

Monthly Operating Reports

March 2020

The following March 2020 operating report was sent to the Ministry of Environment and Climate Change Strategy on May 13, 2020.



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

March 2020

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	34.2	31.3	42.9
SO ₂	200	24 hr	72.6	95.2	85.0
NO _x	190	24 hr	128.1	132.8	132.1
THC	10	24 hr	0.28	0.19	0.47
			Monthly Average (mg/dscm)		
			Unit 1	Unit 2	Unit 3
Opacity (%)			0.69	1.18	0.54
CO			25.9	23.4	32.8
THC			0.16	0.07	0.28
SO ₂			43.7	60.5	58.9
NO _x			123.4	129.2	129.3

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

a. HCl – December 31, 2022

b. SO₂ – December 31, 2022

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
9-Mar 08:30	30 min	103.8	Adjusted airflow, modified feed rate.
10-Mar 14:00	30 min	151.3	Started gas burners, adjusted airflow, modified feed rate.
14-Mar 21:30	30 min	104.7	Started gas burners, adjusted airflow, modified feed rate.
16-Mar 14:30	30 min	102.2	Started gas burners, adjusted airflow, modified feed rate.
19-Mar 22:30	30 min	102.8	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
21-Mar 04:00	30 min	112.7	Poor refuse quality, started gas burners, adjusted airflow, modified feed rate.

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

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
5-Mar 02:30	30 min	111.0	Adjusted airflow, modified feed rate
13-Mar 23:00	30 min	108.7	Started gas burners, adjusted airflow, modified feed rate.
16-Mar 18:00	30 min	169.4	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
28-Mar 15:00	30 min	100.6	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. 3

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
9-Mar 17:00	30 min	106.9	Started gas burners, adjusted airflow, modified feed rate.
10-Mar 15:30	30 min	147.9	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
13-Mar 16:00	30 min	127.6	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
17-Mar 11:30	30 min	131.4	Started gas burners, adjusted airflow, modified feed rate.
19-Mar 14:00	30 min	185.7	Started gas burners, adjusted airflow, modified feed rate.
26-Mar 09:30	30 min	120.0	Started gas burners, adjusted airflow, modified feed rate.
27-Mar 08:30	30 min	180.7	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
27-Mar 10:00	30 min	112.9	Online boiler wash, adjusted airflow, modified feed rate, checked instrumentation.
28-Mar 17:30	30 min	130.1	Started gas burners, adjusted airflow, modified feed rate.

2.c. Transient Conditions

Gas burners unavailable and unable to close feed chute damper during shutdown

Unit	Duration	Date	Time	
2	52 minutes	27-Mar-20	07:34 - 08:26	
Cause				
<p>Auxiliary burners on unit 2 were unavailable, due to a safety permissive, to maintain the secondary combustion zone temperature during a boiler shutdown period as required. The operator was unable to close the feed chute damper during the shutdown as required.</p> <p>Unit 2 was placed in shutdown mode at 2020-03-27 07:34 following a BC Hydro power failure which tripped the induced draft fan and forced draft fans. The operator was unable to close the feed chute damper as the refuse was above the damper in the feed chute. The Provincial Boiler Pressure Vessel Safety Act and the Provincial Gas Act required a boiler purge following the restart of the fans as the boiler temperature was below the safety permissive. The auxiliary burners were unavailable for a period of 52 minutes between 2020-03-27 07:34 and 2020-03-27 08:26.</p>				
Action Taken to Restore Steady State Conditions				
<p>Covanta restored power to the boiler and started the induced draft fan at 2020-03-27 07:40 and the forced draft fan at 2020-03-27 07:41. The shutdown was completed at 2020-03-27 08:26.</p>				
Remedial Action Planned and/or Taken				
None identified				

3. CEMS Availability

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

4. Shutdown Report

Unit 1

Duration in Hours	Reason	Date
4.28	Economizer elbow wash	March 21
15.52	Fabric filter bag replacement	March 23
0.68	BC Hydro power interruption	March 27

Unit 2

Duration in Hours	Reason	Date
0.15	Boiler grate inspection	March 10
20.59	Boiler cleaning	March 11 - 12
0.52	Fabric filter bag replacement	March 18
97.59	Minor shutdown	March 22 - 26
0.88	BC Hydro power interruption	March 27

