A.Lanfranco & Associates Inc.
Environmental Consultants

Prepared for

METRO VANCOUVER

Metrotower III 4730 Kingsway
Burnaby, BC V5H 0C6

WASTE TO ENERGY FACILITY

Emissions Testing Report
August 2021 3rd Quarter Survey
Operational Certificate 107051
Issued Sept.21, 2021

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. S. Harrington (certified), Mr. C. Lanfranco (certified), Mr. D. Sampson (certified), Mr. M. Goods (certified), Mr. L. Agassiz (certified), Mr. J. Ching and Mr. S. Baker.

The report was prepared by Mr. C. Lanfranco 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 by:

Mark Lanfranco, CST
President | Owner

Table of Contents

List of Tables

SUMMARY

The following table shows 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 third quarter of 2021.

Table 1: Summary Comparison of Emissions Test Results with Limits

Parameter	Limit	Unit 1	Unit 2	Unit 3	Plant Average
Test Date		9-10 Aug. 21	10-11 Aug. 21	11-12 Aug. 21	
Particulate (mg/m^3 @ 11% O_2)	**9.0**	1.11	0.04	2.74	**1.30**
Hydrogen Fluoride (mg/m^3 @ 11% O_2)	**1.0**	0.002	0.001	0.003	**0.002**
Trace Metals - OC Class (mg/m^3 @ 11% O_2)					
Lead (Pb)	**-**	0.0027	0.0007	0.0046	**0.0027**
Arsenic (As)	**-**	0.0004	0.0003	0.0004	**0.0004**
Chromium (Cr)	**-**	0.0017	0.0015	0.0011	**0.0014**
OC Class Sum (Pb, As and Cr)	**0.064**	0.0048	0.0025	0.0061	**0.0045**
Mercury (mg/m^3 @ 11% O_2)	**0.02**	0.0019	0.0012	0.0014	**0.0015**
Cadmium (mg/m^3 @ 11% O_2)	**0.007**	0.0003	0.0001	0.0006	**0.0003**

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

The testing did not differ significantly from the previous two surveys in 2021. The results for all parameters were near method detection limits. Particulate results for Unit 3 are slightly elevated in comparison to Unit's 1-2.

Hexavalent Chromium was measured this survey and reported in Table 9. These results are similar-to historical data and at the analytical reporting detection limit.

1.0 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). This report documents the results from the survey conducted on Units 1, 2 and 3 for the third quarter of 2021. This survey includes particulate matter, trace metals, mercury (Hg), hydrogen fluoride (HF), nitrous oxide (N_2O) and hexavalent chromium (Cr^{+6}). A. Lanfranco and Associates Inc., 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 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. Sampling was conducted on August 9-12, and August 16-17, 2021 (hexavalent chromium).

2.0 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)	CTM-034

The following section briefly details individual test methods used by the following five individual sampling trains:

- Train 1 – Particulate / Trace Metals
- Train 2 – Hydrogen Fluoride
- Train 3 – N_2O
- Train 4 – Hexavalent Chromium

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.

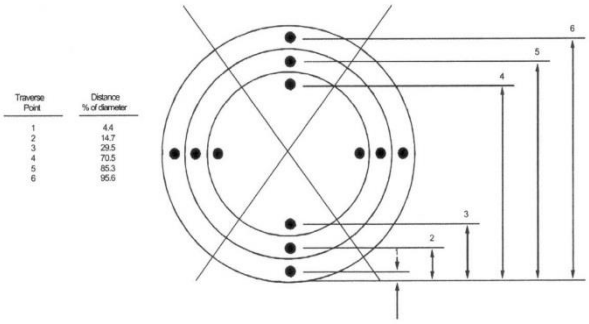

Figure 1. Example showing circular stack cross section divided into 12 equal areas, with location of traverse points.

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. Stack gas volumetric flow rate is determined from measurements of stack gas velocity, temperature, absolute pressure, dry gas composition, moisture content, and stack diameter.

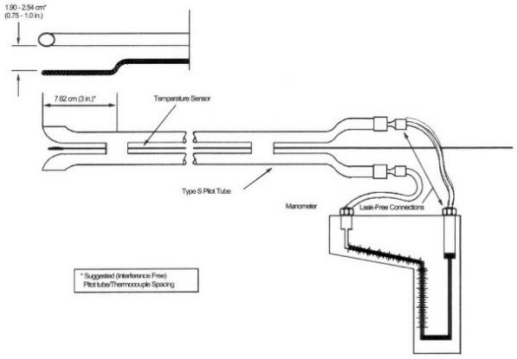

Figure 2. Type S Pitot Tube Manometer Assembly

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 $\pm$ 14^{o}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 displays the sample train and its configuration.

