A.Lanfranco & Associates Inc.
Environmental Consultants

Prepared for

METRO VANCOUVER

Metrotower III
4515 Central Boulevard
Burnaby, BC V5H 0C6

Waste-to-Energy Facility

First Quarter 2025 Emissions Test Report

Operational Certificate 107051

Prepared by Mr. Daryl Sampson

Issued: April 10, 2025

CERTIFICATION

The field monitoring for this survey was conducted by certified stack test technicians as required by the British Columbia Ministry of Environment (BC MOE) Field Sampling Manual.

The field crew consisted of:

Mr. C. Lanfranco (certified), Mr. D. Sampson (certified), Mr. J. Ching (certified), Mr. L. Forrer (certified), Mr. C. De La O (certified), and Mr B. Lester.

The report was prepared by Mr. D. Sampson using reporting principles and guidelines generally acceptable to Metro Vancouver (MV).

The field crew and A. Lanfranco and Associates Inc. certify that the test methods used were BC MOE/MV approved reference methods for the parameters investigated.

Report reviewed on April 10, 2025, by:

Mr. Mark Lanfranco
President | Owner

TEST PROGRAM ORGANIZATION

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Sampling Crew:	Mr. B. Lester – A. Lanfranco and Associates Inc. Mr. D. Sampson - A. Lanfranco and Associates Inc. Mr. C. Lanfranco - A. Lanfranco and Associates Inc. Mr. L. Forrer - A. Lanfranco and Associates Inc. Mr. C. De La O – A. Lanfranco and Associates Inc. Mr. J. Ching – A. Lanfranco and Associates Inc.

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SUMMARY

The following table displays the emission results from the three units located at Metro Vancouver's Waste-To-Energy Facility (WTEF) as well as the current emission limits as defined by the Operational Certificate (OC) issued by BC Ministry of Environment & Climate Change Strategy. This compliance survey represents the first quarter of 2025.

Table 1: Summary Comparison of Emissions Test Results with Limits

Parameter	Limit	Unit 1	Unit 2	Unit 3	Facility Average
Test Date		13-Feb-25	11-12-Feb-25	10-11-Feb-25	
Particulate (mg/Sm^3 @ 11% O_2)	**9.0**	1.32	3.59	0.59	**1.83**
Hydrogen Fluoride (mg/Sm^3 @ 11% O_2)	**1.0**	0.042	0.024	0.041	**0.04**
Trace Metals - OC Class (mg/Sm^3 @ 11% O_2)					
Lead (Pb)	**-**	0.0025	0.0041	0.0014	**0.0027**
Arsenic (As)	**-**	0.0015	0.0016	0.0004	**0.0012**
Chromium (Cr)	**-**	0.0008	0.0031	0.0004	**0.0014**
OC Class Sum (Pb, As and Cr)	**0.064**	0.0049	0.0089	0.0021	**0.0053**
Mercury (mg/Sm^3 @ 11% O_2)	**0.02**	0.000047	0.000053	0.000099	**0.00007**
Cadmium (mg/Sm^3 @ 11% O_2)	**0.007**	0.000249	0.000232	0.000168	**0.00022**

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

The test results are very similar to those from Q4 2024. The variability observed quarter-to-quarter is well within a normal range of outcomes for this operation and is not considered significant.

1 INTRODUCTION

Metro Vancouver (MV) commissioned an emission survey at the Waste-To-Energy Facility (WTEF) in Burnaby BC, as required by the provincially approved Operational Certificate (OC). Stationary source monitoring is required Quarterly.

The individual sources that were monitored for compliance are identified as Unit 1, Unit 2 and Unit 3 which represent the three distinct processing lines at the WTEF. The three boilers are identified as discharge E300670 in the operational certificate.

The survey included monitoring for: filterable particulate matter, trace metals, mercury (Hg), hydrogen fluoride (HF), ammonia (NH_3), nitrous oxide (N_2O) and volatile organic compounds (VOC).

A. Lanfranco and Associates Inc. (ALAA), of Surrey, B.C., conducted the sampling program on behalf of MV. The sampling program consisted of, but was not limited to, the planning, execution, analysis, and reporting of three emission sources located at the WTEF.

This report includes a comparison of emission results to limits established in the OC, detailed emission results, a brief outline of methods employed, equipment used, and a discussion of the survey. All supporting data and appendices are presented under separate cover.

