

# Metro Vancouver - Waste-to-Energy Facility CONTINUOUS EMISSION MONITORING SYSTEM

November 2023

## 1. Monthly Summary Report

Parameter	Compliance Limit (mg/dscm)	Compliance Period	Maximum Measurement (mg/dscm)		
			Unit 1	Unit 2	Unit 3
CO	50	24 hr	40.9	35.3	29.4
SO <sub>2</sub>	200	24 hr	80.3	97.3	123.0
NOx	190	24 hr	134.5	156.1	158.0
THC	10	24 hr	0.20	1.76	1.71
			Monthly Average (mg/dscm)		
			Unit 1	Unit 2	Unit 3
Opacity (%)			0.74	0.76	1.82
CO			31.4	25.4	22.9
THC			0.10	0.37	0.30
SO <sub>2</sub>			52.3	63.0	65.1
NOx			127.2	129.7	136.3

Interim Discharge Limits will apply until and including the following dates, at which point the Discharge Limits and Response Limits will apply

a. HCl – March 3, 2025

b. SO<sub>2</sub> – March 3, 2025

## 2. Monthly Exceedance Report

### 2.a. Discharge Limit Exceedances

Unit	Compliance Parameter	Discharge Limit (mg/dscm)	Date	Exceedance Level
	Reason/Action Taken			

### 2.b. Response Limit Exceedances

Compliance Parameter: Carbon Monoxide

Response Limit: 100 mg/dscm 1/2 hour average

Unit No. 1

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
6-Nov 20:30	30 min	126.7	Started gas burners, adjusted airflow, modified feed rate.
7-Nov 14:30	30 min	103.8	Feed chute hang up. Started gas burners, adjusted airflow, modified feed rate.
7-Nov 22:30	30 min	131.3	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
13-Nov 13:30	30 min	120.0	No action required.
22-Nov 09:30	30 min	114.6	Adjusted airflow, modified feed rate.
23-Nov 11:30	30 min	111.1	Feed chute hang up. Adjusted airflow, modified feed rate.
23-Nov 12:00	30 min	146.3	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate.
24-Nov 11:30	30 min	131.0	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.

**Compliance Parameter: Carbon Monoxide**  
**Response Limit: 100 mg/dscm 1/2 hour average**  
**Unit No. 2**

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
6-Nov 23:30	30 min	129.9	Poor fuel quality. Started gas burners, adjusted airflow, modified feed rate.
6-Nov 23:30	30 min	100.1	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
7-Nov 16:30	30 min	118.2	Started gas burners, adjusted airflow.
15-Nov 10:00	30 min	138.5	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
21-Nov 18:30	30 min	287.1	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate.
22-Nov 15:00	30 min	116.6	Started gas burners, adjusted airflow, modified feed rate.
30-Nov 10:30	60 min	258.0	Started gas burners, adjusted airflow, modified feed rate.

**Compliance Parameter: Carbon Monoxide**  
**Response Limit: 100 mg/dscm 1/2 hour average**  
**Unit No. 3**

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
5-Nov 16:30	30 min	103.0	Started gas burners, adjusted airflow, modified feed rate.

**Compliance Parameter: Opacity**  
**Response Limit: 5% 1/2 hour average**  
**Unit No. 2**

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
27-Nov 19:00	30 min	11.0	Closed fabric filter outlet dampers one at a time to check compartments, instrumentation inspection.

**2.c. Transient Conditions**

**Gas burners unavailable during shutdown and furnace temperature average below 800C**

Unit	Duration	Date	Time	
<b>Cause</b>				
<b>Action Taken to Restore Steady State Conditions</b>				
<b>Remedial Action Planned and/or Taken</b>				

### 3. CEMS Availability

Analyzer	Required Availability (% hours per quarter)	Averaging Period	Monthly Availability		
			Unit 1	Unit 2	Unit 3
Opacity	90	Hour	99	99	99
Oxygen	90	Hour	99	96	99
CO	90	Hour	99	96	99
SO <sub>2</sub>	90	Hour	98	96	99
NOx	90	Hour	99	96	99
THC	90	Hour	98	95	99
Stack Flow	90	Hour	100	100	100

### 4. Shutdown Report

#### Unit 1

Duration in Hours	Reason	Date
1.56	Poor refuse quality	November 5-6
1.13	Ash Discharger plugged	November 10
18.30	BC Hydro power interruption	November 11
0.30	BC Hydro power interruption	November 11
0.20	BC Hydro power interruption	November 11
0.68	Fabric filter bag inspection	November 12
0.68	Safety valve issues	November 13

#### Unit 2

Duration in Hours	Reason	Date
2.83	Poor refuse quality	November 6
0.33	Fabric filter bag inspection	November 10
19.85	BC Hydro power interruption	November 11
0.90	BC Hydro power interruption	November 11
0.48	Fabric filter bag inspection	November 12
1.18	Safety valve issues	November 13
0.65	Safety valve issues	November 13
0.85	Opacity probe	November 27