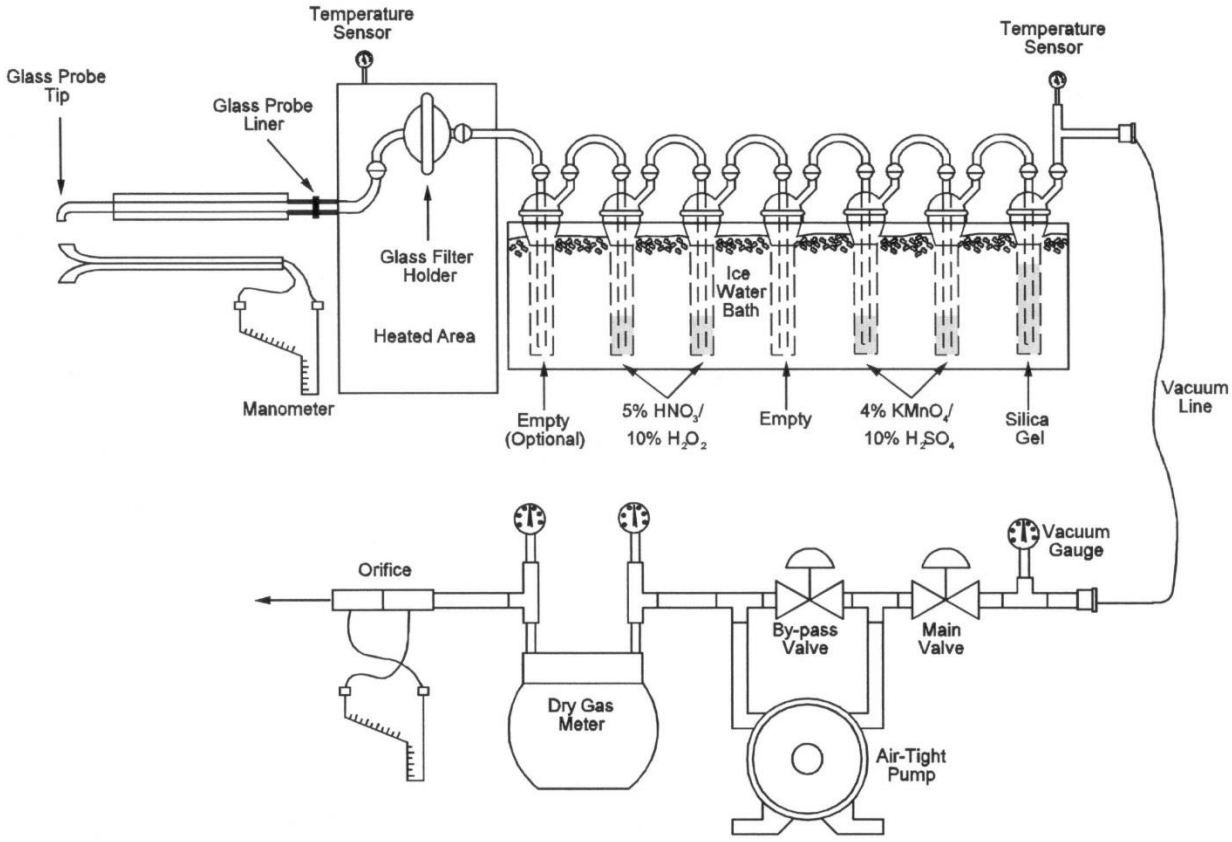

Figure 3. Particulate / Trace Metals Sampling Train

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 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 ALS Environmental in Burnaby, BC.

N_2O Primary: CTM 034

Three N_2O samples were collected from each source using Viasensor G200 Medical Grade gas analyser, calibrated to Nitrous Oxide. The flue gas was introduced to the G200 after passing through a soda lime filter to remove CO_2. Multiple readings were taken over an one hour period, these readings were averaged on the analyzer and recorded on the data sheet.