The appendices for this report, including computer outputs of calculated data, analytical data, field data sheets, calibrations, and professional certifications are issued separately.

2 METHODOLOGY

All services provided by A. Lanfranco and Associates Inc. were conducted in accordance with approved reference methods as issued by:

- Metro Vancouver (MV)
- BC Ministry of Environment & Climate Change Strategy (BC MOE)
- Environment Canada (EC)
- US Environmental Protection Agency (EPA)

2.1 Sampling and Analytical Methods

The following table lists the test methods used for the different parameters measured. The subsequent paragraphs briefly describe each method.

Table 2: Reference Methods

Parameter	Reference Method
Sample and Velocity traverse points	EPS 1/RM/8 A Determination of Sampling Site and Traverse Points
Velocity and flowrate	EPS 1/RM/8 B Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
Gas molecular weight (O_2/CO_2)	EPS 1/RM/8 C Determination of Molecular Weight by Gas Analysis
Flue gas Moisture	EPS 1/RM/8 D Determination of Moisture Content
Particulate Matter	EPS 1/RM/8 E Determination of Particulate Matter Emissions from Stationary Sources
Trace Metals with Mercury	EPA Method 29 Determination of Metals Emissions from Stationary Sources
Hydrogen Fluoride (HF)	EPS1/RM/1 Reference Method for Source Testing: Measurement of Releases of Gaseous Hydrogen Chloride from Stationary Sources
Nitrous Oxide (N_2O)	N/A
Ammonia	EPA Method CTM 027 Procedure For Collection and Analysis of Ammonia in Stationary Sources
Volatile Organic Compounds (VOC)	EPA Method TO-15 Determination of Volatile Organic Compounds in Air

Sampling Site and Traverse Points

Primary: EPS 1/RM/8 Method A

Supporting: EPA Method 1

This method is designed to aid in the representative measurement of pollutant emissions and/or total volumetric flow rate from a stationary source. A measurement site where the effluent stream is flowing in a known direction is selected, and the cross-section of the stack is divided into a number of equal areas. Traverse points are then located within each of these equal areas.

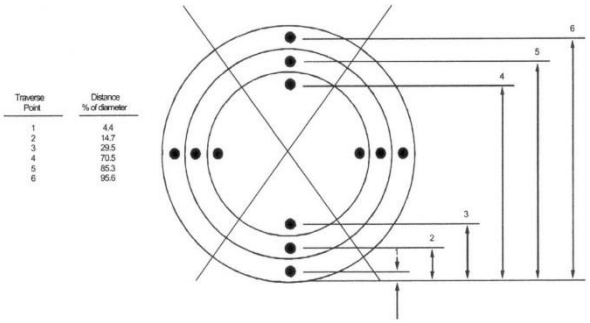

Figure 1: Example showing circular stack cross section divided

Stack Gas Velocity and Volumetric Flow Rate

Primary: EPS 1/RM/8 Method B

Supporting: EPA Method 2

The average gas velocity in a stack or duct is determined from the gas density and from the measurement of velocity pressure with an S-type pitot tube. A standard pitot tube may be used where plugging of the tube openings due to particulate matter and/or moisture is not likely to occur. Stack gas volumetric flow rate is determined from measurements of stack gas velocity, temperature, absolute pressure, dry gas composition, moisture content, and stack diameter.

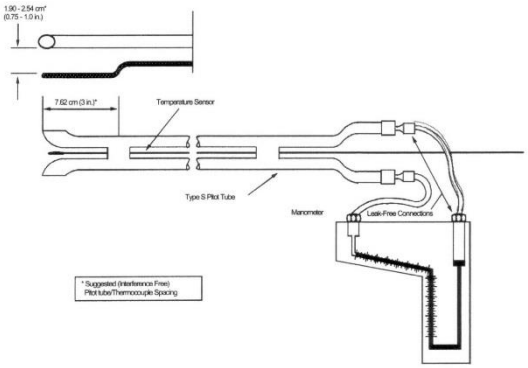

Figure 2: Type S Pitot Tube Manometer Assembly

Molecular Weight by Gas Analysis — Primary: EPS 1/RM/8 Method C; Supporting: EPA Method 3

An integrated or grab sample is extracted from a single point in the gas stream and analyzed for its components using a Fyrite analyzer, a gas chromatograph, or calibrated continuous analyzers.

