

Monthly Operating Reports

November 2020

The following November 2020 operating report was sent to the Ministry of Environment and Climate Change Strategy on January 12, 2021.



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

November 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	43.3	32.4	35.6
SO ₂	200	24 hr	166.9	169.0	125.6
NOx	190	24 hr	129.5	140.6	140.9
THC	10	24 hr	0.80	0.13	0.29
			Monthly Average (mg/dscm)		
			Unit 1	Unit 2	Unit 3
Opacity (%)			1.15	0.61	0.56
CO			31.3	20.8	28.0
THC			0.38	0.08	0.15
SO ₂			71.1	94.0	68.5
NOx			125.7	133.1	131.5

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. SO₂ – 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
3-Nov 11:30	30 min	121.4	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
6-Nov 09:30	30 min	136.4	Adjusted airflow, modified feed rate, checked instrumentation.
10-Nov 11:00	30 min	105.2	Adjusted airflow, modified feed rate.
11-Nov 19:00	30 min	123.4	Started gas burners, adjusted airflow, modified feed rate.
12-Nov 01:30	30 min	107.6	Started gas burners, adjusted airflow, modified feed rate.
13-Nov 21:00	30 min	116.5	Started gas burners, adjusted airflow, modified feed rate.
20-Nov 11:30	30 min	124.9	Started gas burners, adjusted airflow, modified feed rate.
27-Nov 12:30	30 min	116.1	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 11:00	30 min	102.1	Adjusted airflow, modified feed rate, checked instrumentation.
8-Nov 15:00	30 min	201.2	Adjusted airflow, modified feed rate.
10-Nov 17:00	30 min	249.8	Started gas burners, adjusted airflow, modified feed rate.
12-Nov 08:30	30 min	128.9	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
27-Nov 07:00	30 min	141.5	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 10:30	30 min	154.4	Started gas burners, adjusted airflow, modified feed rate.
17-Nov 17:00	30 min	224.1	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	3 hr 29 min	2-Nov-20	00:31-04:00	
Cause				
<p>Auxiliary burners on unit 2 were unavailable, due to an issue with the induced draft fan, 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 2020-11-02 00:31 following an induced draft fan and forced draft fan trip due to high motor temperature. The operator was unable to close the feed chute damper as the refuse was above the damper in the feed chute. The auxiliary burners were unavailable for a period of 3 hours and 29 minutes between 2020-11-02 00:31 and 2020-11-02 04:00.</p>				
Action Taken to Restore Steady State Conditions				
Covanta was unable to restart the induced draft fan during the shutdown due to an issue with the variable frequency drive. The shutdown was completed at 2020-11-02 04:00.				
Remedial Action Planned and/or Taken				
Metro Vancouver's facility operator Covanta rectified the issue with the induced draft fan variable frequency drive and the boiler was restarted. The boiler was back online at 2020-11-02 11:20.				

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

Unit	Duration	Date	Time	
2	46 min	4-Nov-20	21:11-21:57	
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 2020-11-04 21:11 following an induced draft fan and forced draft fan trip. 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 22 minutes between 2020-11-04 21:11 and 2020-11-04 21:33.</p>				
Action Taken to Restore Steady State Conditions				
Covanta restarted the induced draft fan at 2020-11-04 21:18 and the forced draft fan at 2020-11-04 21:18. The natural gas burners were back online at 2020-11-04 21:33. The shutdown was completed at 2020-11-04 21:57.				
Remedial Action Planned and/or Taken				
Metro Vancouver's facility operator Covanta is checking all relays and wiring associated with the induced draft to identify what is causing the induced draft fan to trip.				

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

Unit	Duration	Date	Time	
2	1 hr 4 min	20-Nov-20	13:20-14:24	
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 2020-11-20 13:20 following an induced draft fan and forced draft fan trip. 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 50 minutes between 2020-11-20 13:20 and 2020-11-20 14:10.</p>				
Action Taken to Restore Steady State Conditions				
Covanta restarted the induced draft fan at 2020-11-20 13:21 and the forced draft fan at 2020-11-20 13:28. The natural gas burners were back online at 2020-11-20 13:38. The induced draft fan and forced draft fans tripped again at 2020-11-20 13:46 which tripped the natural gas burners. Covanta restarted the induced draft fan at 2020-11-20 13:56 and the forced draft fan at 2020-11-20 13:56. The natural gas burners were back online at 2020-11-20 14:10. The shutdown was completed at 2020-11-20 14:24.				
Remedial Action Planned and/or Taken				
Metro Vancouver's facility operator Covanta is checking all relays and wiring associated with the induced draft to identify what is causing the induced draft fan to trip.				

