144	271	133	406	51.8	15.8
18	0.490	122	273	134	407	47.7	14.5
19	0.560	139	275	135	408	51.1	15.6
20	0.570	142	277	136	409	51.6	15.7
21	0.620	154	278	137	410	53.9	16.4
22	0.650	162	278	137	410	55.2	16.8
23	0.60	149	278	137	410	53.0	16.2
24	0.56	139	268	131	404	50.8	15.5

Stack Gas Velocity and Volumetric Flow Rate Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test: 1
 Test Location: APC Outlet # 1
 Test Date: July 10/25
 Operator: J.T.

Measuring Devices	Device ID
Pitot Tube	INCONEL
Pitot Factor	.844
Manometer	DM-5
Temp meter	BOX 10
Barometer	Env Canada

Measured Parameters			
Barometric	29.56	Static	-9.44

Time	10:12 - 10:19			
Port	1		2	
Point	Delta P	Temp	Delta P	Temp
1	.69	260	.57	264
2	.72	262	.66	265
3	.68	264	.70	265
4	.60	264	.75	269
5	.56	268	.84	272
6	.55	270	.88	272
7	.58	271	.60	273
8	.63	272	.65	275
9	.62	274	.63	277
10	.68	275	.69	277
11	.62	274	.62	272
12	.60	273	.60	270

All flows Temp in °F, Delta P in inches H₂O

O₂ - 8.95
 CO₂ - 10.27
 CO - 6.15

Stack Gas Velocity and Volumetric Flow Rate Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : 2
 Test Location: APC Outlet # 1
 Test Date: July 10/25
 Operator: BT

Measuring Devices	Device ID
Pitot Tube	INCONEL
Pitot Factor	.844
Manometer	BM-5
Temp meter	Box 10
Barometer	Env Canada

Measured Parameters			
Barometric	29.56	Static	-9.44

Time	12:07 - 12:13			
Port	1		2	
Point	Delta P	Temp	Delta P	Temp
1	.66	265	.64	264
2	.75	268	.66	266
3	.73	270	.67	268
4	.59	270	.73	269
5	.52	270	.84	273
6	.51	270	.52	276
7	.54	273	.54	278
8	.59	273	.62	279
9	.65	275	.60	280
10	.61	276	.58	280
11	.56	278	.59	280
12	.54	270	.54	275

All flows Temp in °F, Delta P in inches H₂O

O₂ - 8.41
 CO₂ - 10.61
 CO - 5.89

Stack Gas Velocity and Volumetric Flow Rate Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : 3
 Test Location: APC Outlet # 1
 Test Date: July 10/25
 Operator: JF

Measuring Devices	Device ID
Pitot Tube	see
Pitot Factor	
Manometer	test
Temp meter	#1
Barometer	Env Canada

Measured Parameters			
Barometric	29.56	Static	9.44

Time	13:34 - 13:40			
Port	1		2	
Point	Delta P	Temp	Delta P	Temp
1	.64	264	.73	268
2	.67	264	.80	269
3	.62	266	.75	270
4	.54	267	.79	272
5	.47	269	.74	271
6	.52	271	.61	273
7	.57	272	.60	275
8	.65	273	.73	277
9	.65	274	.65	278
10	.67	274	.70	279
11	.57	274	.65	279
12	.52	272	.54	277

All flows Temp in °F, Delta P in inches H₂O

O₂ - 9.06
 CO₂ - 10.01
 CO - 10.67

Moisture Train Recovery Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : /
 Test Location: APC Outlet # 1
 Test Date: July 10/25
 Operator: DT
 DGM ID: Box 10
 DGMCF: 1.012

Volume of Stack Gas Sampled				
Time	Dry Gas Meter Volume	Meter Temperature		Meter Pressure
		Inlet	Outlet	"H ₂ O
On: 12:15	93.30	92	92	1.4
Off: 12:50	118.63	108	108	1.4
Total:	25.33	Average:	100	1.4

VAC

1
2

Initial Leak Check: .05 @ 15
 Final Leak Check: .05 @ 15

Impinger	Initial Weight (g)	Final Weight (g)	Gain (g)
1	674.5	762.5	88.0
2	751.0	764.8	13.8
3	570.0	570.0	0
Silica Gel	968.6	779.2	10.6
Total (g):			112.4

Stack Gas Velocity and Volumetric Flow Rate Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : 1
 Test Location: APC Outlet # 2
 Test Date: July 10/25
 Operator: DT

Measuring Devices	Device ID
Pitot Tube	INCONEL
Pitot Factor	.844
Manometer	#4 DM-5
Temp meter	Box 10
Barometer	Env Canada

Measured Parameters			
Barometric	29.56	Static	-8.73

Time	10:02 ~ 10:11			
Port	1			
Point	Delta P	Temp	Delta P	Temp
1	.77	265	.80	263
2	.90	265	.83	263
3	.90	265	.86	265
4	.75	265	.80	265
5	.77	265	.68	265
6	.67	265	.60	265
7	.73	265	.65	266
8	.77	265	.69	268
9	.80	265	.73	269
10	.83	265	.76	270
11	.73	265	.70	270
12	.70	265	.65	265

All flows Temp in °F, Delta P in inches H₂O

O₂ - 9.49
 CO₂ - 9.89
 CO - 19.06

Stack Gas Velocity and Volumetric Flow Rate Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : 2
 Test Location: APC Outlet # 2
 Test Date: 10/25
 Operator: ST

Measuring Devices	Device ID
Pitot Tube	12 CORREL
Pitot Factor	1.844
Manometer	8m-5
Temp meter	BOX 10
Barometer	Env Canada

Measured Parameters			
Barometric	29.56	Static	-8.73

Time	11:58 - 12:05			
Port Point	1		2	
	Delta P	Temp	Delta P	Temp
1	.74	270	.77	265
2	.82	270	.86	267
3	.85	270	.81	269
4	.80	270	.78	270
5	.67	270	.72	271
6	.68	270	.60	270
7	.69	270	.67	270
8	.76	270	.68	271
9	.76	270	.73	272
10	.75	270	.75	273
11	.73	268	.64	270
12	.70	265	.60	264

All flows Temp in °F, Delta P in inches H₂O

O₂ - 8.44
 CO₂ - 10.75
 CO - 14.79.

Stack Gas Velocity and Volumetric Flow Rate Data Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : 3
 Test Location: APC Outlet # 2
 Test Date: July 10/25
 Operator: AT

Measuring Devices	Device ID
Pitot Tube	522
Pitot Factor	
Manometer	Test #1
Temp meter	
Barometer	Env Canada

Measured Parameters			
Barometric	29.56	Static	-8.73

Time	13:43 - 13:50			
Port	1		2	
Point	Delta P	Temp	Delta P	Temp
1	.69	277	.66	268
2	.71	278	.72	269
3	.73	278	.71	269
4	.77	279	.74	269
5	.62	279	.58	271
6	.59	280	.49	273
7	.65	280	.56	275
8	.63	280	.57	277
9	.72	280	.62	278
10	.68	280	.65	278
11	.66	280	.60	278
12	.62	270	.56	268

All flows Temp in °F, Delta P in inches H₂O

O₂ - 8.74
 CO₂ - 10.36
 CO - 13.51

Moisture Train Recovery Sheet

Client: Reworld
 Project No.: AST-2025-2049
 Test : 1
 Test Location: APC Outlet # 2
 Test Date: July 10/25
 Operator: AS

DGM ID: Box 10
 DGMCF: 1.012

Volume of Stack Gas Sampled				
Time	Dry Gas Meter Volume	Meter Temperature		Meter Pressure
		Inlet	Outlet	"H ₂ O
On: 10:22	69.87	79	79	1.4
Off: 11:00	93.06	102	102	1.4
Total:	27.19	Average:	90.5	1.4

VAC

1

1

1

Initial Leak Check: .03 @ 20
 Final Leak Check: .04 @ 15

Impinger	Initial Weight (g)	Final Weight (g)	Gain (g)
1	720.0	771.0	51.0
2	715.7	739.7	24.0
3	497.0	502.0	5.0
Silica Gel	927.2	946.0	18.8
Total (g):			98.8

APPENDIX 27

Total Hydrocarbon CEM Data (12 pages)

Run 1 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: APC Outlet No. 1
Project No.: AST-2025-2049
Date: 5-12-25