Moisture Content — Primary: EPS 1/RM/8 Method D; Supporting: EPA Method 4

A gas sample is extracted from a single point in the enclosed gas stream being sampled. The moisture is condensed, and its weight measured. This weight, together with the volume of gas sampled, enables the stack gas moisture content to be calculated.

Particulate Matter — Primary: EPS 1/RM/8 Method E; Supporting: EPA Method 5

Particulate matter is withdrawn isokinetically from a number of sampling or traverse points in an enclosed gas stream. The particulate sample is collected in the nozzle, probe, and on a glass fibre filter, all maintained at a temperature of 120 ± 14°C or such other temperature as is necessary to prevent blinding of the filter from condensation. The particulate weight is determined gravimetrically after removal of uncombined water. Simultaneous determinations of the gas stream moisture content, velocity, temperature, and molecular weight allow calculations of the particulate concentration and the particulate mass emission or release rate to be made.

Trace Metal Primary: EPA Method 29 (modified)

This method is used in conjunction with the above Method 5. A stack sample is withdrawn isokinetically from the source. Particulate emissions are collected in the probe and on a heated filter, and gaseous emissions are then collected in an aqueous acidic solution of hydrogen peroxide (analyzed for all metals including Hg) and an aqueous acidic solution of potassium permanganate (analyzed only for Hg). The recovered samples are digested, and appropriate fractions are analyzed for Hg by cold vapour atomic absorption spectroscopy (CVAAS). The remaining trace metals are analyzed with inductively coupled argon plasma emission spectroscopy (ICAP), atomic absorption spectroscopy (AAS) and graphite furnace atomic absorption spectroscopy (GFAAS). Figure 3 presents the sample train and its configuration.