Chromium $^{+6}$ Primary: EPA Method 0061

The Method 0061 sampling train (see Fig. 4) was used to collect samples, where all train components were Teflon or borosilicate glass. A small amount of 0.1N KOH is re-circulated through the probe and first impinger via peristaltic pump. The impinger components were:

Stack Impingers
150 ml 0.1 N KOH
75 ml 0.1 N KOH
75 ml 0.1 N KOH
Empty
200 silica gel

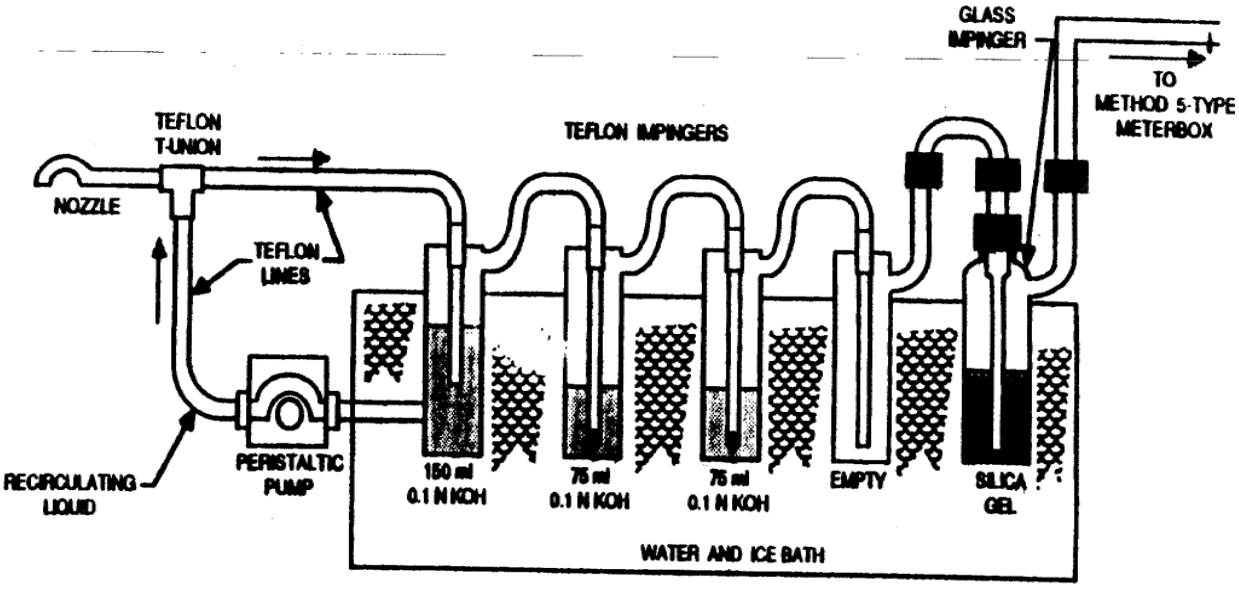

Figure 4. Hexavalent Chromium Sampling Train

2.1 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).

3.0 DETAILED TEST RESULTS

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

Tables 3-11 present the detailed results of all emissions parameters tested 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	9-Aug-21	10-Aug-21	10-Aug-21	
Test Time - Particulate/Metals	11:45 - 13:50	09:48 - 11:50	12:06 - 14:08	
Duration - Minutes	120	120	120	
Test Date - Acid Gases	10-Aug-21	10-Aug-21	10-Aug-21	
Test Time - Acid Gases	09:50 - 10:50	11:04 - 12:04	12:17 - 13:17	
Duration - Minutes	60	60	60	
Stack Temperature (°C)	156	155	157	156
Average Gas Velocity (m/s)	14.2	13.5	14.3	14.0
Dry Flow Rate (m^3/min)	1183	1149	1201	1178
Moisture (Vol. %)	16.7	14.9	15.8	15.8
Oxygen (Vol. %)(dry basis)	10.0	10.0	10.0	10.0
Carbon Dioxide (Vol. %)(dry basis)	10.4	10.4	10.0	10.3
Particulate (mg/m^3 @ 11% O_2)	1.63	0.56	1.16	**1.11**
Hydrogen Fluoride (mg/m^3 @ 11% O_2)	0.001	0.002	0.002	**0.002**
Nitrous Oxide (mg/m^3 @ 11% O_2)	5.4	3.6	5.4	**4.8**
Trace Metals - Operational Certificate List (mg/m^3 @ 11% O_2)				
OC Class (Pb, As and Cr)	0.00529	0.00299	0.00623	**0.00484**
Aluminum (mg/m^3 @ 11% O_2)	0.01405	0.01922	0.01385	**0.01570**
Cadmium (mg/m^3 @ 11% O_2)	0.00036	0.00021	0.00036	**0.00031**
Lead (mg/m^3 @ 11% O_2)	0.00342	0.00175	0.00287	**0.00268**
Mercury (mg/m^3 @ 11% O_2)	0.00509	0.00031	0.00026	**0.00189**
Phosphorus (mg/m^3 @ 11% O_2)	0.00319	0.00539	0.00354	**0.00404**
Isokinetic Variation (%)	108	106	106	107