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	95	99	99
CO	90	Hour	95	99	99
SO ₂	90	Hour	95	99	99
NOx	90	Hour	95	99	99
THC	90	Hour	95	99	99
Stack Flow	90	Hour	95	92	93

4. Shutdown Report

Unit 1

Duration in Hours	Reason	Date
5.10	Ash discharger plug	November 1
12.85	CEMS stack sample line issue	November 3-4

Unit 2

Duration in Hours	Reason	Date
14.70	Induced draft fan trips	November 2
0.77	Induced draft fan trip	November 4
0.27	Induced draft fan trip	November 13
0.87	Fabric filter bag inspection	November 17
1.07	Induced draft fan trip	November 20
0.47	Induced draft fan trip	November 28

Unit 3

Duration in Hours	Reason	Date
15.10	Fabric filter bag replacement	November 10
17.00	Grate drive cylinder failure	November 11
0.33	Induced draft fan trip	November 20
1.38	Feed chute plug	November 24-25

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	21,076		
Waste Processed	tonnes/day	251	238	240
Maximum Waste Processed	tonnes/day	264	266	276
		Units 1, 2, and 3		
Natural Gas Consumed	m ³ /day	3,804		
	m ³ /month	114,131		
Fly ash disposed	tonnes	892		
Bottom ash disposed	tonnes	3,461		