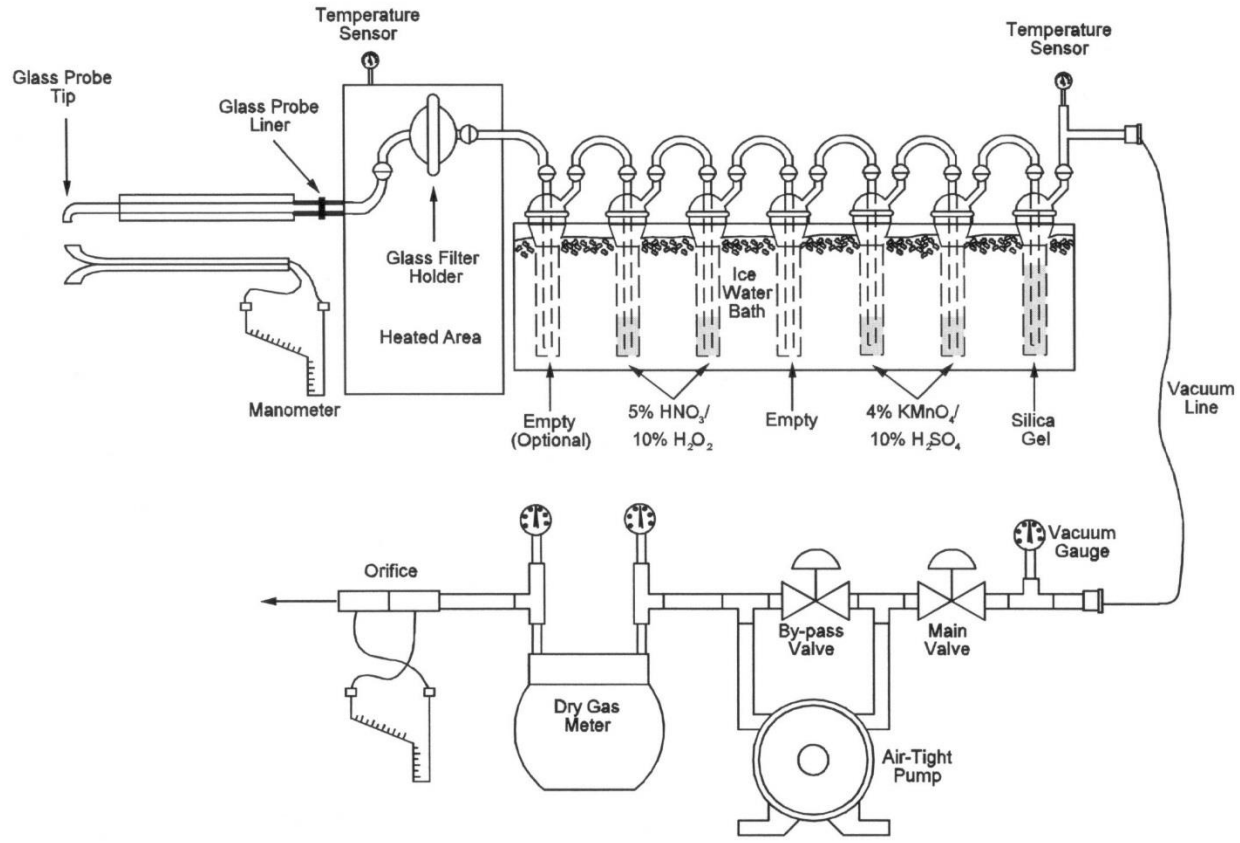

Figure 3: Particulate / Trace Metals Sampling Train

Hydrogen Fluoride — Primary: EPS 1/RM/1
Supporting: BC Method 7176106 & 7066101

HF is sampled in a four-impinger train consisting of two impingers containing distilled/deionized H_2O, one empty impinger, and a fourth containing silica gel. A sample of the stack gas is extracted from a single point near the centre of the stack over the sample duration at a constant rate. The collected samples are measured for F by ion chromatography at Element laboratory in Surrey, BC.

N_2O — Primary: US EPA Method 18

Three N_2O samples were collected from each source using evacuated tedlar bag sampling procedures. Each bag was purged and evacuated on-site with small amounts of stack gas, prior to final stack gas collection. Each bag sample was an integrated type sample where stack gases were collected over sixty minute periods. The bag sampling was conducted over about a four hour period.

The samples were analyzed at Bureau Veritas in Mississauga, ON by SOP-00203 utilizing GC/ECD.

Ammonia — Primary: EPA Method CTM-027

The absorbing solution in the first two impingers is 0.1 N H_2SO_4 and the triplicate samples were extracted at a constant rate for 60-minute durations. The collected samples are analyzed at Element laboratory in Surrey, BC.

Method Modifications

Three minor method modifications were instituted for this work.

1. Reagent blanks for metals trains were made to the same volumes as all samples. In other words, exactly 100 ml of the various reagents used to recover samples was NOT done, as some sample components (probe washing for example) required more than 100 ml to adequately clean and rinse the probe. Instead, sample recovery was conducted with however much rinsing was deemed adequate. In the laboratory, the blanks and samples were made up with the appropriate reagent so that all samples and blanks were the same volume.

2. Filter and residue weighing were not conducted with the six-hour interval technique. Instead, the sample filters and beakers were conditioned with cooling and desiccation and then weighed on two separate laboratory scales after 24 hours. Duplicate or triplicate Blank samples were carried through the gravimetric analysis, and the sample results were adjusted with the Blank data to determine the net filter and probe wash residue weight gain. This is the Environment Canada approved modified approach for weighing probe wash residue.

3. For the purposes of calculating a result, all parameters were given the value of ½ the detection limit when the analysis yielded 'non-detect' results.

All results are expressed using the metric system and corrected to standard conditions of 20 °C and 101.325 kPa, dry gas (unless otherwise noted).

3 DETAILED TEST RESULTS

The results of stack emissions were calculated using a "STACK" computer program developed by A. Lanfranco and Associates for BC MOE requirements.

Tables 3-14 present the detailed results of all emissions parameters tested and operational conditions for each of the units. Additional data and the computer outputs can be found in the accompanying Appendices.