Time Unit Status	THC - Outlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	1.20	1.08
MIN	0.00	0.31
MAX	5.24	2.88
Standard Deviation	1.02	0.71
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.13	NA
Posttest System Zero Response	0.25	NA
Average Zero Response (C_0)	0.19	NA
Pretest System Cal Response	21.93	NA
Posttest System Cal Response	22.40	NA
Average Cal Response (C_M)	22.17	NA
10:55	1.85	
10:56	2.08	
10:57	5.24	
10:58	4.37	
10:59	2.81	
11:00	2.37	
11:01	2.78	
11:02	2.23	
11:03	3.00	
11:04	2.09	2.88
11:05	1.69	2.87
11:06	1.46	2.80
11:07	1.47	2.43
11:08	1.34	2.12
11:09	2.05	2.05
11:10	1.58	1.97
11:11	1.18	1.81
11:12	1.34	1.72
11:13	2.28	1.65
11:14	1.92	1.63
11:15	1.42	1.60
11:16	1.35	1.59
11:17	0.76	1.52
11:18	0.43	1.43
11:19	0.78	1.30
11:20	1.25	1.27
11:21	0.62	1.22
11:22	0.29	1.11
11:23	0.79	0.96
11:24	1.62	0.93
11:25	1.31	0.92
11:26	1.02	0.89
11:27	1.03	0.91
11:28	1.82	1.05
11:29	1.43	1.12
11:30	1.02	1.10
11:31	0.84	1.12
11:32	0.53	1.14
11:33	0.48	1.11
11:34	0.24	0.97
11:35	0.23	0.86
11:36	0.12	0.77
11:37	0.05	0.68
11:38	0.12	0.51
11:39	0.18	0.38
11:40	0.90	0.37
11:41	0.55	0.34
11:42	0.35	0.32
11:43	0.37	0.31
11:44	0.66	0.35
11:45	0.38	0.37
11:46	0.05	0.36
11:47	0.00	0.36
11:48	0.00	0.34
11:49	0.00	0.33
11:50	0.70	0.31
11:51	0.74	0.33
11:52	1.47	0.44
11:53	0.79	0.48
11:54	0.64	0.48
11:55	0.49	0.49

Run 2 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: APC Outlet No. 1
Project No.: AST-2025-2049
Date: 5-12-25

Time Unit Status	THC - Outlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.84	0.68
MIN	0.00	0.20
MAX	7.70	1.97
Standard Deviation	1.38	0.36
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.25	NA
Posttest System Zero Response	0.00	NA
Average Zero Response (C_0)	0.13	NA
Pretest System Cal Response	22.40	NA
Posttest System Cal Response	22.41	NA
Average Cal Response (C_M)	22.41	NA
12:25	1.82	
12:26	0.85	
12:27	0.46	
12:28	0.00	
12:29	0.00	
12:30	0.00	
12:31	0.00	
12:32	0.91	
12:33	2.87	
12:34	1.28	0.82
12:35	0.77	0.71
12:36	0.55	0.68
12:37	0.37	0.68
12:38	0.44	0.72
12:39	0.42	0.76
12:40	0.41	0.80
12:41	2.82	1.08
12:42	1.62	1.16
12:43	0.92	0.96
12:44	0.58	0.89
12:45	0.47	0.86
12:46	0.34	0.84
12:47	0.31	0.83
12:48	1.72	0.96
12:49	1.75	1.09
12:50	0.00	1.05
12:51	0.00	0.77
12:52	0.00	0.61
12:53	0.00	0.52
12:54	0.00	0.46
12:55	0.00	0.41
12:56	0.84	0.46
12:57	0.78	0.51
12:58	0.33	0.37
12:59	0.04	0.20
13:00	0.00	0.20
13:01	0.10	0.21
13:02	1.17	0.33
13:03	0.76	0.40
13:04	0.41	0.44
13:05	0.31	0.47
13:06	0.15	0.41
13:07	0.16	0.34
13:08	0.05	0.32
13:09	1.51	0.46
13:10	1.36	0.60
13:11	0.81	0.67
13:12	0.42	0.59
13:13	0.26	0.54
13:14	0.11	0.51
13:15	0.51	0.53
13:16	1.16	0.64
13:17	0.76	0.70
13:18	0.29	0.72
13:19	0.08	0.58
13:20	0.00	0.44
13:21	0.03	0.36
13:22	2.06	0.53
13:23	6.89	1.19
13:24	7.70	1.95
13:25	0.76	1.97

Run 3 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: APC Outlet No. 1
Project No.: AST-2025-2049
Date: 5-12-25

Time Unit Status	THC - Outlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.69	0.74
MIN	0.00	0.00
MAX	4.79	1.43
Standard Deviation	1.08	0.43
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.00	NA
Posttest System Zero Response	0.00	NA
Average Zero Response (C_0)	0.00	NA
Pretest System Cal Response	22.41	NA
Posttest System Cal Response	22.83	NA
Average Cal Response (C_M)	22.62	NA
13:50	0.28	
13:51	0.30	
13:52	0.38	
13:53	0.60	
13:54	0.79	
13:55	0.76	
13:56	0.63	
13:57	0.59	
13:58	0.58	
13:59	0.53	0.54
14:00	0.59	0.58
14:01	0.60	0.61
14:02	0.60	0.63
14:03	0.61	0.63
14:04	0.57	0.61
14:05	2.26	0.76
14:06	4.79	1.17
14:07	1.96	1.31
14:08	1.24	1.38
14:09	0.90	1.41
14:10	0.76	1.43
14:11	0.63	1.43
14:12	0.47	1.42
14:13	0.41	1.40
14:14	0.48	1.39
14:15	0.41	1.21
14:16	0.40	0.77
14:17	3.94	0.96
14:18	4.05	1.25
14:19	1.16	1.27
14:20	0.24	1.22
14:21	0.00	1.16
14:22	0.00	1.11
14:23	0.00	1.07
14:24	0.00	1.02
14:25	0.00	0.98
14:26	0.00	0.94
14:27	0.00	0.55
14:28	0.00	0.14
14:29	0.00	0.02
14:30	2.21	0.22
14:31	3.12	0.53
14:32	0.00	0.53
14:33	0.00	0.53
14:34	0.00	0.53
14:35	0.00	0.53
14:36	0.00	0.53
14:37	0.00	0.53
14:38	0.00	0.53
14:39	0.00	0.53
14:40	0.00	0.31
14:41	0.00	0.00
14:42	0.00	0.00
14:43	0.20	0.02
14:44	3.12	0.33
14:45	0.85	0.42
14:46	0.15	0.43
14:47	0.00	0.43
14:48	0.00	0.43
14:49	0.00	0.43
14:50	0.00	0.43

Run 1 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: No. 1 Quench Inlet
Project No.: AST-2025-2049
Date: 5-12-25

Time Unit Status	THC - Inlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.65	0.68
MIN	0.00	0.00
MAX	7.86	2.10
Standard Deviation	1.24	0.76
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.00	NA
Posttest System Zero Response	0.08	NA
Average Zero Response (C_0)	0.04	NA
Pretest System Cal Response	21.83	NA
Posttest System Cal Response	21.82	NA
Average Cal Response (C_M)	21.83	NA
10:55	0.94	
10:56	0.92	
10:57	0.83	
10:58	0.73	
10:59	0.74	
11:00	0.89	
11:01	1.10	
11:02	1.43	
11:03	1.51	
11:04	2.09	1.12
11:05	2.66	1.29
11:06	2.07	1.41
11:07	0.73	1.40
11:08	0.77	1.40
11:09	0.79	1.40
11:10	7.86	2.10
11:11	0.90	2.08
11:12	0.52	1.99
11:13	0.40	1.88
11:14	1.51	1.82
11:15	4.42	2.00
11:16	0.37	1.83
11:17	0.18	1.77
11:18	0.60	1.76
11:19	0.39	1.72
11:20	0.35	0.96
11:21	0.74	0.95
11:22	1.77	1.07
11:23	0.94	1.13
11:24	0.37	1.01
11:25	0.00	0.57
11:26	0.00	0.53
11:27	0.00	0.52
11:28	0.00	0.46
11:29	0.00	0.42
11:30	0.00	0.38
11:31	0.00	0.31
11:32	0.00	0.13
11:33	0.00	0.04
11:34	0.00	0.00
11:35	0.00	0.00
11:36	0.00	0.00
11:37	0.00	0.00
11:38	0.00	0.00
11:39	0.00	0.00
11:40	0.00	0.00
11:41	0.00	0.00
11:42	0.00	0.00
11:43	0.00	0.00
11:44	0.00	0.00
11:45	0.00	0.00
11:46	0.00	0.00
11:47	0.00	0.00
11:48	0.00	0.00
11:49	0.00	0.00
11:50	0.00	0.00
11:51	0.00	0.00
11:52	0.00	0.00
11:53	0.00	0.00
11:54	0.00	0.00
11:55	0.00	0.00

Run 2 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: No. 1 Quench Inlet
Project No.: AST-2025-2049
Date: 5-12-25

