Monthly Operating Reports

February 2022

The following February 2022 operating report was sent to the Ministry of Environment and Climate Change Strategy on April 11, 2022.

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

February 2022

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	41.9	33.5	37.6
SO_2	200	24 hr	167.4	137.5	116.3
NOx	190	24 hr	146.9	153.1	145.6
THC	10	24 hr	0.17	0.13	0.64
			Monthly Average (mg/dscm)		
			Unit 1	Unit 2	Unit 3
Opacity (%)			0.65	1.06	0.41
CO			26.1	21.4	29.3
THC			0.03	0.07	0.24
SO_2			88.0	86.6	79.4
NOx			126.5	133.3	132.6

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_2 – 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
1-Feb 08:00	30 min	102.2	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
2-Feb 14:30	30 min	114.3	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate.
2-Feb 16:00	30 min	130.6	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate.
2-Feb 22:00	30 min	149.8	Feed chute hang up. Started gas burners, adjusted airflow, modified feed rate.
2-Feb 22:30	30 min	104.7	Feed chute hang up. Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
3-Feb 01:00	30 min	151.4	Started gas burners, adjusted airflow, modified feed rate.
11-Feb 12:30	30 min	102.3	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.

13-Feb 18:30	30 min	134.7	Volatile fuel. Started gas burners, adjusted airflow, modified feed
14-Feb 06:00	30 min	103.3	Adjusted airflow, modified feed rate.
17-Feb 11:00	30 min	109.1	No action required.
18-Feb 10:00	30 min	176.1	Volatile Fuel. Started gas burners, adjusted airflow, modified feed rate.
20-Feb 07:30	30 min	138.4	Started gas burners, adjusted airflow, modified feed rate.
24-Feb 15:30	30 min	111.8	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
7-Feb 02:30	30 min	135.0	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
14-Feb 11:30	30 min	119.9	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
7-Feb 19:00	30 min	112.5	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
18-Feb 10:00	30 min	103.7	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate.
18-Feb 14:00	30 min	112.6	Started gas burners, adjusted airflow, modified feed rate.
18-Feb 15:30	30 min	104.4	Started gas burners, adjusted airflow, modified feed rate.
19-Feb 16:00	30 min	108.8	Volatile fuel. Started gas burners, adjusted airflow, modified feed rate.
19-Feb 19:30	30 min	103.2	Started gas burners, adjusted airflow, modified feed rate.
24-Feb 08:00	60 min	116.8	Online wash. Started gas burners, adjusted airflow, modified feed rate.
24-Feb 15:30	30 min	117.9	Started gas burners, adjusted airflow, modified feed rate.
24-Feb 16:00	30 min	114.9	Started gas burners, adjusted airflow, modified feed rate.
28-Feb 06:30	30 min	108.8	Started gas burners, adjusted airflow, modified feed rate.

Compliance Parameter: Nitrogen Oxide
Response Limit: 350 mg/dscm 1/2 hour average
Unit No. 1

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
13-Feb 13:00	60 min	846.2	Instrumentation issue. Checked aqueous ammonia flow, checked low NOx system air flow, checked aqueous ammonia spray nozzle pattern, checked instrumentation.

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

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
5-Feb 05:30	30 min	5.3	Compartment plugged. Visually inspected stack, closed fabric filter dampers, inspected compartments.

2.c. Transient Conditions

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

Unit	Duration	Date	Time	
#2	1 hr 25 min	11-Feb-22	16:05-17:30	

Cause

Auxiliary burners on unit 2 were unavailable to maintain the secondary combustion zone temperature during boiler shutdown period.

Unit 2 was placed in shutdown mode at 2022-02-11 16:05 due to an induced draft fan trip. The Provincial Boiler Vessel Safety Act and the Provincial Gas Act require a boiler purge following the restart of the combustion fans. The auxiliary burners were unavailable for a period of 1 hr 25 minutes between 2022-02-11 16:05 and 17:30.

Action Taken to Restore Steady State Conditions

Unit was shut down to inspect induced draft fan.

Remedial Action Planned and/or Taken

Induced draft fan was inspected and adjusted on February 12, 2022.

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

Unit	Duration	Date	Time	
#2	38 minutes	24-Feb-22	03:10-03:48	

Cause

Auxiliary burners on unit 2 were unavailable to maintain the secondary combustion zone temperature during boiler shutdown period.

Unit 2 was placed in shutdown mode at 2022-02-24 03:10 following an induced draft fan trip. The Provincial Boiler Vessel Safety Act and the Provincial Gas Act require a boiler purge following the restart of the combustion fans. The auxiliary burners were unavailable for a period of 38 minutes between 2022-02-24 03:10 and 03:48.