Table 3: Unit 1 Summary of Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Test Date - Particulate/Metals	13-Feb-25	13-Feb-25	13-Feb-25	
Test Time - Particulate/Metals	08:30 - 10:34	10:56 - 1300	13:20 - 15:23	
Duration - Minutes	120	120	120	
Test Date - Acid Gases	13-Feb-25	13-Feb-25	13-Feb-25	
Test Time - Acid Gases	09:25 - 10:25	10:56 - 11:56	12:10 - 13:10	
Duration - Minutes	60	60	60	
Stack Temperature (°C)	151	158	160	157
Average Gas Velocity (m/s)	13.7	14.0	14.0	13.9
Dry Flow Rate (Sm^3/min)	1198	1177	1166	1180
Moisture (Vol. %)	11.7	13.2	14.0	13.0
Oxygen (Vol. %)(dry basis)	10.5	10.8	10.6	10.6
Carbon Dioxide (Vol. %)(dry basis)	8.8	8.4	8.8	8.7
Particulate (mg/Sm^3 @ 11% O_2)	1.27	0.86	1.83	**1.32**
Hydrogen Fluoride (mg/Sm^3 @ 11% O_2)	0.055	0.018	0.052	**0.042**
Ammonia (mg/Sm^3 @ 11% O_2)	9.46	21.87	17.70	**16.35**
Nitrous Oxide (mg/Sm^3 @ 11% O_2)*	6.12	11.70	19.29	**12.37**
Total Hydrocarbons (mg/Sm^3 @ 11% O_2)	2.86	4.03	3.95	**3.62**
Trace Metals - Operational Certificate List (mg/Sm^3 @ 11% O_2)				
OC Class (Pb, As and Cr)	0.00363	0.00445	0.00655	**0.00488**
Aluminum (mg/Sm^3 @ 11% O_2)	0.00446	0.00827	0.00691	0.00655
Cadmium (mg/Sm^3 @ 11% O_2)	0.00028	0.00032	0.00015	0.00025
Lead (mg/Sm^3 @ 11% O_2)	0.00173	0.00348	0.00237	0.00253
Mercury (mg/Sm^3 @ 11% O_2)	0.00004	0.00004	0.00005	0.000047
Phosphorus (mg/Sm^3 @ 11% O_2)	0.00412	0.00344	0.00553	0.00436
Isokinetic Variation (%)	102	103	104	103

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 4: Unit 1 Trace Metals Emissions (OC Class)

Metal	Test 1 (mg/m^3 @ 11% O_2)	Test 2 (mg/m^3 @ 11% O_2)	Test 3 (mg/m^3 @ 11% O_2)	Average (mg/m^3 @ 11% O_2)
OC Class				
Pb	0.00173	0.00348	0.00237	0.00253
As	0.00072	0.00034	0.00353	0.00153
Cr	0.00118	0.00063	0.00066	0.00082
Sum of OC Class	0.00363	0.00445	0.00655	0.00488
Other				
Al	0.00446	0.00827	0.00691	0.00655
Cd	0.00028	0.00032	0.00015	0.00025
P	0.00412	0.00344	0.00553	0.00436
Hg	0.00004	0.00004	0.00005	0.00005

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 5: Unit 1 Detailed Trace Metals Emissions

Metal	Test 1 (mg/m^3 @ 11% O_2)	Test 2 (mg/m^3 @ 11% O_2)	Test 3 (mg/m^3 @ 11% O_2)	Average (mg/m^3 @ 11% O_2)
Pb	0.00173	0.00348	0.00237	0.00253
Sb	0.00086	0.00086	0.00086	0.00086
Cu	0.00158	0.00090	0.00169	0.00139
Mn	0.00086	0.00028	0.00035	0.00049
V	0.00034	0.00034	0.00035	0.00034
Zn	0.01667	0.01756	0.01566	0.01663
As	0.00072	0.00034	0.00353	0.00153
Cr	0.00118	0.00063	0.00066	0.00082
Co	0.00011	0.00025	0.00009	0.00015
Ni	0.00130	0.00043	0.00078	0.00084
Se	0.00118	0.00680	0.00052	0.00283
Te	0.00209	0.00069	0.00069	0.00116
Tl	0.00051	0.00126	0.00095	0.00091
Cd	0.00028	0.00032	0.00015	0.00025
Hg	0.00004	0.00004	0.00005	0.00005

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 6: Unit 1 - Summary of Operating Data

Parameter		Run 1	Run 2	Run 3	Normal
Test Date - Particulate/Metals		13-Feb-25	13-Feb-25	13-Feb-25	
Test Time - Particulate/Metals		08:30 - 10:34	10:56 - 1300	13:20 - 15:23	
Boiler Steam Production	(kg/h)	36386	36284	36146	31771
Percentage of normal	(%)	115%	114%	114%	
Boiler Secondary Combustion Zone Temp	(°C)	913	927	938	827
Percentage of normal	(%)	110%	112%	113%	
Rate of refuse fired	(kg/hr)	9221	9221	9221	8375
Percentage of normal	(%)	126%	126%	126%	
Rate of aux. fuel fired (Natural Gas)	m^3/hr	0	0	0	100
Percentage of normal (%)	(%)	0%	0%	0%	

