metrovancouver

Monthly Operating Reports

January 2021

The following January 2021 operating report was sent to the Ministry of Environment and Climate Change Strategy on March 8, 2021.

ATTACHMENT #1

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

January 2021

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	48.1	30.4	31.1
SO_2	200	24 hr	179.9	126.1	166.6
NOx	190	24 hr	144.0	133.4	155.7
THC	10	24 hr	0.98	0.11	1.04
			Monthly Average (mg/dscm)		
			Unit 1	Unit 2	Unit 3
Opacity (%)			1.21	0.76	0.25
CO			31.4	19.3	25.7
THC			0.56	0.06	0.24
SO_2			72.7	64.4	82.0
NOx			128.6	129.7	132.5

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
5-Jan 12:30	30 min	173.0	Feeder hang-up, started gas burners, adjusted airflow, modified feed rate.
5-Jan 13:30	30 min	105.0	Started gas burners, adjusted airflow, modified feed rate.
10-Jan 11:00	30 min	146.4	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
13-Jan 11:30	30 min	123.0	Started gas burners, adjusted airflow, modified feed rate.
21-Jan 00:30	30 min	165.7	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
21-Jan 04:00	30 min	108.5	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
21-Jan 09:00	30 min	112.1	Started gas burners, adjusted airflow, modified feed rate.
21-Jan 14:00	30 min	145.5	Induced draft fan trip, started gas burners, adjusted airflow, modified feed rate.
22-Jan 12:00	30 min	125.8	Adjusted airflow.

22-Jan 14:00	30 min	105.6	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
25-Jan 13:00	30 min	112.3	Started gas burners, adjusted airflow, modified feed rate.
25-Jan 13:30	30 min	102.1	Started gas burners, adjusted airflow, modified feed rate.
25-Jan 16:00	30 min	183.8	Started gas burners, adjusted airflow.
25-Jan 16:30	30 min	133.8	Started gas burners, adjusted airflow, modified feed rate.
29-Jan 12:30	30 min	213.6	Volatile fuel, started gas burners, adjusted airflow.
31-Jan 12:00	30 min	102.8	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-Jan 13:00	30 min	126.2	Started gas burners, adjusted airflow, modified feed rate.
8-Jan 06:30	30 min	170.8	Feeder hang-up, started gas burners, adjusted airflow.
12-Jan 13:30	30 min	230.4	Volatile fuel, adjusted airflow, modified feed rate, checked instrumentation.
20-Jan 18:30	30 min	118.8	Adjusted airflow, modified feed rate.
21-Jan 06:30	30 min	118.9	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
27-Jan 14:00	30 min	105.0	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
3-Jan 12:00	30 min	125.7	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
4-Jan 05:00	30 min	112.7	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
7-Jan 15:00	30 min	126.7	Started gas burners, adjusted airflow, modified feed rate.
13-Jan 15:00	30 min	135.9	Started gas burners, adjusted airflow, modified feed rate.
13-Jan 15:30	30 min	151.4	Started gas burners, adjusted airflow, modified feed rate.
13-Jan 19:30	30 min	112.4	Started gas burners, adjusted airflow, modified feed rate.
17-Jan 21:30	30 min	110.3	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
18-Jan 08:00	30 min	124.7	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
21-Jan 03:30	30 min	122.9	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
23-Jan 03:30	30 min	242.6	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
23-Jan 16:00	30 min	101.5	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
30-Jan 20:30	30 min	130.6	Adjusted airflow, modified feed rate.

2.c. Transient Conditions

Gas burners unavailable during shutdown

Unit	Duration	Date	Time	
#1	3 hrs 47 min	25-Jan-21	19:28-23:15	

Cause

Auxiliary burners on unit 1 were unavailable to maintain the secondary combustion zone temperature during boiler shutdown period.