7. Complaints and Responses

Date/Time	Complaint	Action Taken

November 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
11/1/20	156	9.5	84.4	125	20	0.02	1.36	943	153	9.1	153.9	137.6	19.8	0.07	0.15	902	154	9.5	67.8	132.9	22.2	0.05	0.51	906
11/2/20	161	10	143.9	127	28.3	0.05	1.94	909									152	9.3	114.7	131.4	26.4	0.05	0.54	908
11/3/20	161						1.82	942	150	9	161.6	140.6	17.2	0.09	0.00	913	151	9	69	132.2	30.6	0.10	0.59	901
11/4/20									151	8.8	96	135.9	23.9	0.06	0.00	917	153	9.3	55.4	132.3	32.4	0.12	0.49	895
11/5/20	160	9.5	92.3	124.9	31.5	0.23	0.47	937	154	9.1	105.8	138.2	18.1	0.08	0.00	912	153	9.2	62.2	132.6	35.3	0.27	0.48	899
11/6/20	159	10	91.8	128.8	24.2	0.05	0.77	937	155	9.2	123.9	138.7	25	0.05	0.00	924	156	9.2	73.8	132.8	30.6	0.12	0.51	907
11/7/20	161	10	88.9	128.8	21.8	0.10	0.90	937	154	9	121.9	138.3	19.5	0.10	0.02	927	155	9.2	53.1	132	26.4	0.10	0.50	897
11/8/20	156	10.6	166.9	117.3	22.4	0.14	1.34	905	152	9.9	169	134.6	19.4	0.09	0.09	898	155	9.4	125.6	132.2	27.8	0.15	0.52	890
11/9/20	157	10.5	92	121.8	22.3	0.06	1.56	926	154	9.2	96.8	134.3	20.6	0.06	0.22	925	153	9.6	75.7	130.4	26	0.13	0.55	911
11/10/20	158	10.1	83.1	126.2	27.7	0.09	1.49	935	156	9.1	107.1	134.4	32.4	0.09	0.13	921								
11/11/20	158	9.8	51.1	124.8	34.3	0.69	1.62	938	154	9.4	72.4	132.9	22.7	0.13	0.12	915								
11/12/20	158	9.6	57.5	123.4	29.5	0.70	1.74	929	154	9.8	78.5	136.1	24.2	0.09	0.00	909	152	9.8	77.1	132.4	27.6	0.29	0.41	906
11/13/20	159	9.8	64.2	127.4	30.3	0.44	2.13	923	155	9.4	103.5	137	23.2	0.10	0.00	904	154	9.6	84.5	133.7	29.6	0.17	0.41	892
11/14/20	158	10.1	75.7	129.5	34.4	0.36	1.96	934	156	9.1	112.3	133.6	23.4	0.09	0.00	923	155	9.6	95.7	132.3	26.9	0.25	0.32	901
11/15/20	159	10.3	95.3	127.8	23.9	0.18	1.74	919	153	9.6	123	130.6	17.7	0.07	0.44	917	154	9.8	96.4	132.2	23	0.19	0.35	901
11/16/20	157	9.8	51.3	124.1	29.3	0.21	0.93	940	154	9.3	75.9	131.7	17.7	0.08	1.17	936	154	9.6	65.6	133	22.7	0.16	0.43	910
11/17/20	158						0.80	936	152	9.2	89	131	23.6	0.08	0.57	933	154	9.3	67.8	132.4	35.6	0.17	0.41	895
11/18/20	160	9.9	49.9	126.1	36.7	0.19	0.79	921	151	9.5	65	131	21.5	0.10	1.01	924	156	9.8	54.7	133.8	28.8	0.17	0.42	897
11/19/20	160	9.9	47.3	124.4	31.2	0.15	0.84	929	153	9.7	64.1	127.3	18.9	0.05	1.38	922	156	9.9	53.5	131.6	30.6	0.17	0.41	904
11/20/20	160	10.1	58	124.2	35.5	0.19	0.81	922	154	9.8	71.3	129.2	21.6	0.07	1.09	921	154	9.9	53.5	128.9	32.8	0.13	0.48	896
11/21/20	159	9.8	53.3	124.3	35.8	0.40	0.82	940	152	9.7	81.5	130.4	19.1	0.08	1.12	928	155	9.8	65.7	128.4	29.5	0.12	0.46	905
11/22/20	159	9.6	56.9	126.5	36	0.51	0.85	948	152	9.6	81.6	130.3	14.4	0.06	1.23	937	153	9.3	59.7	129.7	23.2	0.17	0.47	920
11/23/20	159	9.8	54.1	127.6	43.3	0.60	0.88	927	154	9.3	73.7	128.8	19.4	0.06	1.19	931	153	9.1	48	129.5	26.3	0.15	0.48	931
11/24/20	158	9.8	51.4	125.4	35.3	0.69	0.83	934	156	9.1	86.8	129.6	16.4	0.01	1.19	927	155	9.3	73.5	128.3	27.1	0.14	0.41	921
11/25/20	159	9.9	47	125	32.6	0.61	0.86	930	156	8.8	56.8	131	18	0.04	1.21	935	150	9.5	45.1	128.9	28	0.18	0.44	908
11/26/20	159	10.1	46.9	127.1	36.2	0.71	0.84	926	156	8.8	64.2	129.4	21	0.06	1.12	934	149	9.7	48.7	128.7	28.3	0.08	0.42	915
11/27/20	159	10	48.8	126.3	40	0.80	0.82	931	157	8.7	69.5	131.5	22.7	0.12	0.78	932	150	9.4	47.1	129.3	28.1	0.12	0.43	927
11/28/20	158	9.9	60.8	125.9	30.2	0.71	0.78	943	156	9	75	131	18.1	0.08	1.33	926	152	9.3	61.4	130.6	26.2	0.12	0.70	930
11/29/20	159	9.9	54	127.8	36.8	0.77	0.82	944	157	9.3	69.7	136.1	20.1	0.10	1.52	920	154	9.5	66.8	140.9	24.8	0.11	1.88	916
11/30/20	159	10.1	52	127.1	34.7	0.67	0.83	927	155	9.3	76.3	127.8	23.6	0.07	0.70	904	154	9.5	55.6	128.9	28.2	0.12	1.54	905
Average	159	9.9	71.1	125.7	31.3	0.38	1.15	931	154.0	9.3	94.0	133.1	20.8	0.08	0.61	921.3	153.4	9.5	68.5	131.5	28.0	0.15	0.56	906.9
Min	156	9.5	46.9	117.3	20.0	0.02	0.47	905	150.0	8.7	56.8	127.3	14.4	0.01	0.00	898.0	149.0	9.0	45.1	128.3	22.2	0.05	0.32	890.0
Max	161	10.6	166.9	129.5	43.3	0.80	2.13	948	157.0	9.9	169.0	140.6	32.4	0.13	1.52	937.0	156.0	9.9	125.6	140.9	35.6	0.29	1.88	931.0
St Dev	1.3	0.26	29.66	2.47	5.97	0.27	0.47	10.1	1.87	0.33	30.04	3.65	3.48	0.02	0.56	10.72	1.83	0.25	19.79	2.53	3.43	0.06	0.34	11.15

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.