*Normal refers to the average operating rate from the previous 30 days

Table 7: Unit 2 Summary of Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Test Date - Particulate/Metals	11-Feb-25	12-Feb-25	12-Feb-25	
Test Time - Particulate/Metals	10:16 - 12:20	09:07 - 11:09	11:35 - 13:37	
Duration - Minutes	120	120	120	
Test Date - Acid Gases	12-Feb-25	12-Feb-25	12-Feb-25	
Test Time - Acid Gases	09:45 - 10:45	10:56 - 11:56	12:07 - 13:07	
Duration - Minutes	60	60	60	
Stack Temperature (°C)	151	148	151	150
Average Gas Velocity (m/s)	12.9	11.9	12.2	12.3
Dry Flow Rate (Sm^3/min)	1167	1053	1064	1094
Moisture (Vol. %)	11.4	12.7	13.2	12.4
Oxygen (Vol. %)(dry basis)	10.8	10.7	10.3	10.6
Carbon Dioxide (Vol. %)(dry basis)	7.9	7.9	8.3	8.0
Particulate (mg/Sm^3 @ 11% O_2)	2.86	4.18	3.72	**3.59**
Hydrogen Fluoride (mg/Sm^3 @ 11% O_2)	0.018	0.036	0.017	**0.024**
Ammonia (mg/Sm^3 @ 11% O_2)	2.16	2.46		**2.31**
Nitrous Oxide (mg/Sm^3 @ 11% O_2)*	4.29	8.92	14.03	**9.08**
Total Hydrocarbons (mg/Sm^3 @ 11% O_2)	4.76	7.10	4.17	**5.34**
Trace Metals - Operational Certificate List (mg/Sm^3 @ 11% O_2)				
OC Class (Pb, As and Cr)	0.00749	0.00744	0.01162	**0.00885**
Aluminum (mg/Sm^3 @ 11% O_2)	0.01553	0.01075	0.00976	0.01201
Cadmium (mg/Sm^3 @ 11% O_2)	0.00022	0.00018	0.00030	0.00023
Lead (mg/Sm^3 @ 11% O_2)	0.00452	0.00321	0.00470	0.00414
Mercury (mg/Sm^3 @ 11% O_2)	0.00004	0.00006	0.00006	0.00005
Phosphorus (mg/Sm^3 @ 11% O_2)	0.00088	0.00372	0.00090	0.00184
Isokinetic Variation (%)	101	103	103	102

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 8: Unit 2 Trace Metals Emissions (OC Class)

Metal	Test 1 (mg/m^3 @ 11% O_2)	Test 2 (mg/m^3 @ 11% O_2)	Test 3 (mg/m^3 @ 11% O_2)	Average (mg/m^3 @ 11% O_2)
OC Class				
Pb	0.0045	0.0032	0.0047	0.0041
As	0.0011	0.0017	0.0020	0.0016
Cr	0.0019	0.0025	0.0049	0.0031
Sum of OC Class	0.0075	0.0074	0.0116	0.0089
Other				
Al	0.01553	0.01075	0.00976	0.0120
Cd	0.00022	0.00018	0.00030	0.0002
P	0.00088	0.00372	0.00090	0.0018
Hg	0.00004	0.00006	0.00006	0.00005

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 9: Unit 2 Detailed Trace Metals Emissions

Metal	Test 1 (mg/m^3 @ 11% O_2)	Test 2 (mg/m^3 @ 11% O_2)	Test 3 (mg/m^3 @ 11% O_2)	Average (mg/m^3 @ 11% O_2)
Pb	0.00452	0.00321	0.00470	0.00414
Sb	0.00247	0.00465	0.00407	0.00373
Cu	0.00127	0.00149	0.00174	0.00150
Mn	0.00053	0.00083	0.00047	0.00061
V	0.00035	0.00041	0.00036	0.00038
Zn	0.02280	0.01998	0.04681	0.02986
As	0.00106	0.00174	0.00199	0.00159
Cr	0.00191	0.00250	0.00493	0.00312
Co	0.00022	0.00010	0.00009	0.00014
Ni	0.00113	0.00205	0.00188	0.00169
Se	0.00053	0.00407	0.00054	0.00172
Te	0.00071	0.00083	0.00072	0.00075
Tl	0.00146	0.00062	0.00054	0.00088
Cd	0.00022	0.00018	0.00030	0.00023
Hg	0.00004	0.00006	0.00006	0.00005