#### Unit 3

Duration in Hours	Reason	Date
1.10	Boiler tube leak	November 1
0.82	Ash discharger plug	November 3
0.33	Fabric filter bag inspection	November 10
0.72	BC Hydro power interruption	November 11
15.18	BC Hydro power interruption	November 11
0.27	Fabric filter bag inspection	November 12
0.22	CEMS communication issue	November 16

### 5. Facility Bypass and Emergency/spill Event Report

Date/Time	Cause	Duration
	Action Taken	

## **6. Other Data**

		<b>UNIT 1</b>	<b>UNIT 2</b>	<b>UNIT 3</b>
Waste Received	tonnes	<b>19,837</b>		
Waste Processed	tonnes/day	<b>239</b>	<b>222</b>	<b>228</b>
Maximum Waste Processed	tonnes/day	<b>266</b>	<b>263</b>	<b>257</b>
Natural Gas Consumed	m <sup>3</sup> /day	<b>10,024</b>		
	m <sup>3</sup> /month	<b>300,710</b>		
Fly ash disposed	tonnes	<b>874</b>		
Bottom ash disposed	tonnes	<b>3,320</b>		

## **7. Complaints and Responses**

<b>Date/Time</b>	<b>Complaint</b>	<b>Action Taken</b>

November 2023 - Monthly CEMS Data

Date	Boiler #1								Boiler #2								Boiler #3							
	Stack Temp	O <sub>2</sub> (%)	SO <sub>2</sub> (mg/m <sup>3</sup> )	NO <sub>x</sub> (mg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	THC (mg/m <sup>3</sup> )	Opacity (%)	Furnace Temp	Stack Temp	O <sub>2</sub> (%)	SO <sub>2</sub> (mg/m <sup>3</sup> )	NO <sub>x</sub> (mg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	THC (mg/m <sup>3</sup> )	Opacity (%)	Furnace Temp	Stack Temp	O <sub>2</sub> (%)	SO <sub>2</sub> (mg/m <sup>3</sup> )	NO <sub>x</sub> (mg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	THC (mg/m <sup>3</sup> )	Opacity (%)	Furnace Temp
11/1/23	150	9.4	55.2	124.7	34.1	0.14	1.13	964	148	10.6	57.3	127.5	25.6	0.59	0.71	888	153	9.2	70.4	136.1	25.7	0.27	1.81	885
11/2/23	149	9.6	45.2	127.5	36.1	0.14	1.06	947	147	10.1	58.2	130.1	25.2	0.42	0.63	911	154	9.5	63.0	144.2	26.6	0.23	1.71	875
11/3/23	149	9.8	43.2	127.8	25.6	0.00	0.97	944	149	10.0	59.5	127.7	27.2	0.00	0.59	917	153	9.5	64.5	141.0	27.3	0.00	1.53	888
11/4/23	149	9.3	60.1	127.1	29.1	0.00	0.94	940	150	9.9	65.9	128.3	28.9	0.00	0.60	901	154	8.8	71.3	139.5	23.8	0.00	1.93	878
11/5/23	149	9.6	62.4	128.2	26.2	0.00	1.04	917	149	10.2	59.2	126.0	20.2	0.00	0.58	900	153	8.8	71.4	131.7	23.4	0.00	2.21	875
11/6/23	152	11.1	80.3	126.8	30.5	0.13	1.19	875	157	10.8					0.63	866	154	9.4	119.3	131.9	24.5	0.03	2.36	858
11/7/23	150	10.0	65.3	128.8	36.1	0.16	1.26	917	150	10.3	71.5	126.4	28.9	0.73	0.75	898	153	8.8	96.1	134.6	22.7	0.47	2.56	902
11/8/23	147	10.4	60.4	124.3	40.9	0.14	1.25	888	151	10.8	69.2	128.7	29.9	0.80	1.14	873	155	9.4	71.1	136.0	23.5	0.02	2.85	889
11/9/23	151	10.6	44.5	130.3	33.4	0.12	1.24	896	150	10.7	57.2	129.8	28.6		1.04	893	154	9.3	60.9	135.6	22.9	0.08	2.15	884
11/10/23	149	10.4	50.6	129.6	30.4	0.12	1.25	905	151	10.7	56.7	130.2	32.7	1.76	2.21	877	154	9.0	58.6	133.5	21.8	0.27	1.94	901
11/11/23																								
11/12/23	145	10.1	67.3	134.5	32.2	0.20	1.48	893	145	10.5	75.3	156.1	26.8	1.48	0.43	880	153	8.9	70.4	158.0	23.2	0.54	2.05	885