Action Taken to Restore Steady State Conditions

Covanta restarted the induced draft fan at 2022-02-24 03:30 and the forced draft fan at 2022-02-24 03:35. The natural gas burners were back online at 2022-02-24 03:48. The shutdown was completed at 2022-02-24 04:00.

Remedial Action Planned and/or Taken

Covanta will inspect the induced draft fan to determine the cause of the trips.

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	97	99	100
CO	90	Hour	97	99	100
SO_2	90	Hour	97	99	100
NOx	90	Hour	97	99	100
THC	90	Hour	97	99	100
Stack Flow	90	Hour	97	99	100

4. Shutdown Report

Unit 1

Duration in Hours	Reason	Date
0.12	High furnace pressure trip	February 6
5.28	Fabric filter bag inspection	February 8
45.90	Generating bank inlet wash	February 9-10

Unit 2

Duration in Hours	Reason	Date
40.95	Fabric filter bag replacement	February 5-6
6.57	Induced draft fan trip	February 11
3.72	Induced draft fan adjustments	February 12
24.23	Generating bank inlet wash	February 23-24
0.83	Induced draft fan trip	February 24

Unit 3

Duration in Hours	Reason	Date
24.28	Generating bank inlet wash	February 2-3
1.35	Ash discharger plug	February 4
23.40	Generating bank inlet wash	February 22-23

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	**17,664**		
Waste Processed	tonnes/day	**233**	**221**	**227**
Maximum Waste Processed	tonnes/day	**262**	**262**	**266**
		Units 1, 2, and 3		
Natural Gas Consumed	m^3/day	**3,014**		
	m^3/month	**84,388**		
Fly ash disposed	tonnes	**822**		
Bottom ash disposed	tonnes	**3,054**		