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 10: Unit 2 - Summary of Operating Data

Parameter		Run 1	Run 2	Run 3	Normal
Test Date - Particulate/Metals		11-Feb-25	12-Feb-25	12-Feb-25	
Test Time - Particulate/Metals		10:16 - 12:20	09:07 - 11:09	11:35 - 13:37	
Boiler Steam Production	**(kg/h)**	35207	35205	35017	32337
Percentage of normal	**(%)**	110%	112%	111%	
Boiler Secondary Combustion Zone Temp	**(°C)**	981	909	894	832
Percentage of normal	**(%)**	118%	109%	107%	
Rate of refuse fired	**(kg/hr)**	10125	9599	9599	8801
Percentage of normal	**(%)**	115%	109%	109%	
Rate of aux. fuel fired (Natural Gas)	**m^3/hr**	0	0	0	100
Percentage of normal (%)	**(%)**	0%	0%	0%	

*Normal refers to the average operating rate from the previous 30 days

Table 11: Unit 3 Summary of Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Test Date - Particulate/Metals	10-Feb-25	11-Feb-25	11-Feb-25	
Test Time - Particulate/Metals	11:50 - 13:51	09:07 - 11:08	11:33 - 13:34	
Duration - Minutes	120	120	120	
Test Date - Acid Gases	11-Feb-25	11-Feb-25	11-Feb-25	
Test Time - Acid Gases	09:35 - 10:35	10:46 - 11:46	11:58 - 12:58	
Duration - Minutes	60	60	60	
Stack Temperature (°C)	153	150	151	151
Average Gas Velocity (m/s)	13.4	13.7	13.2	13.4
Dry Flow Rate (Sm^3/min)	1191	1206	1161	1186
Moisture (Vol. %)	12.7	13.9	13.5	13.3
Oxygen (Vol. %)(dry basis)	10.4	10.5	10.7	10.5
Carbon Dioxide (Vol. %)(dry basis)	9.8	9.4	9.4	9.5
Particulate (mg/Sm^3 @ 11% O_2)	0.45	1.03	0.30	**0.59**
Hydrogen Fluoride (mg/Sm^3 @ 11% O_2)	0.051	0.034	0.036	**0.041**
Ammonia (mg/Sm^3 @ 11% O_2)		8.47	1.76	**5.11**
Nitrous Oxide (mg/Sm^3 @ 11% O_2)*	7.74	8.73	6.06	**7.51**
Total Hydrocarbons (mg/Sm^3 @ 11% O_2)	3.28	4.33	4.10	**3.90**
Trace Metals - Operational Certificate List (mg/Sm^3 @ 11% O_2)				
OC Class (Pb, As and Cr)	0.00293	0.00243	0.00106	**0.00214**
Aluminum (mg/Sm^3 @ 11% O_2)	0.01440	0.01061	0.01382	0.01294
Cadmium (mg/Sm^3 @ 11% O_2)	0.00009	0.00026	0.00016	0.00017
Lead (mg/Sm^3 @ 11% O_2)	0.0021	0.0016	0.0006	0.0014
Mercury (mg/Sm^3 @ 11% O_2)	0.00020	0.00005	0.00004	0.00010
Phosphorus (mg/Sm^3 @ 11% O_2)	0.00144	0.00035	0.00093	0.00091
Isokinetic Variation (%)	101	103	104	103

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 12: Unit 3 Trace Metals Emissions (OC Class)