Time Unit Status	THC - Inlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	1.33	1.37
MIN	0.00	0.00
MAX	24.23	5.09
Standard Deviation	3.88	1.47
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.08	NA
Posttest System Zero Response	0.31	NA
Average Zero Response (C_0)	0.20	NA
Pretest System Cal Response	21.82	NA
Posttest System Cal Response	22.48	NA
Average Cal Response (C_M)	22.15	NA
12:25	0.00	
12:26	0.27	
12:27	0.29	
12:28	0.31	
12:29	0.41	
12:30	0.57	
12:31	0.52	
12:32	0.43	
12:33	0.46	
12:34	0.53	0.38
12:35	0.58	0.44
12:36	0.58	0.47
12:37	0.54	0.49
12:38	0.76	0.54
12:39	0.91	0.59
12:40	0.84	0.62
12:41	0.73	0.64
12:42	0.99	0.69
12:43	1.35	0.78
12:44	1.42	0.87
12:45	0.70	0.88
12:46	1.29	0.95
12:47	2.10	1.11
12:48	0.74	1.11
12:49	0.00	1.02
12:50	0.26	0.96
12:51	0.45	0.93
12:52	1.00	0.93
12:53	1.31	0.93
12:54	1.18	0.90
12:55	1.28	0.96
12:56	0.11	0.84
12:57	0.59	0.69
12:58	2.46	0.86
12:59	2.32	1.10
13:00	1.32	1.20
13:01	0.47	1.20
13:02	0.00	1.10
13:03	0.00	0.97
13:04	0.00	0.86
13:05	0.00	0.73
13:06	0.00	0.72
13:07	0.00	0.66
13:08	0.00	0.41
13:09	0.00	0.18
13:10	0.00	0.05
13:11	0.00	0.00
13:12	0.46	0.05
13:13	0.15	0.06
13:14	0.02	0.06
13:15	19.00	1.96
13:16	4.62	2.43
13:17	0.00	2.43
13:18	0.00	2.43
13:19	24.23	4.85
13:20	2.41	5.09
13:21	0.00	5.09
13:22	0.00	5.04
13:23	0.00	5.03
13:24	0.00	5.03
13:25	0.00	3.13

Run 3 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: No. 1 Quench Inlet
Project No.: AST-2025-2049
Date: 5-12-25

Time Unit Status	THC - Inlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.03	0.02
MIN	0.00	0.00
MAX	0.35	0.20
Standard Deviation	0.09	0.04
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.31	NA
Posttest System Zero Response	0.23	NA
Average Zero Response (C_0)	0.27	NA
Pretest System Cal Response	22.48	NA
Posttest System Cal Response	22.37	NA
Average Cal Response (C_M)	22.43	NA
13:50	0.32	
13:51	0.26	
13:52	0.27	
13:53	0.25	
13:54	0.26	
13:55	0.35	
13:56	0.27	
13:57	0.00	
13:58	0.00	
13:59	0.00	0.20
14:00	0.00	0.17
14:01	0.00	0.14
14:02	0.00	0.11
14:03	0.00	0.09
14:04	0.00	0.06
14:05	0.00	0.03
14:06	0.00	0.00
14:07	0.00	0.00
14:08	0.00	0.00
14:09	0.00	0.00
14:10	0.00	0.00
14:11	0.00	0.00
14:12	0.00	0.00
14:13	0.00	0.00
14:14	0.00	0.00
14:15	0.00	0.00
14:16	0.00	0.00
14:17	0.00	0.00
14:18	0.00	0.00
14:19	0.00	0.00
14:20	0.00	0.00
14:21	0.00	0.00
14:22	0.00	0.00
14:23	0.00	0.00
14:24	0.00	0.00
14:25	0.00	0.00
14:26	0.00	0.00
14:27	0.00	0.00
14:28	0.00	0.00
14:29	0.00	0.00
14:30	0.00	0.00
14:31	0.00	0.00
14:32	0.00	0.00
14:33	0.00	0.00
14:34	0.00	0.00
14:35	0.00	0.00
14:36	0.00	0.00
14:37	0.05	0.01
14:38	0.02	0.01
14:39	0.00	0.01
14:40	0.00	0.01
14:41	0.00	0.01
14:42	0.00	0.01
14:43	0.00	0.01
14:44	0.00	0.01
14:45	0.00	0.01
14:46	0.00	0.01
14:47	0.01	0.00
14:48	0.03	0.00
14:49	0.00	0.00
14:50	0.00	0.00

Run 1 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: APC Outlet No. 2
Project No.: AST-2025-2049
Date: 5-13-25

Time Unit Status	THC - Outlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.69	0.69
MIN	0.00	0.01
MAX	4.00	1.75
Standard Deviation	0.88	0.55
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.05	NA
Posttest System Zero Response	0.01	NA
Average Zero Response (C_0)	0.03	NA
Pretest System Cal Response	21.97	NA
Posttest System Cal Response	22.60	NA
Average Cal Response (C_M)	22.29	NA
8:05	0.88	
8:06	0.73	
8:07	0.81	
8:08	0.83	
8:09	0.73	
8:10	0.77	
8:11	0.78	
8:12	0.78	
8:13	2.60	
8:14	4.00	1.29
8:15	1.87	1.39
8:16	1.26	1.44
8:17	0.98	1.46
8:18	0.86	1.46
8:19	0.78	1.47
8:20	0.84	1.48
8:21	0.83	1.48
8:22	3.45	1.75
8:23	2.12	1.70
8:24	1.31	1.43
8:25	0.99	1.34
8:26	0.76	1.29
8:27	0.68	1.26
8:28	0.66	1.24
8:29	0.96	1.26
8:30	1.86	1.36
8:31	0.00	1.28
8:32	0.00	0.93
8:33	0.00	0.72
8:34	0.00	0.59
8:35	0.00	0.49
8:36	0.00	0.42
8:37	0.00	0.35
8:38	0.00	0.28
8:39	0.00	0.19
8:40	1.43	0.14
8:41	2.12	0.36
8:42	0.41	0.40
8:43	0.00	0.40
8:44	0.00	0.40
8:45	0.00	0.40
8:46	0.00	0.40
8:47	0.00	0.40
8:48	0.00	0.40
8:49	0.00	0.40
8:50	2.01	0.45
8:51	0.36	0.28
8:52	0.00	0.24
8:53	0.00	0.24
8:54	0.00	0.24
8:55	0.00	0.24
8:56	0.00	0.24
8:57	0.00	0.24
8:58	0.00	0.24
8:59	0.00	0.24
9:00	0.00	0.04
9:01	0.07	0.01
9:02	0.02	0.01
9:03	0.00	0.01
9:04	1.01	0.11
9:05	1.58	0.27

Run 2 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: APC Outlet No. 2
Project No.: AST-2025-2049
Date: 5-13-25

Time Unit Status	THC - Outlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.38	0.38
MIN	0.00	0.03
MAX	2.16	0.52
Standard Deviation	0.60	0.12
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.01	NA
Posttest System Zero Response	0.13	NA
Average Zero Response (C_0)	0.07	NA
Pretest System Cal Response	22.60	NA
Posttest System Cal Response	22.87	NA
Average Cal Response (C_M)	22.74	NA
9:20	0.86	
9:21	0.26	
9:22	0.00	
9:23	0.00	
9:24	0.03	
9:25	0.00	
9:26	0.00	
9:27	0.08	
9:28	0.11	
9:29	1.14	0.25
9:30	2.16	0.38
9:31	0.90	0.44
9:32	0.41	0.48
9:33	0.18	0.50
9:34	0.06	0.50
9:35	0.03	0.51
9:36	0.02	0.51
9:37	0.03	0.50
9:38	0.03	0.50
9:39	0.04	0.39
9:40	0.04	0.17
9:41	1.41	0.23
9:42	2.15	0.40
9:43	0.89	0.47
9:44	0.44	0.51
9:45	0.18	0.52
9:46	0.01	0.52
9:47	0.00	0.52
9:48	0.00	0.52
9:49	0.00	0.51
9:50	0.00	0.51
9:51	0.00	0.37
9:52	1.33	0.29
9:53	1.79	0.38
9:54	0.74	0.41
9:55	0.33	0.42
9:56	0.15	0.43
9:57	0.05	0.44
9:58	0.01	0.44
9:59	0.00	0.44
10:00	0.00	0.44
10:01	0.00	0.44
10:02	0.00	0.31
10:03	0.46	0.17
10:04	1.85	0.29
10:05	0.74	0.33
10:06	0.28	0.34
10:07	0.04	0.34
10:08	0.01	0.34
10:09	0.00	0.34
10:10	0.00	0.34
10:11	0.00	0.34
10:12	0.00	0.34
10:13	0.00	0.29
10:14	0.00	0.11
10:15	0.00	0.03
10:16	1.27	0.13
10:17	1.64	0.29
10:18	0.62	0.35
10:19	0.28	0.38
10:20	0.08	0.39

Run 3 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: APC Outlet No. 2
Project No.: AST-2025-2049
Date: 5-13-25