*N2O was sampled on Aug 10, 2021

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)

`	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	0.00342	0.00175	0.00287	0.00268
As	0.00064	0.00034	0.00032	0.00043
Cr	0.00124	0.00090	0.00305	0.00173
Sum of OC Class	0.00529	0.00299	0.00623	0.00484
Other				
Al	0.01405	0.01922	0.01385	0.01570
Cd	0.00036	0.00021	0.00036	0.00031
P	0.00319	0.00539	0.00354	0.00404
Hg	0.00509	0.00031	0.00026	0.00189

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	0.00342	0.00175	0.00287	0.00268
Sb	0.00136	0.00084	0.00040	0.00087
Cu	0.00113	0.00244	0.00216	0.00191
Mn	0.00048	0.00084	0.00277	0.00136
V	0.00032	0.00034	0.00032	0.00033
Zn	0.02299	0.02636	0.02802	0.02579
As	0.00064	0.00034	0.00032	0.00043
Cr	0.00124	0.00090	0.00305	0.00173
Co	0.00007	0.00008	0.00010	0.00008
Ni	0.00137	0.00158	0.00853	0.00383
Se	0.00088	0.00051	0.00089	0.00076
Te	0.00064	0.00152	0.00064	0.00093
Tl	0.00048	0.00051	0.00048	0.00049
Cd	0.00036	0.00021	0.00036	0.00031
Hg	0.00509	0.00031	0.00026	0.00189

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

Table 6: Unit 2 Summary of Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Test Date - Particulate/Metals	10-Aug-21	11-Aug-21	11-Aug-21	
Test Time - Particulate/Metals	13:06 - 15:08	08:35 - 10:37	10:55 - 12:56	
Duration - Minutes	120	120	120	
Test Date - Acid Gases	11-Aug-21	11-Aug-21	11-Aug-21	
Test Time - Acid Gases	09:00 - 10:00	10:14 - 11:36	11:49 - 12:49	
Duration - Minutes	60	60	60	
Stack Temperature (°C)	161	148	153	154
Average Gas Velocity (m/s)	14.1	14.0	13.9	14.0
Dry Flow Rate (m^3/min)	1150	1179	1167	1165
Moisture (Vol. %)	17.3	16.8	16.5	16.9
Oxygen (Vol. %)(dry basis)	8.9	7.9	8.3	8.4
Carbon Dioxide (Vol. %)(dry basis)	10.6	11.4	11.1	11.0
Particulate (mg/m^3 @ 11% O_2)	0.03	0.07	0.03	0.04
Hydrogen Fluoride (mg/m^3 @ 11% O_2)	0.001	0.001	0.002	0.001
Nitrous Oxide (mg/m^3 @ 11% O_2)	8.2	4.6	6.5	6.4
Trace Metals - Operational Certificate List (mg/m^3 @ 11% O_2)				
OC Class (Pb, As and Cr)	0.00232	0.00381	0.00131	0.00248
Aluminum (mg/m^3 @ 11% O_2)	0.01066	0.01017	0.00507	0.00863
Cadmium (mg/m^3 @ 11% O_2)	0.00007	0.00007	0.00007	0.00007
Lead (mg/m^3 @ 11% O_2)	0.00096	0.00078	0.00042	0.00072
Mercury (mg/m^3 @ 11% O_2)	0.00033	0.00199	0.00130	0.00120
Phosphorus (mg/m^3 @ 11% O_2)	0.00296	0.00339	0.00366	0.00334
Isokinetic Variation (%)	107	106	106	107

*N2O was sampled on Aug 11, 2021.

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

Note - Run 2 included a 22 minute pause during HF monitoring.

Table 7: 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	0.0010	0.0008	0.0004	0.0007
As	0.0003	0.0002	0.0003	0.0003
Cr	0.0011	0.0028	0.0006	0.0015
Sum of OC Class	0.0612	0.0038	0.0013	0.0025
Other				
Al	0.01066	0.01017	0.00507	0.0086
Cd	0.00007	0.00007	0.00007	0.0001
P	0.00296	0.00339	0.00366	0.0033
Hg	0.00033	0.00199	0.00130	0.0012