Metal	Test 1 (mg/m^3 @ 11% O_2)	Test 2 (mg/m^3 @ 11% O_2)	Test 3 (mg/m^3 @ 11% O_2)	Average (mg/m^3 @ 11% O_2)
OC Class				
Pb	0.00205	0.00157	0.00056	0.00140
As	0.00036	0.00035	0.00037	0.00036
Cr	0.00051	0.00051	0.00012	0.00038
Sum of OC Class	0.00293	0.00243	0.00106	0.00214
Other				
Al	0.01440	0.01061	0.01382	0.0129
Cd	0.00009	0.00026	0.00016	0.0002
P	0.00144	0.00035	0.00093	0.0009
Hg	0.00020	0.00005	0.00004	0.0001

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 13: Unit 3 Detailed Trace Metals Emissions

Metal	Test 1 (mg/m^3 @ 11% O_2)	Test 2 (mg/m^3 @ 11% O_2)	Test 3 (mg/m^3 @ 11% O_2)	Average (mg/m^3 @ 11% O_2)
Pb	0.00205	0.00157	0.00056	0.00140
Sb	0.00090	0.00088	0.00112	0.00097
Cu	0.00072	0.00117	0.00037	0.00075
Mn	0.00009	0.00011	0.00009	0.00010
V	0.00036	0.00035	0.00037	0.00036
Zn	0.00702	0.01468	0.01053	0.01075
As	0.00036	0.00035	0.00037	0.00036
Cr	0.00051	0.00051	0.00012	0.00038
Co	0.00019	0.00022	0.00030	0.00024
Ni	0.00018	0.00111	0.00026	0.00052
Se	0.00054	0.00053	0.00056	0.00054
Te	0.00144	0.00071	0.00123	0.00113
Tl	0.00054	0.00053	0.00056	0.00054
Cd	0.00009	0.00026	0.00016	0.00017
Hg	0.00020	0.00005	0.00004	0.00010

All data is corrected to standard conditions (S) of 20 °C, 101.325 kPa (dry) unless otherwise noted.

Table 14: Unit 3 - Summary of Operating Data

Parameter		Run 1	Run 2	Run 3	Normal
Test Date - Particulate/Metals		10-Feb-25	11-Feb-25	11-Feb-25	
Test Time - Particulate/Metals		11:50 - 13:51	09:07 - 11:08	11:33 - 13:34	
Boiler Steam Production	(kg/h)	35679	37001	36112	30675
Percentage of normal	(%)	118%	120%	117%	
Boiler Secondary Combustion Zone Temp	(°C)	892	881	888	864
Percentage of normal	(%)	106%	100%	101%	
Rate of refuse fired	(kg/hr)	9541	10307	10307	4416
Percentage of normal	(%)	216%	233%	233%	
Rate of aux. fuel fired (Natural Gas)	m^3/hr	0	0	0	100
Percentage of normal (%)	(%)	0%	0%	0%	

DISCUSSION

All Units are in compliance with limits as set out in the OC.

Two samples for NH_3 (Run 3 Unit 2 and Run 1 Unit 3) were deemed non-representative and removed from reporting. The analytical results were zero or near zero and our assumption is that the sample probe was dislodged from the stack during sampling or that there was a leak which corrected during the final leak-check procedure.

As stated in Section 2.1, EPA Method 5/29 was modified slightly to accommodate performance based analytical protocols utilized in B.C. for trace metals sampling and analysis. The analytical modification consists of using volumes of recovery reagents different than the method stipulates. In order to validate (ie performance-based QA) the modification, sample Blanks and all samples were made up to the same volume, so that subtraction of the Blank data, was done on equivalent sample sizes. In addition, special Hg spiking of blank filters and peroxide solutions was conducted. This spiking is referred to as a “matrix spike” and is reported in Appendix B, Quality Control for mercury, where the recovery of spiked mercury was calculated to be an acceptable 85 to 115%. It should be noted that independent front half/back half analysis of all trace metals was conducted for this survey. In addition, individual quartz filter blanks were analyzed for each unit.

Sampling was conducted in accordance with their respective reference methods (EPA 29 except as discussed) and passed all appropriate quality assurance and quality control criteria. None of the sample points on any of the three units were outside of the allowable +/- 10% for isokinetic rate.

During the monitoring, there were no environmental observations made that would impact the validity of the test program. The weather was normal with light rain and wind on one day, but otherwise dry.

All sampling was conducted/supervised by certified emission testing personnel, using calibrated source sampling equipment and quality-controlled reagents. It is therefore stated that the survey and this report complies with MV's WTEF compliance testing requirements for this first survey in 2025.