Unit 1 was placed in shutdown mode at 2021-01-25 19:28 following a communications issue with the turbine generator which resulted in the induced draft fans tripping on all three units. 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 3 hrs and 47 minutes between 2021-01-25 19:28 and 2021-01-25 23:15.

Action Taken to Restore Steady State Conditions

Covanta fixed the communications issue and restarted the induced draft fan at 2021-01-25 22:52 and the forced draft fan at 2021-01-25 22:53. The natural gas burners were back online at 2021-01-25 23:15. The shutdown was completed at 2021-01-25 23:47.

Remedial Action Planned and/or Taken

Covanta's contractor, Spartan controls investigated the loss of the backup power supply to the Delta V communication system. The cause was determined to be the voltage setting, which was corrected.

Gas burners unavailable during shutdown

Unit	Duration	Date	Time	
#2	2 hrs 41 min	25-Jan-21	19:28-22:09	

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 2021-01-25 19:28 following a communications issue with the turbine generator which resulted in the induced draft fans tripping on all three units. 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 2 hrs and 41 minutes between 2021-01-25 19:28 and 2021-01-25 22:09.

Action Taken to Restore Steady State Conditions

Covanta fixed the communications issue and restarted the induced draft fan at 2021-01-25 21:46 and the forced draft fan at 2021-01-25 21:47. The natural gas burners were back online at 2021-01-25 23:09. The shutdown was completed at 2021-01-25 23:24.

Remedial Action Planned and/or Taken

Covanta's contractor, Spartan controls investigated the loss of the backup power supply to the Delta V communication system. The cause was determined to be the voltage setting, which was corrected.

Gas burners unavailable during shutdown

Unit	Duration	Date	Time	
#3	2 hrs 7 min	25-Jan-21	19:28-21:35	

Cause

Auxiliary burners on unit 3 were unavailable to maintain the secondary combustion zone temperature during boiler shutdown period.

Unit 3 was placed in shutdown mode at 2021-01-25 19:28 following a communications issue with the turbine generator which resulted in the induced draft fans tripping on all three units. 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 2 hrs and 7 minutes between 2021-01-25 19:28 and 2021-01-25 21:35.

Action Taken to Restore Steady State Conditions

Covanta fixed the communications issue and restarted the induced draft fan at 2021-01-25 20:47 and the forced draft fan at 2021-01-25 20:50. The natural gas burners were back online at 2021-01-25 21:35. The shutdown was completed at 2021-01-25 22:07.

Remedial Action Planned and/or Taken

Covanta's contractor, Spartan controls investigated the loss of the backup power supply to the Delta V communication system. The cause was determined to be the voltage setting, which was corrected.

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	98	98	98
CO	90	Hour	98	98	98
SO_2	90	Hour	98	98	98
NOx	90	Hour	98	98	98
THC	90	Hour	98	98	98
Stack Flow	90	Hour	98	98	98

4. Shutdown Report

Unit 1

Duration in Hours	Reason	Date
0.90	Fabric filter bag replacement	January 1
13.78	Fabric filter bag replacement	January 4
0.92	Feed chute plug	January 5
41.17	Boiler wash	January 19-20
4.32	Induced draft fan trip	January 25

Unit 2

Duration in Hours	Reason	Date
11.30	Ash discharger plug	January 15
5.00	Fabric filter bag replacement	January 17
6.70	T5 Transformer tap changer adjustment	January 19
0.70	Under fire air compartment inspection	January 21
3.93	Induced draft fan trip	January 25

Unit 3

Duration in Hours	Reason	Date
1.58	Ash discharger plug	January 2
2.05	Ash discharger plug	January 3
1.90	Poor refuse quality	January 4
40.77	Boiler wash	January 11-13
6.90	T5 Transformer tap changer adjustment	January 19
0.73	Poor refuse quality	January 21
1.15	Feed chute plug	January 23
0.68	Feed chute plug	January 24
2.65	Induced draft fan trip	January 25
0.23	Forced draft fan trip	January 29
0.73	Feed chute plug	January 30