Time Unit Status	THC - Outlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.93	0.98
MIN	0.46	0.54
MAX	2.82	1.11
Standard Deviation	0.57	0.09
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.13	NA
Posttest System Zero Response	0.00	NA
Average Zero Response (C_0)	0.07	NA
Pretest System Cal Response	22.87	NA
Posttest System Cal Response	22.71	NA
Average Cal Response (C_M)	22.79	NA
10:40	0.51	
10:41	0.46	
10:42	0.48	
10:43	0.56	
10:44	0.62	
10:45	0.54	
10:46	0.50	
10:47	0.57	
10:48	0.61	
10:49	0.57	0.54
10:50	2.31	0.72
10:51	1.89	0.87
10:52	1.13	0.93
10:53	0.86	0.96
10:54	0.70	0.97
10:55	0.64	0.98
10:56	0.65	0.99
10:57	0.62	1.00
10:58	0.69	1.01
10:59	0.97	1.05
11:00	2.72	1.09
11:01	1.45	1.04
11:02	1.01	1.03
11:03	0.79	1.02
11:04	0.67	1.02
11:05	0.61	1.02
11:06	0.61	1.01
11:07	0.57	1.01
11:08	0.55	1.00
11:09	0.57	0.96
11:10	0.59	0.74
11:11	2.82	0.88
11:12	1.88	0.97
11:13	1.19	1.01
11:14	0.83	1.02
11:15	0.71	1.03
11:16	0.67	1.04
11:17	0.62	1.04
11:18	0.59	1.05
11:19	0.61	1.05
11:20	1.21	1.11
11:21	2.49	1.08
11:22	1.38	1.03
11:23	0.94	1.01
11:24	0.78	1.00
11:25	0.67	1.00
11:26	0.63	0.99
11:27	0.63	0.99
11:28	0.61	1.00
11:29	0.57	0.99
11:30	1.61	1.03
11:31	2.13	1.00
11:32	1.28	0.99
11:33	0.90	0.98
11:34	0.72	0.98
11:35	0.68	0.98
11:36	0.65	0.98
11:37	0.73	0.99
11:38	0.68	1.00
11:39	0.65	1.00
11:40	0.61	0.90

Run 1 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: No. 2 Quench Inlet
Project No.: AST-2025-2049
Date: 5-13-25

Time Unit Status	THC - Inlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.47	0.48
MIN	0.31	0.41
MAX	0.62	0.58
Standard Deviation	0.07	0.05
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.05	NA
Posttest System Zero Response	0.10	NA
Average Zero Response (C_0)	0.08	NA
Pretest System Cal Response	21.69	NA
Posttest System Cal Response	22.19	NA
Average Cal Response (C_M)	21.94	NA
8:05	0.43	
8:06	0.35	
8:07	0.31	
8:08	0.36	
8:09	0.39	
8:10	0.42	
8:11	0.40	
8:12	0.49	
8:13	0.50	
8:14	0.49	0.41
8:15	0.52	0.42
8:16	0.45	0.43
8:17	0.47	0.45
8:18	0.46	0.46
8:19	0.44	0.46
8:20	0.48	0.47
8:21	0.54	0.48
8:22	0.52	0.49
8:23	0.46	0.48
8:24	0.44	0.48
8:25	0.42	0.47
8:26	0.39	0.46
8:27	0.40	0.46
8:28	0.37	0.45
8:29	0.42	0.44
8:30	0.42	0.44
8:31	0.42	0.43
8:32	0.50	0.42
8:33	0.48	0.43
8:34	0.47	0.43
8:35	0.53	0.44
8:36	0.47	0.45
8:37	0.53	0.46
8:38	0.57	0.48
8:39	0.52	0.49
8:40	0.58	0.51
8:41	0.59	0.52
8:42	0.60	0.53
8:43	0.60	0.55
8:44	0.62	0.56
8:45	0.55	0.56
8:46	0.54	0.57
8:47	0.55	0.57
8:48	0.62	0.58
8:49	0.51	0.58
8:50	0.47	0.57
8:51	0.46	0.55
8:52	0.49	0.54
8:53	0.49	0.53
8:54	0.45	0.51
8:55	0.42	0.50
8:56	0.47	0.49
8:57	0.40	0.48
8:58	0.36	0.45
8:59	0.39	0.44
9:00	0.46	0.44
9:01	0.45	0.44
9:02	0.41	0.43
9:03	0.39	0.42
9:04	0.38	0.41
9:05	0.45	0.42

Run 2 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: No. 2 Quench Inlet
Project No.: AST-2025-2049
Date: 5-13-25

Time Unit Status	THC - Inlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.00	0.00
MIN	0.00	0.00
MAX	0.00	0.00
Standard Deviation	0.00	0.00
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.10	NA
Posttest System Zero Response	0.00	NA
Average Zero Response (C_0)	0.05	NA
Pretest System Cal Response	22.19	NA
Posttest System Cal Response	21.86	NA
Average Cal Response (C_M)	22.03	NA
9:20	0.00	
9:21	0.00	
9:22	0.00	
9:23	0.00	
9:24	0.00	
9:25	0.00	
9:26	0.00	
9:27	0.00	
9:28	0.00	
9:29	0.00	0.00
9:30	0.00	0.00
9:31	0.00	0.00
9:32	0.00	0.00
9:33	0.00	0.00
9:34	0.00	0.00
9:35	0.00	0.00
9:36	0.00	0.00
9:37	0.00	0.00
9:38	0.00	0.00
9:39	0.00	0.00
9:40	0.00	0.00
9:41	0.00	0.00
9:42	0.00	0.00
9:43	0.00	0.00
9:44	0.00	0.00
9:45	0.00	0.00
9:46	0.00	0.00
9:47	0.00	0.00
9:48	0.00	0.00
9:49	0.00	0.00
9:50	0.00	0.00
9:51	0.00	0.00
9:52	0.00	0.00
9:53	0.00	0.00
9:54	0.00	0.00
9:55	0.00	0.00
9:56	0.00	0.00
9:57	0.00	0.00
9:58	0.00	0.00
9:59	0.00	0.00
10:00	0.00	0.00
10:01	0.00	0.00
10:02	0.00	0.00
10:03	0.00	0.00
10:04	0.00	0.00
10:05	0.00	0.00
10:06	0.00	0.00
10:07	0.00	0.00
10:08	0.00	0.00
10:09	0.00	0.00
10:10	0.00	0.00
10:11	0.00	0.00
10:12	0.00	0.00
10:13	0.00	0.00
10:14	0.00	0.00
10:15	0.00	0.00
10:16	0.00	0.00
10:17	0.00	0.00
10:18	0.00	0.00
10:19	0.00	0.00
10:20	0.00	0.00

Run 3 - RM Data

Location: Reworld Durham York Renewable Energy L.P - Courtice, ON
Source: No. 2 Quench Inlet
Project No.: AST-2025-2049
Date: 5-13-25

Time Unit Status	THC - Inlet ppmvw Valid	THC - 10 min ppmvw Valid
Run Average (C_{obs})	0.02	0.01
MIN	0.00	0.00
MAX	0.24	0.14
Standard Deviation	0.06	0.03
Cal Gas Concentration (C_{MA})	22.35	NA
Pretest System Zero Response	0.00	NA
Posttest System Zero Response	0.11	NA
Average Zero Response (C_0)	0.06	NA
Pretest System Cal Response	21.86	NA
Posttest System Cal Response	22.18	NA
Average Cal Response (C_M)	22.02	NA
10:40	0.00	
10:41	0.00	
10:42	0.00	
10:43	0.00	
10:44	0.00	
10:45	0.00	
10:46	0.00	
10:47	0.00	
10:48	0.00	
10:49	0.00	0.00
10:50	0.00	0.00
10:51	0.00	0.00
10:52	0.00	0.00
10:53	0.00	0.00
10:54	0.00	0.00
10:55	0.00	0.00
10:56	0.00	0.00
10:57	0.00	0.00
10:58	0.00	0.00
10:59	0.00	0.00
11:00	0.00	0.00
11:01	0.00	0.00
11:02	0.00	0.00
11:03	0.00	0.00
11:04	0.00	0.00
11:05	0.00	0.00
11:06	0.00	0.00
11:07	0.00	0.00
11:08	0.00	0.00
11:09	0.00	0.00
11:10	0.00	0.00
11:11	0.00	0.00
11:12	0.00	0.00
11:13	0.00	0.00
11:14	0.00	0.00
11:15	0.00	0.00
11:16	0.00	0.00
11:17	0.00	0.00
11:18	0.00	0.00
11:19	0.00	0.00
11:20	0.00	0.00
11:21	0.00	0.00
11:22	0.00	0.00
11:23	0.00	0.00
11:24	0.00	0.00
11:25	0.00	0.00
11:26	0.00	0.00
11:27	0.00	0.00
11:28	0.00	0.00
11:29	0.00	0.00
11:30	0.00	0.00
11:31	0.00	0.00
11:32	0.00	0.00
11:33	0.15	0.02
11:34	0.07	0.02
11:35	0.17	0.04
11:36	0.24	0.06
11:37	0.17	0.08
11:38	0.21	0.10
11:39	0.17	0.12
11:40	0.17	0.14

APPENDIX 28

Dispersion Modelling Results for the May/July 2025 Testing Program (16 pages)



TECHNICAL MEMORANDUM

DATE August 14, 2025

Project No. CA0056180.9447

TO Supreet Kaur
Reworld Durham York Renewable Energy LP

CC Mano Narayanan

FROM Zachary Oldham

EMAIL zachary.oldham@wsp.com

CALPUFF MODELLING FOR MAY 2025 COMPLIANCE SOURCE TESTING AT DURHAM YORK ENERGY CENTRE

1.0 INTRODUCTION

Reworld Durham York Renewable Energy LP (Reworld) operates the Durham York Energy Centre (DYEC) under the multi-media Environmental Compliance Approval (ECA) 7306-8FDKNX, as amended.