11/13/23	143	10.2	40.4	127.4	35.1	0.16	0.50	893	145	10.8	48.6	132.1	23.5	1.05	0.44	883	150	9.1	60.8	120.7	20.5	0.51	2.14	904
11/14/23	147	10.3	47.8	126.3	29.2	0.11	0.46	906	146	10.9	55.1	134.7	22.0	0.94	0.47	882	151	9.1	76.6	130.2	17.7	0.76	2.25	908
11/15/23	144	10.2	55.6	128.9	27.7	0.12	0.37	913	141	10.7	57.0	133.0	23.1	0.85	0.48	894	151	8.8	58.7	137.1	19.9	0.43	1.65	913
11/16/23	142	10.1	73.3	127.7	27.3	0.10	0.38	922	141	10.9	97.3	129.8	20.8	0.68	0.52	913	127	9.2	123.0	130.1	20.9	0.43	1.46	801
11/17/23	142	10.2	43.7	127.2	32.1	0.12	0.39	910	140	10.7	51.2	128.2	18.7	0.19	0.80	914	148	8.7	50.4	136.5	21.0	0.21	1.73	924
11/18/23	143	10.3	51.6	125.2	31.1	0.00	0.37	910	141	11.1	59.8	128.0	17.4	0.00	1.75	894	152	9.1	60.1	150.3	20.8	0.00	1.88	931
11/19/23	147	10.1	52.0	124.7	29.7	0.16	0.32	922	143	10.9	59.4	126.5	24.4	0.04	1.29	913	151	8.6	58.0	136.3	21.0	0.70	1.95	936
11/20/23	146	9.9	35.8	124.4	32.9	0.00	0.36	914	146	11.2	49.4	124.8	25.0	0.00	0.52	909	152	8.9	46.8	141.3	21.5	0.00	2.04	918
11/21/23	146	9.9	52.2	126.6	33.7	0.00	0.38	909	149	10.6	63.5	130.3	29.2	0.00	0.56	915	154	9.1	60.5	139.5	24.2	0.00	1.65	904
11/22/23	149	10.0	47.4	127.5	35.9	0.00	0.42	911	150	10.1	65.2	127.4	30.1	0.00	0.59	927	154	9.1	54.4	141.3	25.8	0.00	1.41	891
11/23/23	149	10.2	52.2	127.1	36.5	0.00	0.61	934	151	10.1	67.0	127.7	25.7		0.64	937	153	9.6	52.8	138.9	29.4	0.00	1.67	899
11/24/23	146	10.6	50.6	125.7	32.8	0.14	0.60	923	149	10.4	69.4	128.0	25.4	0.00	0.67	904	152	9.8	53.8	137.5	21.1	0.21	2.04	888
11/25/23	146	11.2	52.8	126.6	27.9	0.15	0.55	913	146	10.6	68.2	128.6	18.7	0.00	0.67	915	147	9.4	52.4	130.5	16.9	0.51	1.43	901
11/26/23	145	10.7	44.6	123.1	28.7	0.13	0.57	910	149	10.4	73.6	127.4	21.8	0.02	0.68	902	153	9.3	51.9	130.4	21.0	0.34	1.12	882
11/27/23	147	11.0	32.5	127.0	33.0	0.14	0.56	920	147	10.2	49.2	126.7	27.6	0.01	1.11	916	151	9.5	46.3	129.7	26.3	1.71	1.33	892
11/28/23	146	10.9	64.1	128.4	27.6	0.17	0.59	944	146	10.5	79.1	128.4	25.5	0.01	0.63	917	152	9.3	66.5	132.2	23.6	0.28	1.28	906
11/29/23	146	10.7	43.4	128.5	28.0	0.08	0.63	959	145	10.0	58.7	129.6	22.5	0.00	0.48	936	151	9.1	51.2	137.5	21.0	0.30	1.31	912
11/30/23	143	10.4	41.0	126.3	27.7	0.13	0.53	968	144	10.5	63.4	128.8	35.3	0.11	0.51	909	147	9.4	47.4	131.2	25.5	0.36	1.47	901
<b>Average</b>	147	10.2	52.3	127.2	31.4	0.10	0.74	920	147	10.5	63.0	129.7	25.4	0.37	0.76	903	151	9.2	65.1	136.3	22.9	0.30	1.82	894
<b>Min</b>	142	9.3	32.5	123.1	25.6	0.00	0.32	875	140	9.9	48.6	124.8	17.4	0.00	0.43	866	127	8.6	46.3	120.7	16.9	0.00	1.12	801
<b>Max</b>	152	11.2	80.3	134.5	40.9	0.20	1.48	968	157	11.2	97.3	156.1	35.3	1.76	2.21	937	155	9.8	123.0	158.0	29.4	1.71	2.85	936
<b>St Dev</b>	2.7	0.5	11.0	2.2	3.7	0.07	0.36	22.7	3.8	0.3	10.4	5.6	4.3	0.51	0.40	17.9	5.1	0.3	18.8	7.0	2.8	0.35	0.41	25.0

Blank days have less than 18 hours of valid data due to unit shut downs or analyzer outage/maintenance. According to standard guidelines used by Metro Vancouver Air Quality Policy and Environment Division, a minimum of 18 hours of valid data is required to generate a valid 24hr average.