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	**19,859**		
Waste Processed	tonnes/day	**234**	**233**	**221**
Maximum Waste Processed	tonnes/day	**282**	**262**	**261**
		Units 1, 2, and 3		
Natural Gas Consumed	m^3/day	**4,312**		
	m^3/month	**133,658**		
Fly ash disposed	tonnes	**834**		
Bottom ash disposed	tonnes	**3,217**		

7. Complaints and Responses

Date/Time	Complaint	Action Taken

ATTACHMENT #2

January 2021 - 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
1/1/21	158	9.7	34.2	128.1	34.8	0.98	1.23	947	157	9.2	50.9	129.1	21.2	0.03	0.36	905	153	9.2	36.9	129.3	24.6	0.10	0.23	910
1/2/21	157	10	37.9	126.8	30.5	0.96	1.10	927	158	9.6	51.1	128.4	17.9	0.06	0.67	897	154	9.8	45.7	129.3	28.8	0.40	0.19	899
1/3/21	156	9.6	51.9	127.5	32.3	0.68	1.12	947	156	9.2	71.1	128.4	19	0.04	0.72	921	158	10	52.4	128.2	27.4	0.08	0.24	881
1/4/21									158	10.3	48.1	129.2	18.9	0.06	0.88	883	156	10.2	36.1	127.1	24.5	0.19	0.23	863
1/5/21	158	10	28.6	130	32.7	0.59	1.17	929	157	10.3	40.3	132.1	17.1	0.11	0.61	901	156	10.1	29.7	129	25.4	0.13	0.22	877
1/6/21	158	10	26.1	127.4	25.6	0.65	1.14	936	156	9.4	31.7	129.1	20.6	0.05	0.52	915	154	9.9	23.6	128.3	25.3	0.06	0.18	884
1/7/21	157	9.8	33.3	129.5	27.8	0.51	1.16	942	156	8.9	39.3	127.8	20.4	0.04	0.69	927	154	9.7	30.8	129.3	23.9	0.02	0.19	892
1/8/21	156	9.9	28.9	127.7	34.4	0.55	1.21	940	156	9	40.1	129.1	18.8	0.11	0.81	925	154	9.8	32.6	129.7	24.2	0.04	0.21	893
1/9/21	158	10.1	29.6	127.8	36.6	0.50	1.23	931	156	8.9	45.5	126.6	15.6	0.07	0.88	931	154	9.9	36.5	129.4	27.7	0.04	0.24	887
1/10/21	160	9.8	54.5	128	34.9	0.64	1.21	945	158	9.1	79.9	130.1	16.6	0.04	0.71	924	153	9.9	52.8	127.3	25.9	0.09	0.22	894
1/11/21	158	9.9	60.1	126.4	32.3	0.72	1.21	933	158	8.8	71.9	129.1	21.8	0.05	0.48	923								
1/12/21	157	9.9	85.2	126.1	32.3	0.76	1.15	929	157	8.7	102.1	128.9	26.9	0.06	0.43	925								
1/13/21	156	9.7	56.7	121.5	25	0.39	1.15	930	156	9	64.8	128.4	19.5	0.07	0.83	915	151	9	110.7	129.4	30.9	0.11	0.22	878
1/14/21	157	9.7	51	124.5	22.7	0.55	1.19	937	158	8.6	59.3	130.1	18.6	0.06	1.53	923	154	9.3	114.8	129.9	26.6	0.19	0.24	860
1/15/21	157	9.9	55.4	122.6	28.3	0.64	1.19	922									158	9.4	126.3	132.1	27.6	0.10	0.28	898
1/16/21	158	9.9	40.2	126.2	30.6	0.50	1.18	936	158	8.4	54.6	127	17.5	0.08	1.59	945	158	9.3	112.8	132.2	26.1	0.12	0.24	921