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 May 2025 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 in April 2023.

2.0 EMISSION RATES

Compliance source testing was completed by Alliance Technical Group in May 2025 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. Additionally, all the particulate source testing results (Total PM, PM₁₀, and PM_{2.5}) were below the detection limit, due to the lower detection limit for total filterable particulate Matter compared to PM₁₀ and PM_{2.5}. Therefore, the calculated total particulate matter emission rates are lower than the respective PM₁₀ and PM_{2.5} emission rates. Particulate emissions were modelled using the full detection limit.

3.0 MODELLING

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. 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 granted in December 2021.

In response to the MECP request in 2020, the CALPUFF modelling software and CALMET meteorological data was 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 and 2023, several 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, NO₂ and SO₂ into HNO₃, NO₃ and SO₄, CALPUFFs RIVAD/ARM3 mechanism was used. Monthly background ozone concentrations are required to generate SPM as well as setting the MCHM 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 NO₂ and SO₂ 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 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 <i>* NB: Value of "1" reported in ESDM Report but value of "0" actually used in ESDM Report modelling</i>
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)

Flag	Value used in 2011 ESDM Report	Value Used in this Assessment	Comments
MWET	0	0	Wet removal modelled 0 = NO; 1 = Yes
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 = 1 or 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)	53.55 (UPDATED)	23.59 (UPDATED)	412.2 (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 $\mu\text{g}/\text{m}^3$ 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 [$\mu\text{g}/\text{m}^3$ per g/s]	45.03	32.75	27.29	1.24	0.17	0.06
Dispersion Factor with meteorological anomaly removal [$\mu\text{g}/\text{m}^3$ per g/s]	17.41	12.66	10.55	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 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. The modelled POI concentrations were compared to the ACB List and in the case of PM_{2.5} and PM₁₀, the Ontario Ambient Air Quality Criteria (AAQC).

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 May 2025 source testing. A summary of the changes made to the modelling are provided in Table 5, below.

Table 5: ECA Concordance Table

Modelling Inputs	Changes from 2011 ESDM Report
Emission Rates	Updated to use May 2025 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

Modelling Inputs	Changes from 2011 ESDM Report
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 and 2023, 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 LIMITATIONS

WSP Canada Inc. prepared this report solely for the use of the intended recipient, Reworld Durham York Renewable Energy LP, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to WSP Canada Inc. at the time of preparation. The information, recommendations and opinions expressed in this report are for the sole benefit of Reworld Durham York Renewable Energy LP, subject to the limitations and purposes described herein.

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9.0 CLOSURE

We trust this memorandum meets your needs at this time. Should you have any questions please contact the undersigned.

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ZO/MN/dn

[https://wsponlinecan.sharepoint.com/sites/ca-ca0056180.9447/shared documents/05. technical/spring 2025/report/ca0056180.9447-tm-rev0 reworld updated modelling memo 14august2025.docx](https://wsponlinecan.sharepoint.com/sites/ca-ca0056180.9447/shared%20documents/05_technical/spring%202025/report/ca0056180.9447-tm-rev0%20reworld%20updated%20modelling%20memo%2014august2025.docx)

