metrovancouver

Monthly Operating Reports

July 2019

The following July 2019 operating report was sent to the Ministry of Environment and Climate Change Strategy on September 5, 2019.

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

July 2019

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	45.6	35.9	43.0
SO_2	200	24 hr	91.1	85.0	70.0
NOx	190	24 hr	131.9	131.8	136.4
THC	10	24 hr	0.77	0.14	0.86
			Monthly Average (mg/dscm)		
			Unit 1	Unit 2	Unit 3
Opacity			0.46	0.96	0.72
CO			27.1	24.7	32.3
THC			0.40	0.07	0.50
SO_2			56.9	57.4	49.1
NOx			127.5	128.5	132.7

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

a. THC – December 31, 2018
b. HCl – December 31, 2022
c. SO_2 – 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
4-Jul 15:30	30 min	144.9	Started gas burners, adjusted airflow, modified feed rate.
8-Jul 10:00	30 min	112.5	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
8-Jul 12:00	30 min	149.6	Started gas burners, adjusted airflow, modified feed rate.
11-Jul 09:00	30 min	172.0	Volatile fuel, started gas burners, adjusted airflow, modified feed rate.
11-Jul 18:00	30 min	101.9	Started gas burners, adjusted airflow, modified feed rate.
14-Jul 01:30	30 min	187.7	Started gas burners, adjusted airflow, modified feed rate.
14-Jul 04:30	30 min	114.5	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
16-Jul 08:30	30 min	244.4	Started gas burners, adjusted airflow, modified feed rate.
16-Jul 09:00	30 min	223.4	Started gas burners, adjusted airflow, modified feed rate.

16-Jul 11:00	30 min	119.2	Spike due to failed thermocouple. Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
16-Jul 12:00	30 min	131.4	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
17-Jul 14:00	30 min	175.5	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
17-Jul 14:30	30 min	324.8	Started gas burners, adjusted airflow, modified feed rate, checked instrumentation.
18-Jul 12:00	30 min	128.5	Started gas burners, adjusted airflow.
22-Jul 13:00	30 min	103.2	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
23-Jul 06:00	30 min	104.6	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.

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

Date / Time	Duration	Exceedance (mg/dscm)	Action Taken
4-Jul 09:00	30 min	161.0	Adjusted airflow, modified feed rate.
4-Jul 12:30	30 min	368.6	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
11-Jul 19:00	30 min	116.0	Started gas burners, adjusted airflow, modified feed rate.
13-Jul 22:00	30 min	123.7	Started gas burners, adjusted airflow, modified feed rate.
21-Jul 16:30	30 min	102.9	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.

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-Jul 08:00	30 min	110.8	Started gas burners, adjusted airflow, modified feed rate.
9-Jul 02:00	30 min	108.6	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
13-Jul 12:00	30 min	230.8	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
15-Jul 04:30	30 min	102.9	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
15-Jul 05:00	30 min	153.3	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
15-Jul 17:00	30 min	111.9	Started gas burners, adjusted airflow, modified feed rate.
19-Jul 19:30	30 min	236.0	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
21-Jul 09:30	30 min	124.7	Feeder hang up, started gas burners, adjusted airflow, modified feed rate, cleared hang up.
26-Jul 09:30	30 min	115.8	Boiler online wash, 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	
#1	24 minutes	3-Jul-19	12:31 - 12:55	

Cause

Auxiliary burners on unit 1 were unavailable 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.

The unit 1 induced draft fan tripped on a motor bearing high temperature alarm at 2019-07-03 12:31. The boiler safety logic shut down the forced draft fan following the loss of the induced draft fan, to prevent pressure build up in the boiler. The unit was shut down at 2019-07-03 12:32 to rectify the issue. The Provincial Boiler Pressure Vessel Safety Act and the Provincial Gas Act requires the auxiliary burners to trip following the loss of the forced draft fan or induced draft fan. Per the Act, a boiler purge is required once the fans are running before restarting the burners. The auxiliary burners were unavailable for a period of 24 minutes between 2019-07-03 12:31 and 2019-07-03 12:55.

The operator is unable to operate the boiler feeder without the induced draft fan operating, which prevented the feed chute from closing for the duration of the shutdown.

Action Taken to Restore Steady State Conditions

Covanta restarted the induced draft fan and forced draft fan at 2019-07-03 12:33. Once the fans were operational, the boiler was purged as required by the Safety Act. The natural gas burners were back online at 2019-07-03 12:55. The shutdown was completed at 2019-07-03 13:33.

Remedial Action Planned and/or Taken

Metro Vancouver's facility operator (Covanta) adjusted the motor bearing cooling fans and have scheduled a cleaning of the cooling loop.