1/17/21	157	9.7	32.3	124.8	27.5	0.50	1.21	936	158	8.6	41.5	129.4	13.2	0.07	1.88	949	157	9.5	98.2	131.5	26.2	0.16	0.25	908
1/18/21	156	10.3	18.5	123.7	29.2	0.50	1.21	935	157	9	37.1	127.9	15.4	0.09	1.27	937	153	9.7	75.4	132.5	23.6	0.12	0.25	904
1/19/21																								
1/20/21									158	9.1	123.8	128.4	20.1	0.07	0.90	940	153	9.6	165.2	131.3	25.5	0.10	0.25	922
1/21/21	151	10	127.6	139.6	36.3	0.63	1.18	892	156	9.1	86.5	130.2	15.1	0.07	0.87	933	151	9.3	112.5	134.2	23	0.09	0.25	925
1/22/21	155	10.6	168.1	144	36.6	0.44	1.26	881	156	9.2	84.2	132.5	15.5	0.06	1.52	942	153	9.7	103.7	155.7	24.1	0.09	0.29	926
1/23/21	151	10	130.1	130.9	31.7	0.33	1.42	916	155	8.7	78	130.9	18.8	0.05	1.08	949	154	9.3	102.6	140.5	22.8	0.05	0.30	927
1/24/21	154	10.7	179.9	132.7	26.9	0.37	1.86	890	156	8.7	126.1	130.1	13.8	0.04	0.37	952	157	9.3	166.6	130.4	24.8	0.21	0.33	919
1/25/21	151	9.3	140.4	125.4	48.1	0.50	1.97	953	152	8.8	81.8	129.9	22.1	0.07	0.19	952	153	9.1	107.7	133.7	20.4	0.18	0.29	936
1/26/21	153						0.96	930	153	9.1	95.9	131.3	19.8	0.10	0.40	937	151	9.4	104.3	134	22.5	0.19	0.25	919
1/27/21	155	10	106.8	129.8	25.6	0.42	1.00	928	153	9.2	70.5	133.1	24.3	0.09	0.55	956	153						0.27	924
1/28/21	156	10.1	99.7	131.1	24.6	0.41	1.00	924	153	9.1	52.3	130.6	18.6	0.08	0.45	948	153	9.8	81.2	133.2	31.1	1.04	0.27	928
1/29/21	154	9.7	81.7	129.7	36.1	0.44	1.03	947	153	8.9	52.9	130.7	18.7	0.04	0.31	962	151	9.9	68.7	134.1	26.5	0.84	0.24	932
1/30/21	156	10.3	86.1	131.4	34.8	0.54	1.03	927	153	9	33.9	130.5	30.4	0.06	0.26	955	150	9.6	75.1	139.2	28.2	0.91	0.28	941
1/31/21	154	9.8	117.3	129.9	30.9	0.43	0.99	946	154	10	51.3	133.4	24	0.03	0.19	923	153	9.9	110.4	136.1	27.4	0.96	0.23	933
Average	156	9.9	72.7	128.6	31.4	0.56	1.21	930	155.9	9.1	64.4	129.7	19.3	0.06	0.76	930.9	153.9	9.6	82.0	132.5	25.7	0.24	0.25	906.5
Min	151	9.3	18.5	121.5	22.7	0.33	0.96	881	152.0	8.4	31.7	126.6	13.2	0.03	0.19	883.0	150.0	9.0	23.6	127.1	20.4	0.02	0.18	860.0
Max	160	10.7	179.9	144.0	48.1	0.98	1.97	953	158.0	10.3	126.1	133.4	30.4	0.11	1.88	962.0	158.0	10.2	166.6	155.7	31.1	1.04	0.33	941.0
St Dev	2.3	0.29	46.20	4.72	5.27	0.16	0.22	17.3	1.91	0.46	25.44	1.68	3.77	0.02	0.44	19.30	2.23	0.32	40.99	5.70	2.46	0.30	0.03	22.82

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.