APPENDIX A

Site-Wide Emission Inventory

Appendix A
Site-Wide Emission Inventory

Site-wide Emission Inventory							Emission Data						
Source Identifier	Source Description	Stack Volumetric Flow Rate (Nm ³ /h)	Stack Exit Gas Temperature (°C)	Stack Inner Diameter (m)	Stack Height Above Grade (m)	Stack Location (x, y)	Combustion	CAS No.	Maximum Emission Rate (kg/h)	Averaging Period (hours)	Emission Estimating Technique	Emissions Data Quality	Percentage of Overall Emissions (%)
1A	Main Stack - Spring 2023 Source Testing Conditions	33.50	139.05	1.7	87.6	(530238, 4360346)	1 - methylphospholene	90-12-0	1.69E-07	1,2h, annual	ST	Above-Average	100%
							1,1,2-Trichloroethane	79-06-5	3.54E-05	1,2h, annual	ST	Above-Average	100%
							1,2,3,4-Tetrachlorobenzene	634-66-2	8.05E-08	1,2h, annual	ST	Above-Average	100%
							1,2,3-Trichlorobenzene	87-61-6	1.24E-07	1,2h, annual	ST	Above-Average	100%
							1,2,4 - Trichlorobenzene	120-82-1	3.67E-07	1,2h, annual	ST	Above-Average	100%
							1,2,4,5-Tetrachlorobenzene	95-94-3	8.19E-08	1,2h, annual	ST	Above-Average	100%
							1,2-Dichlorobenzene	95-50-1	1.13E-06	1,2h, annual	ST	Above-Average	100%
							1,2-Dichloroethane	107-06-2	2.81E-05	1,2h, annual	ST	Above-Average	100%
							1,2-Dichloropropane	78-67-5	2.90E-05	1,2h, annual	ST	Above-Average	100%
							1,3,5-trichlorobenzene	108-70-3	1.52E-07	1,2h, annual	ST	Above-Average	100%
							1,3-Substene	106-99-0	1.42E-05	1,2h, annual	ST	Above-Average	100%
							1,3-Dichlorobenzene	541-73-1	1.56E-06	1,2h, annual	ST	Above-Average	100%
							1,4-Dichlorobenzene	106-46-7	9.85E-07	1,2h, annual	ST	Above-Average	100%
							1-Methylphosphorothioic acid	822-69-9	9.93E-07	1,2h, annual	ST	Above-Average	100%
							2 - methylphosphorothioic acid	91-67-6	3.29E-07	1,2h, annual	ST	Above-Average	100%
							2,3,4,5-tetrachlorophenol	4801-51-3	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,3,4,5-Tetrafluorophenol	58-90-2	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,3,4-trichlorophenol	15869-86-0	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,3,5-tetrachlorophenol	935-95-6	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,3,5-trichlorophenol	933-78-6	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,3,6-trichlorophenol	933-78-6	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,3,4-trichlorophenol	933-78-6	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,4,6-trichlorophenol	88-06-2	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,4-Dichlorophenol	129-43-2	4.03E-07	1,2h, annual	ST	Above-Average	100%
							2,6-dichlorophenol	87-45-0	4.03E-07	1,2h, annual	ST	Above-Average	100%
							3-Substene	79-63-3	9.52E-05	1,2h, annual	ST	Above-Average	100%
							2-Chlorophosphorothioic acid	91-68-7	8.05E-08	1,2h, annual	ST	Above-Average	100%
							2-Methylphosphorothioic acid	612-12-7	1.26E-06	1,2h, annual	ST	Above-Average	100%
							2-methylphosphorothioic acid	95-67-6	4.03E-07	1,2h, annual	ST	Above-Average	100%
							3,4,5-trichlorophenol	606-19-6	4.03E-07	1,2h, annual	ST	Above-Average	100%
							3,4-trichlorophenol	95-77-2	4.03E-07	1,2h, annual	ST	Above-Average	100%
							3,5-dichlorophenol	591-35-5	4.03E-07	1,2h, annual	ST	Above-Average	100%
							3-Methylphosphorothioic acid	56-49-5	8.05E-08	1,2h, annual	ST	Above-Average	100%
							3-methylphosphorothioic acid	108-43-0	4.03E-07	1,2h, annual	ST	Above-Average	100%
							4-methylphosphorothioic acid	106-45-9	8.05E-07	1,2h, annual	ST	Above-Average	100%
							1,2-Dimethylphosphorothioic acid	57-97-6	8.05E-08	1,2h, annual	ST	Above-Average	100%
							9,10-Dimethylanthracene	781-43-1	1.44E-07	1,2h, annual	ST	Above-Average	100%
							9-Methylanthracene	882-20-5	2.69E-06	1,2h, annual	ST	Above-Average	100%
							Acenaphthene	83-32-9	5.75E-07	1,2h, annual	ST	Above-Average	27%
							Acenaphthylene	209-96-6	8.93E-06	1,2h, annual	ST	Above-Average	3%
							Acetolactone	75-07-0	3.08E-03	1,2h, annual	ST	Above-Average	100%
							Acetone	67-64-1	9.17E-04	1,2h, annual	ST	Above-Average	100%
							Acrolein	107-02-8	5.20E-04	1,2h, annual	ST	Above-Average	100%
							Ammonia	7664-41-7	1.98E-02	1,2h, annual	ST	Above-Average	100%
							Anthracene	120-12-7	4.23E-07	1,2h, annual	ST	Above-Average	51%
							Antimony	7440-36-0	1.79E-06	1,2h, annual	ST	Above-Average	100%
							Asenic	7440-38-2	4.48E-06	1,2h, annual	ST	Above-Average	100%
							Benzene	7440-39-3	8.63E-05	1,2h, annual	ST	Above-Average	100%
							Benzene	71-43-2	6.07E-05	1,2h, annual	ST	Above-Average	99%
							Benzofuran	96-55-1	1.06E-07	1,2h, annual	ST	Above-Average	34%
							Benzofluorene	238-84-6	1.14E-07	1,2h, annual	ST	Above-Average	18%
							Benzofluorene	50-32-8	8.05E-08	1,2h, annual	ST	Above-Average	91%
							Benzofluorene	235-99-2	8.88E-08	1,2h, annual	ST	Above-Average	21%
							Benzofluorene	242-17-4	8.05E-09	1,2h, annual	ST	Above-Average	100%
							Benzofluorene	192-97-2	1.06E-07	1,2h, annual	ST	Above-Average	100%
							Benzofluorene	191-24-2	9.57E-08	1,2h, annual	ST	Above-Average	100%
							Benzofluorene	237-09-9	9.34E-08	1,2h, annual	ST	Above-Average	90%
							Benzyl	7440-41-7	1.79E-06	1,2h, annual	ST	Above-Average	100%
							Benzyl	92-51-3	1.98E-07	1,2h, annual	ST	Above-Average	100%
							Bromodichloromethane	75-27-4	4.79E-05	1,2h, annual	ST	Above-Average	100%
							Bromobenzene	75-25-2	6.79E-05	1,2h, annual	ST	Above-Average	100%
							Bromonitroethane	74-83-9	6.59E-05	1,2h, annual	ST	Above-Average	100%
							Cadmium	7440-43-9	1.07E-06	1,2h, annual	ST	Above-Average	100%
							Carbon Monoxide	530-09-0	4.83E-01	1,2h, annual	ST	Above-Average	65%
							Carbon tetrachloride	56-23-5	4.09E-05	1,2h, annual	ST	Above-Average	100%
							Chlorobenzene	108-90-7	7.94E-06	1,2h, annual	ST	Above-Average	100%
							Chlorobenzene	87-66-3	3.40E-05	1,2h, annual	ST	Above-Average	100%
							Chromium (hexavalent)	1850-29-4	2.98E-05	1,2h, annual	ST	Above-Average	100%
							Chrysene	218-01-9	3.09E-07	1,2h, annual	ST	Above-Average	38%
							Coal	7440-48-4	1.64E-06	1,2h, annual	ST	Above-Average	100%
							Copper	7440-50-8	6.67E-05	1,2h, annual	ST	Above-Average	100%
							Coumarone	191-07-1	8.05E-08	1,2h, annual	ST	Above-Average	100%
							Cumene (propylbenzene)	98-43-8	3.22E-05	1,2h, annual	ST	Above-Average	100%
							Dibenzofuran	215-58-7	8.29E-08	1,2h, annual	ST	Above-Average	100%
							Dibenzofuran	192-65-4	8.05E-08	1,2h, annual	ST	Above-Average	100%
							Dibenzofuran	93-79-3	8.29E-08	1,2h, annual	ST	Above-Average	42%
							Dibromodichloromethane	124-48-1	5.47E-05	1,2h, annual	ST	Above-Average	100%
							Dichlorodibromomethane	75-71-8	4.20E-05	1,2h, annual	ST	Above-Average	100%
							Dichlorobenzene, 1,1 -	75-34-3	2.54E-05	1,2h, annual	ST	Above-Average	100%
							Dichloromethane, 1,1 -	75-09-2	2.22E-05	1,2h, annual	ST	Above-Average	100%
							Dioxins, Furans and Dioxin-like PCBs	NA	0.00011 µg TEQs	1,2h, annual	ST	Above-Average	100%
							Ethylbenzene	100-41-4	2.18E-05	1,2h, annual	ST	Above-Average	100%
							Ethylene Dibromide	106-93-4	4.83E-05	1,2h, annual	ST	Above-Average	100%
							Fluorene	206-44-0	2.39E-06	1,2h, annual	ST	Above-Average	64%
							Fluorides	7664-39-3	4.33E-03	1,2h, annual	ST	Above-Average	100%
							Fluorene	86-73-7	7.42E-07	1,2h, annual	ST	Above-Average	15%
							Formaldehyde	50-00-0	9.50E-01	1,2h, annual	ST	Above-Average	96%
							Heptachlorobenzene	118-74-1	8.05E-09	1,2h, annual	ST	Above-Average	100%
							Hydrogen Chloride	7647-01-0	1.45E-01	1,2h, annual	ST	Above-Average	100%
							Internal 1,2,3 - cypylene	193-29-5	8.05E-08	1,2h, annual	ST	Above-Average	39%
							Lead	7439-92-1	9.98E-06	1,2h, annual	ST	Above-Average	100%
							MMP-Xylene	179601-23-1	4.49E-05	1,2h, annual	ST	Above-Average	100%
							Mercury	7439-97-6	4.94E-06	1,2h, annual	ST	Above-Average	100%
							Mesitylene (1,3,5-Triethylbenzene)	106-67-8	5.23E-05	1,2h, annual	ST	Above-Average	100%
							Molybdenum	7439-98-7	1.32E-04	1,2h, annual	ST	Above-Average	100%
							m-Tolphenyl	92-06-8	2.49E-07	1,2h, annual	ST	Above-Average	100%
							Naphthalene	91-20-3	1.30E-06	1,2h, annual	ST	Above-Average	3%
							Nickel	7440-02-0	2.07E-05	1,2h, annual	ST	Above-Average	100%
							Nitrogen Oxides	10102-44-0	4.20E-03	1,2h, annual	ST	Above-Average	44%
							Nitrogen Oxides	10102-44-0	4.20E-03	1,2h, annual	ST	Above-Average	44%
O-Tolphenyl	84-15-1	1.54E-07	1,2h, annual	ST	Above-Average	100%							
O-Xylene	95-47-6	2.19E-05	1,2h, annual	ST	Above-Average	100%							
Pentachlorobenzene	608-93-5	8.05E-09	1,2h, annual	ST	Above-Average	100%							
Pentachlorophenol	87-66-5	4.03E-07	1,2h, annual	ST	Above-Average	100%							
Perylene	198-55-0	8.29E-09	1,2h, annual	ST	Above-Average	100%							
Phenanthrene	85-01-8	1.14E-05	1,2h, annual	ST	Above-Average	44%							
Picene	210-45-7	8.05E-08	1,2h, annual	ST	Above-Average	100%							
PM ₁₀ (Condensable and Filterable)	NA	1.28E-01	1,2h, annual	ST	Above-Average	68%							
PM ₁₀ (Filterable Only)	NA	3.82E-02	1,2h, annual	ST	Above-Average	100%							
PM _{2.5} (Condensable and Filterable)	NA	1.18E-01	1,2h, annual	ST	Above-Average	65%							
PM _{2.5} (Filterable Only)	NA	2.73E-02	1,2h, annual	ST	Above-Average	100%							
Polychlorinated Biphenyls (PCB)	NA	1.33E-04	1,2h, annual	ST	Above-Average	100%							
p-Tolphenyl	93-94-4	8.93E-09	1,2h, annual	ST	Above-Average	100%							
Pyrene	129-00-9	1.61E-06	1,2h, annual	ST	Above-Average	57%							

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APPENDIX B

Emission Summary Table

Note: Detection limit for Rhodamine Particulate Matter is lower than detection limit for PM₁₀ and PM_{2.5}. The calculated emission rate, which is based on the detection limit, for Total Particulate Matter is lower than that for respective PM₁₀ and PM_{2.5} emission rate.