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3. CEMS Availability

Analyzer	Required Availability (% hours per quarter)	Averaging Period	Monthly Availability		
			Unit 1	Unit 2	Unit 3
Opacity	90	Hour	99	99	100
Oxygen	90	Hour	99	100	99
CO	90	Hour	99	100	99
SO_2	90	Hour	99	100	99
NOx	90	Hour	99	100	99
THC	90	Hour	99	96	99
Stack Flow	90	Hour	99	100	99

4. Shutdown Report

Unit 1

Duration in Hours	Reason	Date
0.97	Induced draft fan trip	July 3
11.23	Economizer elbow wash	July 4
2.35	Ash discharger plug	July 11
0.67	BC Hydro power outage	July 18
0.13	Induced draft fan trip	July 30

Unit 2

Duration in Hours	Reason	Date
0.33	Feed chute plugged	July 3
0.82	Fabric filter replacement	July 9
33.45	Fabric filter compartment plugged	July 12-13
0.67	BC Hydro power outage	July 18
0.43	Induced draft fan trip	July 22

Unit 3

Duration in Hours	Reason	Date
0.32	Feed chute plugged	July 9
0.67	BC Hydro power outage	July 18
1.58	Feed chute plugged	July 20
0.13	Forced draft fan trip	July 24
0.23	Induced draft fan trip	July 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		**21,300**	
Waste Processed	tonnes/day	**238**	**220**	**245**
Maximum Waste Processed	tonnes/day	**251**	**245**	**253**
		Units 1, 2, and 3		
Natural Gas Consumed	m^3/day	**1,268**		
	m^3/month	**39,323**		
Fly ash disposed	tonnes	**898**		
Bottom ash disposed	tonnes	**3,746**		

7. Complaints and Responses

Date/Time	Complaint	Action Taken
7/4/2019	Complaint received July 4th regarding odours that began approximately 10 days ago (June 24th). Complainant felt the odours were due to Philippines waste being processed at the WTEF, however the first container wasn't received at the facility until June 30th.	Processed waste as quickly as possible. No odours detected at property line.