7. Complaints and Responses

Date/Time	Complaint	Action Taken

ATTACHMENT 2

February 2022 - Monthly CEMS Data

	Boiler #1								Boiler #2								Boiler #3							
	Stack	O_2	SO_2	NO_x	CO	THC	Opacity	Furnace	Stack	O_2	SO_2	NO_x	CO	THC	Opacity	Furnace	Stack	O_2	SO_2	NO_x	CO	THC	Opacity	Furnace
Date	Temp	(%)	(mg/m^3)	(mg/m^3)	(mg/m^3)	(mg/m^3)	(%)	Temp	Temp	(%)	(mg/m^3)	(mg/m^3)	(mg/m^3)	(mg/m^3)	(%)	Temp	Temp	(%)	(mg/m^3)	(mg/m^3)	(mg/m^3)	(mg/m^3)	(%)	Temp
2/1/22	151	9.8	60.3	124.8	27.6	0.01	0.37	946	145	10	84	129.4	21.7	0.06	1.11	937	150	9.7	54.3	128.2	30.4	0.25	0.48	918
2/2/22	152	10	68.6	121.9	41.9	0.02	0.46	954	144	10.1	108.7	130.3	20.6	0.03	1.81	930								
2/3/22	152	9.3	89.9	122	29.1	0.02	0.53	966	145						1.75	920	156	8.6	111.5	132	32.3	0.22	0.49	925
2/4/22	153						0.46	938	146	9.9	71	128.8	25.7	0.04	2.24	913	154	8.8	70.7	129.5	29	0.21	0.43	920
2/5/22	153	9.5	58.9	120.7	19.8	0.00	0.66	936									156	9.2	104.1	129.7	26.5	0.22	0.48	924
2/6/22	153	9.6	76.5	122	21.4	0.03	0.73	958									158	9.3	113.3	132	22.4	0.23	0.51	932
2/7/22	151	9.6	29	121.4	21.6	0.00	0.73	958	150	10	67	128	22.3	0.10	0.91	926	158	8.8	71.7	133.9	21.7	0.22	0.43	928
2/8/22	152	10.6	25.8	118.1	31.9	0.10	0.75	929	146	10.5	75.5	127.8	15.9	0.08	1.02	938	156	9.2	67.5	131.2	24.6	0.19	0.47	959
2/9/22									147	10	90.5	127	18	0.08	0.61	954	153	8.7	78.9	132.2	27.1	0.19	0.34	953
2/10/22									148	10.1	122.3	125.4	22	0.07	0.61	926	156	9.1	98.1	130.1	28.7	0.24	0.26	933
2/11/22	156	9.4	167.4	127.9	23.4	0.01	0.74	947									155	9.1	114	128.3	28.5	0.19	0.33	942
2/12/22	153	9.9	145.4	130.2	20.3	0.02	0.78	948	145	9.9	110.8	125.4	16.4	0.04	1.80	954	156	9.1	98.1	132.1	23.9	0.16	0.38	944
2/13/22	153	9.2	117.3	146.9	24.9	0.11	0.54	962	146	10.2	94.1	146.9	18.3	0.10	1.88	944	156	9.5	67.6	145.6	29.3	0.28	0.36	909
2/14/22	156	9.1	90.6	128.5	27	0.01	0.51	945	147	10.2	63.8	130.6	24.9	0.13	1.30	920	153	8.5	45.5	130.1	26.4	0.25	0.31	919
2/15/22	156	9	98.5	127.1	18.7	0.00	0.87	963	147	10.3	77.7	138.9	21	0.05	1.33	925	155	8.5	53.1	140.5	26	0.23	0.29	943
2/16/22	155	9.2	85.5	128.3	31	0.00	1.59	955	145	10.3	67.3	130.5	20.2	0.07	1.67	937	154	8.8	50.5	133.4	28.4	0.20	0.30	927
2/17/22	156	9.1	80.9	126.2	26.6	0.01	1.09	940	147	10.3	64.3	146.1	15	0.04	1.08	940	154	9	57.7	142.8	29.7	0.27	0.33	920
2/18/22	154	9.2	76.7	127	36.5	0.00	0.34	947	147	10.5	55.6	153.1	20.3	0.07	1.00	928	155	9.6	54.8	141	37.6	0.28	0.33	909
2/19/22	154	9.2	71.9	127.8	39.4	0.01	0.37	951	147	10.1	64.4	150.6	17.5	0.08	0.81	935	152	9.5	53	139.1	32.6	0.22	0.35	905
2/20/22	154	9	80	135.3	26.1	0.04	0.42	956	146	9.7	56.9	139.7	17.8	0.06	0.81	943	151	8.8	52.4	130.4	30.1	0.19	0.36	925
2/21/22	156	9.4	104.7	125.7	24.1	0.00	0.44	941	145	10	87.7	129.4	22.7	0.06	0.80	935	151	9.1	61.2	127.3	28.7	0.24	0.38	913
2/22/22	155	10	130	126.7	22.2	0.00	0.64	929	143	11	105.1	128.5	22.1	0.06	0.91	916								
2/23/22	154	10	125.6	125.4	20.2	0.00	0.79	939									143	9.9	116.3	125	30.7	0.46	0.52	910
2/24/22	154	9.5	120	124.6	27.7	0.01	0.70	952	144	10.4	137.5	131.4	18.5	0.04	0.04	935	144	9.4	102.4	126.8	34.8	0.64	0.55	932
2/25/22	155	9.7	61.7	125.2	29.8	0.17	0.63	963	143	10.2	86.7	133.1	23.4	0.11	0.40	926	155	8.9	86.8	133.4	33.1	0.20	0.52	929
2/26/22	156	9.6	83.9	127.9	18.7	0.08	0.62	963	150	10.1	103.6	129.7	22.4	0.08	0.66	931	154	8.6	100.3	131.8	31.6	0.09	0.53	924
2/27/22	158	9.4	87.2	126.7	21.1	0.00	0.59	944	148	10	114.6	127.3	31	0.10	0.39	934	155	8.3	97.6	131.7	31.4	0.11	0.48	937
2/28/22	157	9.2	63.3	124.6	21.7	0.00	0.60	934	144	10.1	82.4	127.5	33.5	0.09	0.58	924	155	8.7	82	129	36.1	0.16	0.43	926
Average	154	9.5	88.0	126.5	26.1	0.03	0.65	949	146.0	10.2	86.6	133.3	21.4	0.07	1.06	932.1	153.7	9.0	79.4	132.6	29.3	0.24	0.41	927.2
Min	151	9.0	25.8	118.1	18.7	0.00	0.34	929	143.0	9.7	55.6	125.4	15.0	0.03	0.04	913.0	143.0	8.3	45.5	125.0	21.7	0.09	0.26	905.0
Max	158	10.6	167.4	146.9	41.9	0.17	1.59	966	150.0	11.0	137.5	153.1	33.5	0.13	2.24	954.0	158.0	9.9	116.3	145.6	37.6	0.64	0.55	959.0
St Dev	1.9	0.39	33.14	5.50	6.30	0.04	0.26	10.9	1.88	0.27	22.37	8.31	4.45	0.03	0.56	10.55	3.58	0.41	23.63	5.14	3.92	0.11	0.09	13.49

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.