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

Table 8: 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	0.00096	0.00078	0.00042	0.00072
Sb	0.00074	0.00071	0.00070	0.00072
Cu	0.00007	0.00007	0.00007	0.00007
Mn	0.00018	0.00102	0.00008	0.00043
V	0.00030	0.00028	0.00028	0.00029
Zn	0.00098	0.00062	0.00059	0.00073
As	0.00030	0.00023	0.00028	0.00027
Cr	0.00106	0.00281	0.00061	0.00149
Co	0.00021	0.00015	0.00007	0.00014
Ni	0.00037	0.00630	0.00051	0.00239
Se	0.00044	0.00042	0.00042	0.00043
Te	0.00059	0.00057	0.00121	0.00079
Tl	0.00044	0.00042	0.00042	0.00043
Cd	0.00007	0.00007	0.00007	0.00007
Hg	0.00033	0.00199	0.00130	0.00120

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

Table 9: Unit 3 Summary of Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Test Date - Particulate/Metals	11-Aug-21	12-Aug-21	12-Aug-21	
Test Time - Particulate/Metals	11:57 - 14:00	08:23 - 11:24	12:04 -14:06	
Duration - Minutes	120	120	120	
Test Date - Acid Gases	12-Aug-21	12-Aug-21	12-Aug-21	
Test Time - Acid Gases	08:46 - 09:46	10:00 - 11:00	11:53 - 12:53	
Duration - Minutes	60	60	60	
Stack Temperature (°C)	150	153	159	154
Average Gas Velocity (m/s)	13.7	13.4	13.6	13.6
Dry Flow Rate (m^3/min)	1165	1133	1123	1140
Moisture (Vol. %)	16.3	15.8	16.6	16.2
Oxygen (Vol. %)(dry basis)	10.0	9.4	9.1	9.5
Carbon Dioxide (Vol. %)(dry basis)	10.5	9.9	10.3	10.2
Particulate (mg/m^3 @ 11% O_2)	4.45	1.98	1.79	2.74
Hydrogen Fluoride (mg/m^3 @ 11% O_2)	0.003	0.003	0.002	0.003
Nitrous Oxide (mg/m^3 @ 11% O_2)	5.4	3.9	7.9	5.8
Trace Metals - Operational Certificate List (mg/m^3 @ 11% O_2)				
OC Class (Pb, As and Cr)	0.00597	0.00693	0.00529	0.00607
Aluminum (mg/m^3 @ 11% O_2)	0.02061	0.00882	0.02964	0.01969
Cadmium (mg/m^3 @ 11% O_2)	0.00071	0.00035	0.00066	0.00057
Lead (mg/m^3 @ 11% O_2)	0.00376	0.00535	0.00455	0.00455
Mercury (mg/m^3 @ 11% O_2)	0.00213	0.00125	0.00088	0.00142
Phosphorus (mg/m^3 @ 11% O_2)	0.00831	0.00535	0.00556	0.00641
Hexavalent Chromium (mg/Sm^3 @ 11% O_2)*	0.00016	0.00004	0.00004	0.00008
Isokinetic Variation (%)	106	105	106	**106**

*N_2O was sampled on Aug 11, 2021. Hexavalent Chromium was sampled on Aug 16-17, 2021

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

Table 10: 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	0.00376	0.00535	0.00455	0.00455
As	0.00033	0.00031	0.00059	0.00041
Cr	0.00189	0.00126	0.00015	0.00110
Sum of OC Class	0.00597	0.00693	0.00529	0.00607
Other				
Al	0.02061	0.00882	0.02964	0.0197
Cd	0.00071	0.00035	0.00066	0.0006
P	0.00831	0.00535	0.00556	0.0064
Hg	0.00213	0.00125	0.00088	0.0014

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

Table 11: 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	0.00376	0.00535	0.00455	0.00455
Sb	0.00166	0.00197	0.00193	0.00185
Cu	0.00008	0.00180	0.00164	0.00117
Mn	0.00143	0.00076	0.00046	0.00088
V	0.00033	0.00031	0.00031	0.00032
Zn	0.04478	0.04176	0.04026	0.04227
As	0.00033	0.00031	0.00059	0.00041
Cr	0.00189	0.00126	0.00015	0.00110
Co	0.00008	0.00017	0.00013	0.00013
Ni	0.00715	0.00328	0.00102	0.00381
Se	0.00050	0.00047	0.00066	0.00054
Te	0.00066	0.00094	0.00062	0.00074
Tl	0.00050	0.00063	0.00046	0.00053
Cd	0.00071	0.00035	0.00066	0.00057
Hg	0.00213	0.00125	0.00088	0.00142

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

4.0 DISCUSSION

All emissions from all Units were within limits as set out in the OC.

This survey represents the third quarter requirements and also includes the annual test for hexavalent chromium. This year, Unit 3 was chosen for the hexavalent chromium testing.

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.

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 the MV’s WTEF compliance testing requirements for this third survey in 2021.