July 2019 - 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
7/1/19	153	9.9	47.7	119.2	23.5	0.29	0.38	931	156	8.6	59	128.8	29.2	0.06	0.42	915	149	8.5	60.3	131	25.3	0.41	0.76	948
7/2/19	153	10.3	44.1	121.9	28.1	0.31	0.38	939	156	8.9	53	126.3	24.6	0.04	0.99	925	147	8.8	47.2	130.2	28.5	0.34	0.86	962
7/3/19	152	10.2	37.1	120.1	27.2	0.40	0.40	929	155	9	43.5	127.6	33.2	0.09	0.90	910	149	9.1	42.8	132.3	33.5	0.43	0.86	930
7/4/19									153	8.8	59.8	125.5	29.6	0.04	0.81	922	147	9.3	52.8	132.2	29	0.46	0.80	938
7/5/19	159	9.9	91.1	127	19.7	0.74	0.35	938	156	8.7	72.1	127.8	31.8	0.09	1.08	922	146	9.1	57.7	131.3	32.1	0.41	0.81	943
7/6/19	157	9.7	83.2	129.9	22	0.54	0.39	940	156	8.7	74.8	130.1	25.6	0.07	1.04	926	147	8.9	61.6	132.9	25.5	0.35	0.81	960
7/7/19	157	10.1	85.1	128.6	20.9	0.44	0.39	935	156	8.7	74.7	129.1	20.3	0.07	1.11	944	148	9	70	136.4	23	0.29	0.85	968
7/8/19	156	10.2	68.6	128	31.7	0.45	0.40	923	154	9	53.1	129.1	27.1	0.09	0.80	927	149	9	51.8	132.8	26.1	0.46	0.79	952
7/9/19	156	10	59.5	128.7	27.7	0.39	0.40	937	154	9.2	55	129.3	27.4	0.14	0.87	938	148	9.2	46	133.8	26.1	0.43	0.73	945
7/10/19	155	9.7	65.5	127.4	28.5	0.34	0.36	943	155	9.4	61.2	127.7	30.3		1.10	969	148	9.2	41	131.7	38.4	0.44	0.77	937
7/11/19	154	10.1	50.4	127.5	44.2	0.41	0.41	937	153	9.8	44.2	127.1	35.9		1.12	918	148	9.4	39.9	131.4	43	0.42	0.73	945
7/12/19	156	10.2	55.3	129.3	27.2	0.37	0.42	932									146	9.6	38.9	130.1	29.4	0.47	0.69	936
7/13/19	156	10.1	48.2	129	25.3	0.31	0.39	941									146	9.4	32.7	133.1	34.7	0.48	0.66	933
7/14/19	157	10.3	46.6	129.2	26.5	0.34	0.40	941	154	9.1	46.8	130.9	22.4	0.07	0.74	939	147	9.5	39.2	133.2	31.3	0.42	0.68	928
7/15/19	155	9.9	44.1	127.7	26	0.34	0.40	925	157	9	42.2	128.9	23.8	0.02	0.85	932	148	9.4	35.3	135.1	40.5	0.53	0.67	935
7/16/19	156	10	54.2	126.3	45.6	0.34	0.39	957	158	9.5	50.9	129.9	24.9	0.04	0.90	929	148	9.6	41.8	130.6	34.7	0.42	0.69	941
7/17/19	156	9.9	43.1	129.8	44.3	0.30	0.54	926	157	9.3	51.1	131.8	31.1	0.05	1.31	935	147	9.2	36.3	135.2	36.6	0.29	0.77	951
7/18/19	156	10.3	63.8	131.9	24.1	0.37	0.53	922	156	9.2	56.8	128.9	23.8	0.08	1.07	927	148	9.4	47.8	136.1	37.2	0.41	0.76	937
7/19/19	153	10	66.5	128.9	23	0.25	0.49	950	154	9.4	62.8	128.9	22.5	0.13	1.01	926	148	9.7	54.4	131.1	41.4	0.42	0.72	928
7/20/19	156	10.3	65.3	129.8	23.3	0.35	0.49	952	155	9.4	67.1	130.9	21.3	0.04	1.00	935	148	9.3	59.9	133.2	39	0.44	0.70	939
7/21/19	155	10.4	47.4	128.3	31.5	0.41	0.54	958	156	9.5	55.6	128.5	21.8	0.07	0.81	924	149	9.4	52.4	133.5	35.8	0.51	0.62	921
7/22/19	153	10.6	34.4	129.2	32.1	0.37	0.49	945	154	9.2	41.4	126.7	22.7	0.07	0.91	929	149	9.4	40.3	131.7	34.6	0.44	0.63	920
7/23/19	153	10.4	44.3	127.2	29.4	0.40	0.48	945	155	9.1	52.7	128.8	22.4	0.05	0.48	943	149	9.2	50.8	133.2	26.4	0.40	0.69	934
7/24/19	154	9.8	74.6	127	30.3	0.77	0.53	962	158	9.6	61.5	130.3	19.7	0.09	0.76	930	148	9.1	54.3	133.2	30.1	0.42	0.70	940
7/25/19	154	9.9	45.7	126.2	23.5	0.63	0.56	947	153	9.4	45.1	127.3	18.5	0.09	0.36	929	148	9.4	41.8	132.2	32.3	0.66	0.67	937
7/26/19	154	9.9	57.2	127	23.5	0.43	0.53	947	153	8.9	54.8	128.5	23.7	0.07	0.55	932	148	9.6	54.4	133.3	35.6	0.99	0.61	923
7/27/19	153	10.2	66.7	128.1	16.7	0.35	0.50	965	156	9.5	70.9	127.7	23.6	0.08	1.33	932	149	9.5	62.5	133.2	28.3	0.76	0.66	948
7/28/19	154	10	61.4	128.3	21.2	0.36	0.51	950	157	9.6	72.3	125.7	20.9	0.06	1.43	931	149	9.3	61.1	131.7	28.9	0.81	0.66	945
7/29/19	151	9.9	36.5	127.4	23.7	0.28	0.53	949	155	9.2	45.6	128.5	17.9	0.06	1.27	934	150	9.2	38.3	131.5	29.8	0.80	0.66	942
7/30/19	152	9.8	49.3	127.7	19.7	0.33	0.54	964	156	8.7	52	128.7	17.2	0.04	1.56	965	150	9.4	50.3	133.8	31.4	0.76	0.70	947
7/31/19	152	9.9	68.6	127.7	21.8	0.28	0.53	959	158	8.7	85	128.2	22.3	0.03	1.38	970	150	9.6	59.2	133.1	33.1	0.67	0.63	930
Average	154.6	10.1	56.9	127.5	27.1	0.40	0.46	943.0	155.4	9.1	57.4	128.5	24.7	0.07	0.96	933.0	148.1	9.3	49.1	132.7	32.3	0.50	0.72	940.1
Min	151.0	9.7	34.4	119.2	16.7	0.25	0.35	922.0	153.0	8.6	41.4	125.5	17.2	0.02	0.36	910.0	146.0	8.5	32.7	130.1	23.0	0.29	0.61	920.0
Max	159.0	10.6	91.1	131.9	45.6	0.77	0.56	965.0	158.0	9.8	85.0	131.8	35.9	0.14	1.56	970.0	150.0	9.7	70.0	136.4	43.0	0.99	0.86	968.0
St Dev	1.89	0.22	14.66	2.71	7.08	0.12	0.07	12.21	1.52	0.33	11.33	1.50	4.73	0.03	0.30	14.24	1.11	0.26	9.63	1.57	5.16	0.17	0.07	11.39

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