APPENDIX 29

DYEC CEMS 1-Hour Average Data (4 pages)

**Reworld Durham York Renewable Energy L.P.
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
12-May-25	0:00	8.56	13		0		106		2		0	6
12-May-25	1:00	9.08	8		0		110		2		0	7
12-May-25	2:00	9.38	8		0		106		2		0	7
12-May-25	3:00	8.85	8	9.3	0		111		2		0	7
12-May-25	4:00	8.69	13	9.3	0		104		2		0	7
12-May-25	5:00	9.54	9	9.5	0		110		3		0	8
12-May-25	6:00	9.00	12	10.5	0		106		2		0	7
12-May-25	7:00	8.95	12	11.5	0		112		2		0	7
12-May-25	8:00	9.39	17	12.5	0		109		2		0	7
12-May-25	9:00	9.19	18	14.8	0		102		1		0	7
12-May-25	10:00	9.06	11	14.5	0		121		1		0	7
12-May-25	11:00	9.59	8	13.5	0		107		2		0	8
12-May-25	12:00	9.19	5	10.5	0		110		2		0	7
12-May-25	13:00	9.54	14	9.5	10		105		3		0	8
12-May-25	14:00	9.49	7	8.5	0		111		2		0	7
12-May-25	15:00	9.40	5	7.8	0		107		1		0	7
12-May-25	16:00	9.41	8	8.5	3		105		2		0	7
12-May-25	17:00	8.75	8	7.0	0		105		0		0	6
12-May-25	18:00	8.70	13	8.5	0		111		0		0	7
12-May-25	19:00	9.14	11	10.0	1		110		1		0	7
12-May-25	20:00	9.08	14	11.5	2		102		1		0	7
12-May-25	21:00	8.90	15	13.3	0		111		1		0	7
12-May-25	22:00	8.84	19	14.8	0		106		1		0	7
12-May-25	23:00	9.36	16	16.0	6	0.9	117	109	2	1.6	0	7
13-May-25	0:00	9.26	7	14.3	1	1.0	103	108	2	1.6	0	7
13-May-25	1:00	8.79	8	12.5	0	1.0	107	108	0	1.5	0	7
13-May-25	2:00	8.66	14	11.3	0	1.0	107	108	0	1.5	0	7
13-May-25	3:00	8.81	13	10.5	0	1.0	113	108	1	1.4	0	7
13-May-25	4:00	8.96	7	10.5	0	1.0	106	108	0	1.3	0	7
13-May-25	5:00	9.04	14	12.0	0	1.0	112	109	2	1.3	0	7
13-May-25	6:00	9.08	21	13.8	0	1.0	107	109	3	1.3	0	7
13-May-25	7:00	9.20	8	12.5	0	1.0	115	109	2	1.3	0	7
13-May-25	8:00	9.39	7	12.5	0	1.0	106	109	2	1.3	0	7
13-May-25	9:00	9.02	12	12.0	0	1.0	106	109	2	1.4	0	7
13-May-25	10:00	8.88	11	9.5	0	1.0	112	108	1	1.4	0	7
13-May-25	11:00	9.67	13	10.8	0	1.0	117	109	2	1.4	0	8
13-May-25	12:00	8.73	8	11.0	0	1.0	103	109	0	1.3	0	7
13-May-25	13:00	8.64	6	9.5	0	0.5	123	109	1	1.2	0	7
13-May-25	14:00	9.65	8	8.8	0	0.5	107	109	2	1.2	0	8
13-May-25	15:00	9.47	8	7.5	0	0.5	116	109	2	1.3	0	8
13-May-25	16:00	9.12	5	6.8	0	0.4	106	110	2	1.3	0	7
13-May-25	17:00	9.57	6	6.8	0	0.4	110	110	2	1.3	0	8
13-May-25	18:00	9.83	13	8.0	2	0.5	108	110	2	1.4	0	8
13-May-25	19:00	9.55	23	11.8	6	0.7	108	110	2	1.5	0	8
13-May-25	20:00	8.72	25	16.8	6	0.9	102	110	3	1.5	0	7
13-May-25	21:00	9.09	21	20.5	6	1.1	121	110	3	1.6	0	7
13-May-25	22:00	9.49	11	20.0	3	1.3	98	110	4	1.8	0	8
13-May-25	23:00	9.26	12	17.3	2	1.1	110	109	3	1.8	0	7
14-May-25	0:00	9.28	7	12.8	3	1.2	108	110	4	1.9	0	7
14-May-25	1:00	9.48	10	10.0	9	1.5	113	110	4	2.0	0	8
14-May-25	2:00	9.49	9	9.5	10	2.0	108	110	3	2.2	0	8
14-May-25	3:00	9.46	7	8.3	3	2.1	110	110	3	2.3	0	8
14-May-25	4:00	9.60	6	8.0	11	2.5	111	110	3	2.4	0	8
14-May-25	5:00	10.20	9	7.8	13	3.1	117	110	2	2.4	0	9
14-May-25	6:00	8.90	12	8.5	0	3.1	112	110	2	2.3	0	7
14-May-25	7:00	8.70	5	8.0	0	3.1	104	110	1	2.3	0	7
14-May-25	8:00	9.08	9	8.8	0	3.1	108	110	2	2.3	0	7
14-May-25	9:00	9.21	12	9.5	0	3.1	111	110	2	2.3	0	7
14-May-25	10:00	9.18	5	7.8	0	3.1	114	110	2	2.3	0	7
14-May-25	11:00	8.73	7	8.3	0	3.1	104	110	2	2.3	0	7
14-May-25	12:00	8.89	11	8.8	0	3.1	113	110	1	2.4	0	7
14-May-25	13:00	8.90	9	8.0	0	3.1	109	110	2	2.4	0	7
14-May-25	14:00	9.05	6	8.3	0	3.1	110	110	2	2.4	0	7
14-May-25	15:00	9.10	7	8.3	0	3.1	108	109	2	2.4	0	7
14-May-25	16:00	9.30	7	7.3	2	3.2	112	110	3	2.5	0	7
14-May-25	17:00	9.69	15	8.8	57	5.5	102	109	6	2.6	0	8
14-May-25	18:00	10.26	19	12.0	0	5.5	108	109	2	2.6	0	9
14-May-25	19:00	9.70	27	17.0	0	5.2	110	109	2	2.6	0	8
14-May-25	20:00	9.74	11	18.0	6	5.2	107	110	3	2.6	0	8
14-May-25	21:00	9.03	8	16.3	4	5.1	110	109	3	2.6	0	7
14-May-25	22:00	9.32	7	13.3	0	5.0	106	109	3	2.6	0	7
14-May-25	23:00	9.62	8	8.5	0	4.9	105	109	3	2.6	0	8

Note: All times are Eastern Standard Time

**Reworld Durham York Renewable Energy L.P.
Boiler No. 1 CEMS**

Time	BH Outlet										Scrubber Inlet	
	O ₂	CO		SO ₂		NO _x		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	%	
	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	
15-May-25 0:00	9.95	19	10.5	8	5.1	109	109	4	2.6	0	8	
15-May-25 1:00	8.78	12	11.5	0	4.8	116	109	4	2.6	0	7	
15-May-25 2:00	8.81	9	12.0	0	4.3	97	109	2	2.5	0	7	
15-May-25 3:00	9.72	32	18.0	12	4.7	121	109	4	2.6	0	8	
15-May-25 4:00	9.80	8	15.3	2	4.3	100	109	2	2.5	0	8	
15-May-25 5:00	10.13	7	14.0	0	3.8	115	109	4	2.6	0	9	
15-May-25 6:00	9.09	5	13.0	0	3.8	120	109	2	2.6	0	7	
15-May-25 7:00	8.78	6	6.5	0	3.8	105	109	1	2.6	0	7	
15-May-25 8:00	9.10	8	6.5	0	3.8	106	109	1	2.6	0	7	
15-May-25 9:00	8.93	5	6.0	0	3.8	112	109	1	2.5	0	7	
15-May-25 10:00	9.00	4	5.8	0	3.8	110	109	1	2.5	0	7	
15-May-25 11:00	8.97	6	5.8	0	3.8	107	109	2	2.5	0	7	
15-May-25 12:00	9.18	5	5.0	0	3.8	115	109	1	2.5	0	7	
15-May-25 13:00	9.04	4	4.8	0	3.8	112	109	1	2.5	0	7	
15-May-25 14:00	9.02	5	5.0	0	3.8	104	109	2	2.5	0	7	
15-May-25 15:00	9.34	9	5.8	2	3.9	114	109	3	2.5	0	8	
15-May-25 16:00	9.75	15	8.3	2	3.9	106	109	5	2.6	0	8	
Min	8.56	4	4.8	0	0.4	97	108	0	1.2	0	6	
Max	10.26	32	20.5	57	5.5	123	110	6	2.6	0	9	
Avg	9.22	11	10.6	2.16	2.6	109	109	2	2.1	0	7	
Std Dev	0.38	5.4	3.5	6.6	1.6	5.08	0.5	1.1	0.5	0	0.6	