Unit 3

Duration in Hours	Reason	Date
1.28	BC Hydro power interruption	March 27

5. Facility Bypass and Emergency/spill Event Report

Date/Time	Cause	Duration
	Action Taken	

6. Other Data

		UNIT 1	UNIT 2	UNIT 3
Waste Received	tonnes/day	20,743		
Waste Processed	tonnes/day	243	204	252
Maximum Waste Processed	tonnes/day	260	253	267
		Units 1, 2, and 3		
Natural Gas Consumed	m ³ /day	2,861		
	m ³ /month	88,682		
Fly ash disposed	tonnes	414		
Bottom ash disposed	tonnes	3,746		

7. Complaints and Responses

Date/Time	Complaint	Action Taken

March 2020 - Monthly CEMS Data

Date	Boiler #1								Boiler #2								Boiler #3							
	Stack Temp	O ₂ (%)	SO ₂ (mg/m ³)	NO _x (mg/m ³)	CO (mg/m ³)	THC (mg/m ³)	Opacity (%)	Furnace Temp	Stack Temp	O ₂ (%)	SO ₂ (mg/m ³)	NO _x (mg/m ³)	CO (mg/m ³)	THC (mg/m ³)	Opacity (%)	Furnace Temp	Stack Temp	O ₂ (%)	SO ₂ (mg/m ³)	NO _x (mg/m ³)	CO (mg/m ³)	THC (mg/m ³)	Opacity (%)	Furnace Temp
3/1/20	150	9.7	39.8	122.2	26.1	0.20	0.40	941	154	9.2	56.1	129	28.5	0.09	1.29	920	149	9.7	76.3	129.2	36	0.23	0.37	913
3/2/20	149	10.2	59.5	121.3	34.2	0.19	0.43	938	154	9.2	81.1	130.1	27.9	0.02	1.05	926	149	9.6	83.8	130.2	32.6	0.28	0.42	937
3/3/20	150	9.8	36.6	122.3	31.9	0.19	0.34	929	153	9.2	44.8	128.9	29.8	0.12	0.45	929	151	9.3	63.6	128.3	32	0.26	0.33	936
3/4/20	151	9.4	69.3	123.4	28.1	0.15	0.38	946	151	9	61.3	129.6	30.3	0.10	0.44	934	150	9.6	72.9	128.8	31.4	0.21	0.36	931
3/5/20	149	9.4	44.9	121.6	27.1	0.16	0.42	952	150	9	52.9	127.2	31.3	0.16	0.46	939	147	9.2	51.1	128.3	37.5	0.26	0.41	931
3/6/20	149	9.7	40.1	125.6	25.7	0.19	0.47	937	151	9.3	46.8	128.7	24.9	0.07	0.91	939	148	9.5	57.6	130.7	29.2	0.27	0.42	931
3/7/20	151	9.7	48.2	127.7	20.2	0.11	0.49	949	151	9.3	60.1	129.8	19.8	0.00	0.99	953	149	9.6	66.1	130.3	25.4	0.26	0.39	936
3/8/20	150	9.7	56.9	125	22	0.17	0.54	953	150	9.3	76.3	129.4	21.2	0.13	1.08	949	149	9.6	74.8	128.8	28.3	0.22	0.40	941
3/9/20	150	10	39.5	123.1	26.5	0.14	0.58	928	148	9.3	49.2	127.2	25.1	0.11	1.14	941	147	9.9	49.3	129.1	35	0.24	0.41	929
3/10/20	151	10.1	34.9	123.3	23.4	0.07	0.55	922	151	9.5	47.5	128	21.1		0.71	947	147	10.1	52.4	129.5	34.5	0.27	0.43	915
3/11/20	151	10	68.6	122.3	27.1	0.12	0.52	923									148	9.9	82.8	129.2	31.9	0.30	0.40	905
3/12/20	150.9	9.8	41.8	122.8	26.8	0.12	0.57	951	152	9.6	62.2	129.8	27.6	0.03	0.98	936	146	9.6	59.7	127.6	34.1	0.21	0.41	924
3/13/20	152	9.9	51.4	123.1	29.3	0.16	0.60	938	154	9.6	57.1	129.8	23.6	0.03	0.83	924	148	9.5	65.5	129.4	36.4	0.32	0.39	923
3/14/20	151	10.2	72.6	125.7	30.6	0.13	0.76	931	153	9.6	95.2	129.1	20	0.04	1.45	940	147	9.6	85	129.5	33.4	0.28	0.38	917