Note: All times are Eastern Standard Time

**Reworld Durham York Renewable Energy L.P.
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
12-May-25	0:00	8.64	20		2		112		2		1.0	7
12-May-25	1:00	8.73	19		1		111		2		1.0	7
12-May-25	2:00	8.38	19		20		101		3		1.4	7
12-May-25	3:00	8.69	15		9		115		3		1.0	7
12-May-25	4:00	9.30	15		2		102		2		1.0	8
12-May-25	5:00	9.57	18		0		120		2		1.0	8
12-May-25	6:00	8.83	19		0		97		3		1.0	7
12-May-25	7:00	8.26	14		4		112		5		1.0	6
12-May-25	8:00	8.89	17		1		104		4		1.4	7
12-May-25	9:00	8.50	16		3		115		2		1.1	7
12-May-25	10:00	8.56	13	15.0	0		110		2		1.1	7
12-May-25	11:00	8.62	14	15.0	0		106		2		1.5	7
12-May-25	12:00	8.47	15	14.5	0		113		2		1.1	7
12-May-25	13:00	8.58	20	15.5	11		103		3		1.0	7
12-May-25	14:00	8.34	14	15.8	5		106		3		1.4	7
12-May-25	15:00	8.68	14	15.8	0		109		3		1.1	7
12-May-25	16:00	8.25	17	16.3	2		108		3		1.2	6
12-May-25	17:00	7.86	15	15.0	0		98		2		1.6	6
12-May-25	18:00	8.31	22	17.0	5		108		2		1.0	7
12-May-25	19:00	8.53	15	17.3	8		114		3		1.0	7
12-May-25	20:00	8.43	17	17.3	16		100		3		1.4	7
12-May-25	21:00	8.76	15	17.3	13		112		4		1.0	7
12-May-25	22:00	8.84	12	14.8	11		116		4		1.1	7
12-May-25	23:00	8.79	33	19.3	21	5.6	96	108	4	2.8	1.6	7
13-May-25	0:00	8.84	8	17.0	9	5.9	109	108	4	2.9	1.0	7
13-May-25	1:00	8.73	14	16.8	1	5.9	105	107	3	3.0	1.0	7
13-May-25	2:00	8.07	8	15.8	0	5.0	109	108	2	2.9	1.4	6
13-May-25	3:00	7.99	12	10.5	0	4.7	104	107	2	2.9	1.0	6
13-May-25	4:00	8.21	22	14.0	0	4.6	107	108	1	2.8	1.0	6
13-May-25	5:00	8.47	14	14.0	0	4.6	109	107	3	2.9	1.0	7
13-May-25	6:00	8.24	14	15.5	1	4.6	117	108	3	2.9	1.0	6
13-May-25	7:00	8.21	16	16.5	4	4.6	107	108	3	2.8	1.0	6
13-May-25	8:00	8.53	12	14.0	0	4.6	107	108	2	2.7	1.4	7
13-May-25	9:00	8.54	14	14.0	0	4.5	110	108	3	2.8	1.0	7
13-May-25	10:00	8.20	13	13.8	0	4.5	105	107	2	2.8	1.0	6
13-May-25	11:00	8.18	18	14.3	1	4.5	117	108	2	2.8	1.4	7
13-May-25	12:00	8.45	11	14.0	0	4.5	107	108	3	2.8	1.0	7
13-May-25	13:00	8.24	13	13.8	0	4.0	110	108	3	2.8	1.0	7
13-May-25	14:00	8.34	9	12.8	1	3.9	104	108	3	2.8	1.4	7
13-May-25	15:00	8.49	12	11.3	0	3.9	108	108	3	2.8	1.0	7
13-May-25	16:00	9.01	11	11.3	0	3.8	112	108	4	2.8	0.9	7
13-May-25	17:00	9.19	17	12.3	5	4.0	102	108	4	2.9	1.3	8
13-May-25	18:00	9.61	22	15.5	3	3.9	109	108	4	3.0	0.9	8
13-May-25	19:00	9.24	33	20.8	13	4.1	112	108	4	3.0	0.9	8
13-May-25	20:00	9.17	13	21.3	44	5.3	106	108	5	3.1	1.3	8
13-May-25	21:00	9.29	7	18.8	10	5.2	110	108	5	3.2	0.9	8
13-May-25	22:00	9.21	19	18.0	3	4.8	99	108	4	3.2	0.9	8
13-May-25	23:00	9.07	9	12.0	5	4.2	117	108	4	3.2	1.3	8
14-May-25	0:00	9.84	12	11.8	8	4.1	107	108	5	3.2	0.9	8
14-May-25	1:00	8.98	14	13.5	7	4.4	112	109	5	3.3	0.9	7
14-May-25	2:00	9.32	9	11.0	10	4.8	105	108	5	3.4	1.3	8
14-May-25	3:00	9.41	7	10.5	9	5.2	110	109	5	3.5	0.9	8
14-May-25	4:00	8.88	10	10.0	11	5.6	110	109	3	3.6	0.9	8
14-May-25	5:00	8.89	9	8.8	10	6.0	116	109	4	3.7	0.9	7
14-May-25	6:00	8.55	8	8.5	1	6.0	112	109	3	3.7	0.9	7
14-May-25	7:00	8.45	10	9.3	0	5.9	115	109	2	3.6	0.9	7
14-May-25	8:00	8.65	8	8.8	0	5.9	102	109	2	3.6	1.3	7
14-May-25	9:00	8.70	9	8.8	0	5.9	120	109	3	3.6	0.9	7
14-May-25	10:00	8.18	10	9.3	0	5.9	114	110	3	3.7	0.9	7
14-May-25	11:00	9.06	8	8.8	0	5.8	103	109	3	3.7	1.3	7
14-May-25	12:00	8.74	9	9.0	0	5.8	105	109	3	3.7	0.9	7
14-May-25	13:00	8.62	10	9.3	0	5.8	111	109	3	3.7	0.9	7
14-May-25	14:00	8.84	11	9.5	0	5.8	100	109	3	3.7	1.3	8
14-May-25	15:00	9.12	9	9.8	0	5.8	110	109	3	3.7	0.9	8
14-May-25	16:00	9.08	8	9.5	9	6.2	109	109	4	3.7	0.9	7
14-May-25	17:00	9.95	10	9.5	13	6.5	109	109	5	3.8	1.3	8
14-May-25	18:00	10.28	22	12.3	1	6.4	100	109	4	3.8	0.9	9
14-May-25	19:00	9.39	17	14.3	18	6.6	110	109	4	3.8	0.9	8
14-May-25	20:00	9.28	24	18.3	21	5.7	107	109	4	3.7	1.3	8
14-May-25	21:00	8.89	8	17.8	9	5.6	109	109	4	3.7	0.9	7
14-May-25	22:00	8.78	9	14.5	6	5.8	112	109	4	3.7	0.9	7
14-May-25	23:00	8.85	11	13.0	11	6.0	107	109	4	3.7	1.3	7

Note: All times are Eastern Standard Time

Reworld Durham York Renewable Energy L.P.
Boiler No. 2 CEMS

Time	BH Outlet										Scrubber Inlet
	O ₂	CO		SO ₂		NO _x		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	%
	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
15-May-25 0:00	9.09	10	9.5	13	6.2	105	109	5	3.7	0.9	8
15-May-25 1:00	8.57	8	9.5	5	6.1	106	109	4	3.6	0.9	7
15-May-25 2:00	8.29	7	9.0	3	5.8	106	109	3	3.5	1.2	7
15-May-25 3:00	9.14	15	10.0	11	5.9	114	109	4	3.5	0.9	8
15-May-25 4:00	9.08	11	10.3	1	5.5	121	109	3	3.5	0.9	7
15-May-25 5:00	8.90	14	11.8	1	5.1	116	109	3	3.5		7
15-May-25 6:00	8.12	6	11.5	0	5.1	116	109	3	3.5	0.9	7
15-May-25 7:00	8.17	10	10.3	0	5.1	109	109	3	3.5	0.9	7
15-May-25 8:00	8.91	12	10.5	0	5.1	113	110	3	3.5	1.3	7
15-May-25 9:00	8.15	20	12.0	0	5.1	114	109	3	3.5	0.9	7
15-May-25 10:00	7.99	12	13.5	0	5.1	105	109	3	3.5	0.9	6
15-May-25 11:00	7.98	9	13.3	0	5.1	106	109	3	3.5	1.3	6
15-May-25 12:00	8.12	13	13.5	0	5.1	110	109	3	3.5	0.9	6
15-May-25 13:00	8.40	26	15.0	6	5.3	114	110	4	3.6	1.0	7
15-May-25 14:00	8.68	24	18.0	3	5.5	109	110	4	3.6	1.3	7
15-May-25 15:00	8.99	23	21.5	2	5.5	114	110	5	3.7	0.9	8
15-May-25 16:00	9.35	25	24.5	2	5.3	101	110	7	3.8	0.9	8
Min	7.86	6	8.5	0	3.8	96	107	1	2.7	0.9	6
Max	10.28	33	24.5	44	6.6	121	110	7	3.8	1.6	9
Avg	8.73	14	13.6	4.78	5.22	109	109	3	3.3	1.1	7
Std Dev	0.47	5.6	3.6	6.9	0.7	5.36	0.7	1.0	0.4	0.2	0.6

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