3/15/20	150	10.5	56.8	128.1	25.3	0.08	0.83	932	152	9.7	82.6	129	20.6	0.02	1.61	951	147	9.7	67.6	129.2	29.5	0.25	0.50	919
3/16/20	146	10.1	41.2	124.9	28.4	0.17	0.82	940	152	9.4	67.5	129.5	29.7	0.03	1.26	945	145	9.3	55.8	127.4	34.2	0.21	0.52	936
3/17/20	147	9.8	41.2	118.4	29.5	0.19	0.80	935	154	9.4	66	131	27.6	0.02	1.04	932	149	9.3	57.6	128.5	42.9	0.47	0.47	927
3/18/20	148	10.2	57.2	121	26.1	0.16	0.81	932	152	9.6	62.9	127	24.6	0.04	0.93	929	149	9.4	64.3	129.9	35.3	0.26	0.49	932
3/19/20	149	10.4	30.5	120.5	31.2	0.25	0.84	937	157	9.5	57.4	128.2	19.7	0.05	1.10	952	152	9.8	54.8	129.8	40.2	0.28	0.50	947
3/20/20	151	10.4	29	120.2	22.5	0.18	0.86	937	155	9.8	33.7	126.4	21.5	0.05	1.56	962	151	10.2	41.3	128.9	32.2	0.30	0.52	948
3/21/20	152	9.8	44.7	123.5	23.8	0.28	0.87	955	152	9.7	38	127.6	23.9	0.08	1.57	955	150	9.9	55.8	131.3	34.9	0.26	0.53	945
3/22/20	155	9.5	46.3	125.8	20.1	0.11	0.87	957	149	10.2	49.5	129.3	23.2	0.03	1.48	939	148	9.5	52.3	132.1	27.7	0.25	0.53	952
3/23/20																	149	9.7	44.2	129.5	34.8	0.40	0.49	935
3/24/20	151	9.9	53.7	122.8	29.6	0.15	0.92	941									149	10.1	73.6	128.6	31.3	0.27	0.57	945
3/25/20	155	9.4	72.3	126.1	25	0.11	0.91	950									148	10	79.7	128.7	33.6	0.26	0.58	937
3/26/20	155	10	52.5	126.6	27.7	0.11	0.86	937									146	10.1	53.4	127	36.6	0.37	0.67	911
3/27/20	156	10.1	31.2	125.6	26.7	0.25	0.83	926	154	9.1	89.7	131.9	21.1	0.14	1.59	912	151	10.4	46.4	128.8	39.5	0.45	0.72	896
3/28/20	155	10.3	15.7	123.5	21.2	0.16	0.82	930	153	9.3	62.5	130.5	15.7	0.03	2.16	942	151	10.5	38.8	130.1	34	0.25	0.90	911
3/29/20	152	10.2	16.4	122.2	17.1	0.10	0.85	940	154	8.9	54.7	132.8	11.8	0.03	1.24	969	150	9.8	43.3	129.6	24.7	0.26	0.91	950
3/30/20	154	9.8	14.6	121.4	20.9	0.14	0.88	961	156	8.7	66.7	130.7	17.5	0.08	1.58	975	152	9.6	34.6	130.9	25.1	0.24	1.13	942
3/31/20	151	10	4.2	120.5	23.8	0.22	0.87	951	152	9	50.4	128.2	21	0.19	1.73	970	147	9.5	20.7	127.8	23.3	0.27	1.18	948
Average	151.1	9.9	43.7	123.4	25.9	0.16	0.69	940.0	152.5	9.4	60.5	129.2	23.4	0.07	1.18	942.7	148.7	9.7	58.9	129.3	32.8	0.28	0.54	930.6
Min	146.0	9.4	4.2	118.4	17.1	0.07	0.34	922.0	148.0	8.7	33.7	126.4	11.8	0.00	0.44	912.0	145.0	9.2	20.7	127.0	23.3	0.21	0.33	896.0
Max	156.0	10.5	72.6	128.1	34.2	0.28	0.92	961.0	157.0	10.2	95.2	132.8	31.3	0.19	2.16	975.0	152.0	10.5	85.0	132.1	42.9	0.47	1.18	952.0
St Dev	2.43	0.30	17.27	2.34	3.92	0.05	0.19	10.47	2.08	0.32	15.05	1.51	4.81	0.05	0.42	15.59	1.80	0.32	15.47	1.13	4.60	0.06	0.22	14.33

Blank days have less than 18 hours of valid data due to unit shut downs or analyzer outage.
 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.